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**Editorial****Early Childhood and Adult Obesity Both are Dangerous for Health – Proven by Different Studies****Dr. Azhar Masud Bhatti**A. Director Health Services, EPI Punjab, Lahore  
&  
Editor in Chief**Childhood**

The path toward obesity starts at a young age - even before babies transition to a solid diet, according to a new study.

Almost one-third of 9-month-olds are obese or overweight, as are 34 percent of 2-year-olds, according to the research, which looked at a nationally representative sample of children born in 2001. The study is one of the first to measure weight in the same group of very young children over time, said lead researcher-Brian Moss, a sociologist at Wayne State University in Detroit. The results showed that starting out heavy puts kids on a trajectory to stay that way.

"If you were overweight at nine months old, it really kind of sets the stage for you to remain overweight at two years," Moss told Live Science. According to the Centers for Disease Control and Prevention (CDC), childhood obesity has tripled over the last three decades. In 2008, 19.6 percent of kids between the ages of 6 and 11 were obese.

But less is known about obesity rates in very young children. In fact, researchers hesitate to label children that young as "obese."

Recent studies have raised the alarm about particularly large babies, however. In 2009, paper published in the journal of Pediatrics found that babies who gain weight rapidly in the first six months of life are at increased risk of being obese by age 3. Another study, published in April 2010 in the Journal of Pediatrics, found that heavy 6-month-olds are more likely to be obese as 2-year-olds.

"Studies have shown that exclusive breastfeeding - breastfeeding alone, not breastfeeding combined with bottle-feeding -prevents obesity," said Dr. David McCormick, senior author of the April study at the University of Texas Medical Branch at Galveston. "Getting enough fiber - eating apples instead of drinking apple juice, for example - also helps keep babies on track to a healthy weight. By contrast, improper early introduction of cereal by adding it to an infant's bottle promotes obesity."

Moss and his co-author, William Yeaton of the University of Michigan, used data from a survey called the Early Childhood Longitudinal Study-Birth Cohort, which contains data on 8,900 babies at nine months and 7,500 of those same babies at 2 years. (Some families

moved out of the country or didn't respond to the second round of surveys.) The researchers classified the babies' weights based on CDC growth charts, which compare a baby's growth to a standardized growth curve. Kids in the 95th percentile of weight were categorized as "obese," while kids in the 85th to 95th percentile were counted as "at-risk," similar to the adult category of "overweight," Moss said.

Even in the first year of life, many babies fall into these two categories, Moss and his colleagues report in the January/February issue of the American Journal of Health Promotion. In the 9-month age group, 15.2 percent of babies were at-risk and 16.7 percent were obese. Among 2-year-olds, just under 14 percent were at-risk and almost 21 percent were obese.

"So you're seeing, combined, more kids being at-risk and obese [in the 2-year-old age group]," Moss said. "Of that combined total, more kids are obese than at-risk at two years."

The find hints at an unfortunate pattern: Kids who start out heavier end up heavier. Of kids who were normal weight at 9 months old, 75 percent were still normal weight at 2 years. But kids who were at-risk at nine months had only a 50 percent chance of being normal weight at age 2. More than 28 percent of at-risk kids ended up obese by their second birthday.

Obese 9-month-olds showed an even starker pattern. Only 37.6 percent were normal weight at age 2. Just over 18 percent did improve to the at-risk category, but 43.9 percent remained obese.

Obesity prevention efforts should begin as early as the age of two, when children reach a tipping point that could predispose them to obesity later in life, a new study has found.

Childhood obesity has grown into an epidemic over the past decade, reflected in soaring rates of type 2 diabetes and recommendations that paediatricians check toddlers for elevated cholesterol.

"This study suggests that doctors may want to start reviewing the diet of children during early well-child visits", said John W. Harrington, a paediatrician at Virginia's Children's Hospital of The King's Daughters (CHKD).

"By the time they reach eight, they're already far into the overweight category, making treatment more difficult."

The study examined records of 111 overweight children from a suburban paediatric practice. All the children had their height and weight measured at least five times during paediatric visits. The average age was 12.

Children whose body mass index (BMI) exceeded 85 percent of the general population were classified as overweight. Researchers charted the recorded body mass index of the children from infancy.

They found that the obese children had started gaining weight in infancy at an average rate of .08 excess BMI units per month. On average, they began this progression at three months of age.

Over half the children could be classified as overweight at two years old, 90 percent before reaching their fifth birthday.

Vu Nguyen, a second year student at Eastern Virginia Medical School, CHKD's academic partner, said the results surprised him.

"I didn't think that obesity would start that early," said Nguyen, who presented the results at a paediatric research scholars programme.

Nguyen conducted the study with Harrington and Lawrence Pasquinelli, a paediatrician with Tidewater Children's Associates in Virginia Beach.

### **Adulthood**

Obesity is a growing global problem, with 1.8 billion people estimated to be overweight or obese in 2007. Drugs marketed so far to fight obesity have only limited success and, often, severe side-effects. Obesity causes chronic inflammation throughout the body. This inflammation is found in a range of diseases related to obesity, including heart disease and diabetes.

Overeating makes the brain go haywire, prompting a cascade of damage that may cause diabetes, heart disease and other ills, U.S. researchers recently reported.

Eating too much appears to activate a usually dormant immune system pathway in the brain, sending out immune cells to attach and destroy invaders that are not there, research found.

The finding, reported in the journal *Cell*, could help explain why obesity causes so many different diseases. It might also offer a way to prevent, obesity itself.

### **Link with Breast Cancer**

Breast cancer patients who are overweight have more aggressive disease and are likely to die sooner, U.S. researchers reported.

A dangerous type of breast cancer, known as inflammatory breast cancer, was seen in 45 percent of obese patients, compare with 30 percent of overweight patients and 15 percent of patients of healthy weight. "The more obese a patient is, the more aggressive the disease," said Dr. Massimo Cristofanilli of the

University of Texas M.D. Anderson Cancer Center, who led the study.

"We are learning that the fat tissue may increase inflammation that leads to more aggressive disease."

Writing in the journal *Clinical Cancer Research*, Cristofanilli and colleagues said they studied 606 women with breast cancer that had spread within the breast.

They classified them according to body mass index or BMI, a globally accepted measure of obesity.

People with BMIs of below 25 are considered normal, while 25-29 marks overweight and 30 or above is clinically obese.

After five years, 56.8 percent of obese women and 56.3 percent of overweight women were still alive. But 67.4 percent of the normal weight women had survived.

More than 56 percent of women of normal weight survived 10 years, compared to 42.7 percent of obese women and 41.8 percent of overweight women.

### **Link with Reproduction**

"Obesity goes far beyond just how a person looks or any physical strain from carrying around extra weight. Particular attention should be paid to our overweight patients," Cristofanilli said. Many studies have shown that the obese have a greater risk of several types of cancer. British researchers reported in the *Lancet* medical journal that obesity can double the risk of leukemia, multiple myeloma, thyroid cancer, colon and kidney cancers.

Obese men should consider losing weight if they want to have children, a scientist told the 24<sup>th</sup> annual conference of the European Society of Human Reproduction and Embryology recently. Dr. A Ghiyath Shayeb, from the University of Aberdeen, Aberdeen, UK, said that his research had shown that men with a higher body mass index (BMI) had lower volumes of seminal fluid and a higher proportion of abnormal sperm. Dr. Shayeb and colleagues looked at the results of seminal fluid analysis in 5316 men attending Aberdeen Fertility Centre with their partners for difficulties in conceiving. 2037 of these men had complete data on their BMIs. "We felt that it was possible that male overweight might contribute to fertility problems," he said, "particularly since it is a known risk factor for problems in conceiving among women."

### **Link with Cognition**

A New Canadian study shows that thinking too much can lead to overeating and thus obesity.

In their study at University Level in Quebec City, Canadian researchers found that the stress of intellectual work makes people eat more, thus raising their calorie intake and causing obesity.

As part of their study, the researchers asked 14 students to eat at a buffet after performing three easy but different tasks: Just sitting and relaxing; reading and summarizing a test, and doing memory tests on a computer.

The researchers said these three tasks consumed very little energy, with students doing mental work needing just three calories more than those relaxing. But they found that the students ate 203 extra calories after reading and summarizing the test, and 253 more calories after doing the computer-based memory tests.

Their blood samples taken before, during and after the three task sessions – also showed that their Glucose and Insulin levels shot up during mental work (computer memory tests).

Explaining this, study leader Jean-Philippe Chaput said that Glucose serves as fuel for brain during any mental or intellectual work.

To meet this need and keep its glucose balance in check, the body might be consuming more food, thus more calories.

“Caloric overcompensation following intellectual work combined with the fact that we are less physically active when doing intellectual tasks, could contribute to the obesity epidemic currently observed in industrialized countries,” he said.

**Diet**

Heart-healthy diets that reduce calorie intake regardless of differing proportions of fat, protein, or carbohydrate can help overweight and obese adults achieve and maintain weight loss, according to a study.

Researchers from the Preventing Overweight Using Novel Dietary Strategies (Pounds Lost) study found similar weight loss after six months and two years among participants assigned to four diets that differed in their proportions of these three major nutrients.

The diets were low or high in total fat (20 or 40 percent of calories) with average or high protein (15 or 25 percent of calories). Carbohydrate content ranged from 35 to 65 percent of calories. The diets all used the same calorie reduction goals and were heart-healthy-low in saturated fat and cholesterol while high in dietary fiber.

On average, participants lost 13 pounds at six months and maintained a nine pound loss at two years. Participants also reduced their waistlines by one to three inches by the end of the study. Craving, fullness, hunger, and diet satisfaction were all similar across the four diets.

“These results show that, as long as people follow a heart healthy, reduced-calorie diet, there is more than one nutritional approach to achieving and maintaining a healthy weight,” said Elizabeth G. Nabel, director, National Heart, Lung, and Blood Institute (NHLBI).

In the Pounds Lost study, 811 overweight and obese adults aged 30 to 70 were assigned to one of four diets,

and asked to record their food intake in a diary or an online tool that showed how intake compared with goals. Overweight is defined by having a body mass index (BMI) a calculation of the relationship between weight and height – greater than 25 and less than 30. Those with a BMI of 30 or higher are considered to be obese. 66 percent of American adults are over weight and of those, 32 percent are obese, according to the Centers for Disease Control and Prevention.

**Interpreting BMI Results for Pakistani Patients**

| BMI       | Interpretation |
|-----------|----------------|
| 18.5 – 23 | Normal         |
| >23       | Over Weight    |
| >25       | Obesity        |
| >30       | Severe Obesity |
| >35       | Morbid Obesity |

Ref: CMAJ 2006;175:1071-1077

**Interpreting Waist Circumference Results**

| Gender | Normal | High |
|--------|--------|------|
| Women` | <35    | >35  |
| Men    | <40    | >40  |

Ref: www.medscape.com/viewarticle/542385

**Interpreting Visceral Fat Level**

| Visceral Fat Level | Interpretation |
|--------------------|----------------|
| Less Than 09%      | Normal         |
| More Than 10\$     | High           |

Ref: Omron@instruction Manual Body Composition Monitor with Scale Model HBF-50

**Interpreting Body Fat Percentage Results**

| Gender | Age   | Low   | Normal    | High      | Very High |
|--------|-------|-------|-----------|-----------|-----------|
| Women  | 20-39 | <21.0 | 21.0-32.9 | 33.0-38.9 | >39.0     |
| Women  | 40-59 | <23.0 | 23.0-33.9 | 34.0-39.9 | >40.0     |
| Women  | 60-79 | <24.0 | 24.0-35.9 | 36.0-41.9 | >42.0     |
| Men    | 20-39 | <8.0  | 8.0-19.9  | 20.0-24.0 | >25.0     |
| Men    | 40-59 | <11.0 | 11.0-21.9 | 22.0-27.9 | >28.0     |
| Men    | 60-79 | <13.0 | 13.0-24.9 | 25.0-29.9 | >30.0     |

Ref: Gallagher, et al. Based on NIH / WHO Guidelines for BMI. AMJ Clin Nut. 2007;72(Sept).

**Interpreting Skeletal Muscle Percentage results.**

| Gender | Low | Normal | High |
|--------|-----|--------|------|
| Women  | <27 | 27-33  | >33  |
| Men    | <37 | 37-43  | >43  |

Ref: AMJ Clin Nutr.2007;76:378-83

**Original Article****The Histopathological Pattern of Ovarian Teratomas at a Tertiary Care Centre**

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**ABSTRACT**

**Objective:** 1) To determine the frequency and types of various ovarian teratomas amongst various age groups. and 2) To compare the results with other workers.

**Study Design:** Retrospective study.

**Place and Duration of Study:** The study was conducted at the Department of Pathology, Basic Medical Sciences Institute (BMSI), Jinnah Post graduate medical centre (JPMC), Karachi from 1<sup>st</sup> January 2001 to 31<sup>st</sup> December 2005.

**Materials and Methods:** 1128 cases of ovarian biopsies were received for histopathological examination at the Department of Pathology, Basic Medical Science Institute, JPMC, Karachi. Out of 365 cases of ovarian neoplasms teratomas were separated, analyzed and classified according to the WHO classification system 1994 and their relative frequencies were recorded.

**Results:** Teratomas account for 14.52% (53/365) of all ovarian neoplasms. Mature cystic teratomas were the most common i.e 86.80% (46/53). Immature teratomas were 9.43% (05/53) followed by special subtypes 3.77% (02/53)

**Conclusion:** Mature cystic teratomas are the most common germ cell neoplasms of ovary. Immature teratomas are rare above 30 years of age.

**Key Words:** ovary, mature, immature, teratoma.

**INTRODUCTION**

Ovarian teratomas are the most common germ cell neoplasm and in many series, the most common excised ovarian neoplasm. Teratomas comprise a number of histologic types of tumors, all of which contain mature or immature tissues of germ cell (pleuripotential) origin. The most common of these tumors, the mature cystic teratoma (also known as dermoid cyst), typically contains mature tissues of ectodermal (skin, brain), mesodermal (muscle, fat) and endodermal (mucinous or ciliated epithelium) origin. In monodermal teratomas, one of these tissues types (eg, thyroid tissue in struma ovarii, neuroectodermal tissue in carcinoid tumor) predominates. Mature cystic teratomas (a more appropriate term than the commonly used "dermoid cysts") are cystic tumors composed of well-differentiated derivations from at least two of the three germ cell layers (ectoderm, mesoderm, and endoderm). They affect a younger age group (mean patient age, 30 years) than epithelial ovarian neoplasms<sup>1</sup>. Mature cystic teratoma is the most common germ cell neoplasm and, in some series, the most common ovarian neoplasm removed at surgery. It is the most common ovarian mass in children<sup>2</sup>. Mature cystic

teratomas arise from a single germ cell after the first meiotic division. In contrast to mature cystic teratoma, malignant transformation occurs in the 6<sup>th</sup> or 7<sup>th</sup> decade of life<sup>3</sup>. Like mature cystic teratomas, immature teratomas are composed of tissues derived from the three germ layers. Immature teratoma of the ovary is an uncommon tumor comprising 1% of ovarian malignancies. The amount of immature neuroepithelium in the teratoma is an important prognostic factor<sup>4</sup>. At initial manifestation, immature teratomas are typically larger (14–25cm) than mature cystic teratomas (average, 7cm)<sup>5,6</sup>. They may be solid or have a prominent solid component with cystic elements<sup>7</sup>. Mature tissue elements similar to those seen in mature cystic teratoma are invariably present. Tumor grading is based on the amount of immature tissue present. Recently, the amount of yolk sac tumour within immature teratomas has been recognized as both the source of alpha-fetoprotein in affected patients and the major predictor of stage, grade and rate of recurrence<sup>8</sup>. Monodermal teratomas are composed predominantly or solely of one tissue type. There are three main types of ovarian monodermal tumours: struma ovarii, ovarian carcinoid tumors, and tumors with neural differentiation. Struma ovarii accounts for

approximately 3% of all mature teratomas. Struma ovarii is composed predominantly or solely of mature thyroid tissue that demonstrates acini filled with thyroid colloid . Such thyroid tissue can occur as a minor component of mature cystic teratomas, but in struma ovarii it is the predominant or sole tissue type<sup>9</sup>. In this study we tried to find out the histopathological patterns of ovarian teratomas which are more frequent in our population and whether they are significantly different from other populations.

**MATERIALS AND METHODS**

This study was conducted at the Department of Pathology, Basic Medical Sciences Institute, Jinnah Postgraduate Medical Centre, Karachi, from 1<sup>st</sup> January 2001 to 31<sup>st</sup> December 2005. Patients 20-years of age and having clinical or pre-operative diagnosis of ovarian tumours were included in the study, while the female with inflammatory masses and chocolate cysts were excluded from the study. Detailed history ,physical examination , age, symptoms, duration of disease and family history were retrieved from clinical data recorded. All the patients had baseline investigations and ultrasound examination. A total of 1128 ovarian biopsies were registered for histopathological examinations in the Department of histopathology, Basic Medical Sciences Institute, JPMC, Karachi. A total of only 365 cases were found neoplastic ovarian lesions. All biopsy specimens for histological examination were fixed in 10% formalin, embedded in paraffin wax on the oriented edge, and cut into 5 µm thick sequential sections. All tissue sections were routinely stained with haematoxylin and eosin for histological examination. Out of 365 neoplastic lesions only 53 cases were ovarian teratomas. The specimen slides were examined in detail by author and reviewed by his senior histopathologist.

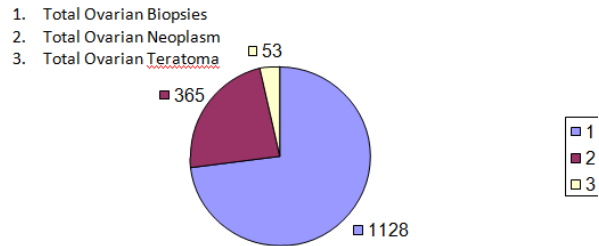
**RESULTS**

**Table No. 1: Nos and Percentages of Ovarian Neoplasms and Teratomas**

|                         |              |
|-------------------------|--------------|
| Total Ovarian Biopsies  | 1128         |
| Total Ovarian Neoplasm  | 365 (32.25%) |
| Total Ovarian Teratomas | 53 (14.52)   |

Table 1 shows that a total of 1128 ovarian biopsies were reviewed in the mentioned period and only 32.35% ovarian biopsies were found to be neoplastic lesions. Ovarian teratomas were diagnosed in only 53 cases that comprises about 14. 52% of total neoplastic ovarian biopsies.

**Nos. and Percentages of Ovarian Neoplasms and Teratomas**



**Table No.2: Frequency of various ovarian Teratoma**

|                           |             |
|---------------------------|-------------|
| Mature (Benign)           | 46 (86.80%) |
| Immature (Malignant)      | 05 (9.43%)  |
| Monodermal (Struma ovary) | 02 (3.77%)  |

Table No. 2 shows that out of all diagnosed ovarian teratomas(53cases),most common were mature teratomas (86.80%) , immature teratomas were very less common (9.43%) and monodermal teratomas (3.77%) were least common.

**Table No.3: Age Distribution of Mature (M), Immature (Im) & Monodermal (Mo) Teratomas**

| Age group | 2001 |     |     | 2002 |     |     | 2003 |     |     | 2004 |     |     | 2005 |     |     | Total |     |     |     |
|-----------|------|-----|-----|------|-----|-----|------|-----|-----|------|-----|-----|------|-----|-----|-------|-----|-----|-----|
|           | M    | IM  | MO  | M    | IM  | MO  | M    | IM  | MO  | M    | IM  | MO  | M    | IM  | MO  | M     | IM  | MO  |     |
| 1-10 YRS  | ...  | ... | ... | ...  | ... | ... | ...  | ... | ... | ...  | ... | ... | ...  | ... | ... | ...   | ... | ... | ... |
| 11-20 YRS | ...  | 01  | ... | ...  | ... | ... | ...  | ... | ... | 01   | ... | ... | 02   | ... | ... | 03    | 01  | ... |     |
| 21-30 YRS | 03   | ... | 02  | 03   | 02  | ... | 04   | 01  | ... | 03   | ... | ... | 06   | 01  | ... | 19    | 04  | 02  |     |
| 31-40YRS  | 03   | ... | ... | 04   | ... | ... | 01   | ... | ... | 03   | ... | ... | 03   | ... | ... | 14    | ... | ... |     |
| 41-50YRS  | ...  | ... | ... | 01   | ... | ... | 01   | ... | ... | 01   | ... | ... | ...  | ... | ... | 03    | ... | ... |     |
| 51-60YRS  | ...  | ... | ... | ...  | ... | ... | 01   | ... | ... | 02   | ... | ... | 02   | ... | ... | 05    | ... | ... |     |
| 61-70YRS  | ...  | ... | ... | ...  | ... | ... | ...  | ... | ... | ...  | ... | ... | 01   | ... | ... | 01    | ... | ... |     |
| 71-80YRS  | 01   | ... | ... | ...  | ... | ... | ...  | ... | ... | ...  | ... | ... | ...  | ... | ... | 01    | ... | ... |     |

Table 3 shows that the commonest age group for mature teratomas was 21-30 in which a total of 19 cases (42.23%) out of 46 were seen. The commonest age group for immature teratomas was also 21-30 years in which 4(80%) out of the total cases were seen. Both the cases of monodermal teratomas seen were in age group of 21-30 years. Minimum age in mature teratoma was 14. The maximum age in mature teratoma were 75 years, immature 30 years and in monodermal teratoma it was 27 years.

**Table No.4: Laterally Among the Various Ovarian Teratomas**

| Year | Left Side | Right Side | Bilateral | Nos |
|------|-----------|------------|-----------|-----|
| 2001 | 02        | 03         | 01        | 04  |
| 2002 | 03        | 03         | 00        | 04  |
| 2003 | 02        | 02         | 00        | 04  |
| 2004 | 01        | 02         | 01        | 07  |
| 2005 | 03        | 02         | 00        | 09  |

Table 4 shows that in 28 cases (52.8%) which is more than 50% of all teratomas are NOS(Not Otherwise Specified) where laterality was not defined. In the 25 cases where laterality was defined, 11(44%) were left sided, 12 (48%) were right sided and 02(08%) were bilateral.

## DISCUSSION

Ovarian teratomas represent about 15% of all ovarian neoplasms. Their incidence is about 10 per 100 000 women per year. Most teratomas are benign and their peak incidence is around the third and fourth decades of life<sup>10,11</sup>. This is in agreement with our study as we found 14.52% ovarian teratomas out of all ovarian neoplasms. Mature cystic teratoma is the most common germ cell neoplasm and, in some series, the most common ovarian neoplasm removed at surgery<sup>12,13</sup>. In our study out of a total of 1128 ovarian biopsies, a total number of 365 cases (32.35%) were found to be neoplastic lesions and ovarian teratomas were diagnosed in 53 cases (14.52%). Mature ovarian teratomas were the most frequent type(86.80%) throughout the five years with the commonest age group was 21-30 years. The reported frequency of benign cystic teratoma 61.54% in a study conducted by Jadhav Balaji et al<sup>14</sup> is in agreement with our study. A retrospective study of 283 consecutive cases of mature cystic teratomas of the ovary, operated at national Taiwan university hospital<sup>15</sup> between 1988 and 1993 was undertaken. The incidence of mature cystic teratoma was 32.6% of primary ovarian neoplasm. A retrospective study at Agha Khan University Hospital<sup>16</sup>, Karachi from 1993–98 and another study done by Abdullahi Mohammed et al<sup>17</sup> in April 2010 showed the benign cystic teratoma to be the commonest benign tumour (35.17%) and (29%) respectively and both studies are in accordance with our study. Regarding the age group our study is also in agreement with the study done by Shatrughan et al 2004<sup>18</sup> who found the largest number of cases in patients between the ages of 20 and 30 years.

Our results show commonest age group for immature teratomas was 21-30 years in 4 (80%) out of the total of 05 cases so we found large number of immature teratoma cases in third decade of life. Talerman<sup>19</sup> demonstrate that immature teratomas behave clinically

malignant, are much less common (<1% of ovarian teratomas), affect a younger age group usually during the first 2 decades of life. This discordance in age group of patients with Talerman study could be due to a weakness of our study that is the small number of immature teratomas, only five in number and hence its limited statistical power. It is important to diagnose the presence of these tumors as early as possible to reduce complications before they increase in size.

In our results both the cases of monodermal teratomas seen were in age group of 21-30 years represent 3.77% of total ovarian teratomas. Alfie et al demonstrate that inside the germinal neoplasms of the ovary, the monodermal or specialized teratomas constitute a not very frequent variety. The struma ovarii represents 2.7% as the form more common of this teratomas type, constituted by thyroid tissue<sup>20</sup>. Out of three studies<sup>21,22,23</sup> conducted in India, the reported frequency of struma ovarii varies from 1.4% to 15.4%. Jadhav Balaji et al<sup>14</sup> also observed frequency of monodermal teratomas 9.09% in a 3 years study which is comparable with our study but number of cases (only 3) show rarity of the condition in our part. Further research is indicated to determine the impact that this finding may have on women's health.

Finding dermoids as early as possible could improve the health of patients who live with complications from such masses. This phenomenon, if verified, is significant, especially in infertility cases and in cases of right ovarian thrombosis complications, which might lead to death. Ovarian thrombosis occurs 80% to 90% of the time on the right ovary. The literature is inconclusive on the frequency of right- and left-sided unilateral dermoids. 8% to 20% of these masses are located bilaterally<sup>24</sup>. Dermoid masses may be located more often on the right side. It is the author's opinion that this is consistent with design theory, which recognizes that evolution, by natural selection of inherited variations across the generations, simulates a rational engineering process in optimizing the performance or function of living organisms in relation to their lifestyles.<sup>25</sup> The configuration of the sigmoid colon may be an influencing factor in incidences of pelvic sidedness. The sigmoid colon is curved in an "S" shape and descends in the left lower quadrant. In our study the 25 cases where laterality was defined, 11(44%) teratomas were left sided comparable to 39.7% reported by Shatrughan et al<sup>17</sup> and 40.6% by Wu et al<sup>15</sup>. In our results 12 (48%) were right sided also comparable to 35.5% reported by Shatrughan et al<sup>17</sup> and 51.2% reported by Wu et al<sup>15</sup>. Our study results where 02(08%) cases involved bilaterally show agreement with 8.2% demonstrated by Wu et al<sup>15</sup> but show disagreement with significantly high 24.8% reported by Shatrughan et al<sup>17</sup>. In this relation our study is inconclusive because in more than 50% cases

laterality was not defined as well as small sample size provide insufficient information regarding laterality.

## CONCLUSION

This study has used a quantitative approach to determine the frequency of ovarian teratomas at a tertiary care centre of Karachi in five years. Observations and data analysis of the results indicate that mature cystic teratoma was the commonest (86.80%) of the ovarian teratoma. They occur primarily during the reproductive years, but may occur in the postmenopausal periods or in childhood. Immature teratoma were less common (9.4%) and stroma ovarii the least common (3.77%). Knowledge regarding laterality of tumors were inconclusive. Further study is recommended to establish if these are significant findings.

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**Original Article**

# Frequency of risk factors in Acute Coronary Syndrome

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## ABSTRACT

**Objective:** To measure the frequency of risk factors in patients of ACS.

**Study Design:** Observational descriptive study

**Place and Duration of study:** It was conducted in the emergency department of Nishtar Hospital Multan from January 2008 to January 2009.

**Patients and Methods:** Consecutive 400 patients who presented with history of chest pain were enrolled in the study. These patients underwent clinical examination, ECG and Trop T testing. Patients were inquired about the risk factors by the help of a Proforma.

**Results:** STEMI was the most common diagnosis (66.7%). One or more risk factors were present in each patient; Hypertension (37.2%), Smoking history (50.1%), Diabetes Mellitus (29.2%), Family history (41.5%) and sedentary habits (33.2%).

**Conclusion:** Hypertension and smoking are most common risk factors in patients with ACS.

**Keywords:** Risk factors Acute Coronary Syndrome Myocardial Infarction

## INTRODUCTION

Acute Coronary Syndrome (ACS) is a burden on health care system all over the world with 114,000 admissions annually in UK.<sup>1</sup> Chest pain is the most common symptom in patients presenting with ACS.<sup>2</sup>

The term "Acute Coronary Syndrome" covers the clinical spectrum of acute myocardial ischemia, including unstable angina (UA), acute myocardial infarction (MI) without ST-segment elevation (non-ST-segment elevation MI [NSTEMI]), and ST-segment elevation MI (STEMI).<sup>3</sup> STEMI deals with complete occlusion of coronary artery where as NSTEMI and unstable angina deal with incomplete occlusion of coronary artery.<sup>4</sup> In patients with UA, ST segment depression, transient ST segment elevation and /or T wave inversion occur in 30-50% of patients. Diagnosis of NSTEMI is made when patients with ischemic discomfort, without ST segment elevation on electrocardiogram (ECG), have raised serum cardiac biomarkers of necrosis. STEMI is defined when there is presence of ST segment elevation on ECG along with raised serum cardiac biomarkers of necrosis.<sup>5</sup>

The categories of ACS cannot be defined without the help of cardiac biomarkers (Troponin T and I). Cardiac Troponins are highly useful as markers of ACS and abnormal values at any time following chest pain onset are highly indicative of an adverse event.<sup>6</sup> As ECG is an integral part of initial evaluation in emergency and also being a cost effective investigation, every resident / physician should be well versed in its analysis and

interpretation. All physicians should be familiar with risk stratification of patients with ACS.

Gencer B has devised a screening method which is used in initial evaluation without the use of complicated gadgets, with promising results and hence it can be adopted in our setup.<sup>7</sup> In this method, cardiovascular risk factors, pain characteristics, and physical signs associated with coronary heart disease were explored to develop a clinical score.

Several risk factors are identified for ACS. Modifiable being Hypertension (HTN), smoking, increased LDL cholesterol, Diabetes Mellitus (DM), Obesity, inactivity/sedentary mode of life, and non modifiable being age, male sex, family history and past history of Coronary Artery Disease (CAD).<sup>8</sup> The relationship between risk factors and ACS is well established.

Aim of this study was to measure the frequency of associated risk factors in patients with ACS. The results can be utilized in public awareness programs as an effort to show people the right direction in reducing the incidence of coronary artery disease and hence burden on the health care system.

## PATIENTS AND METHODS

It was an observational descriptive study conducted in 2008-9 at Nishtar Hospital Multan. Patients presenting to emergency department with complaint of chest pain and age greater than 20 years were included in the study. Evaluation was based on the detailed history, focused physical examination and electrocardiography (ECG). Troponin T levels were measured after 6hrs of

start of chest pain. Excluded from the study were those who had other systemic illnesses or those transported by basic life support unit.

Patients in ACS group were enrolled in the study for evaluation of the risk factors. Data was collected by a self devised detailed Proforma containing information about demographics, presenting complaints, ECG findings, Troponin T value, any co-morbidity, history of smoking, Hypertension, Diabetes Mellitus, sedentary lifestyle and family history. Hyperlipidemia and obesity were not included in this study.

Data was entered and analyzed in SPSS version 15. Fischer's exact test was applied among categorical variables. Frequencies and percentages were calculated. P value of less than or equal to 0.05 was considered significant.

## RESULTS

A total of 400 patients were enrolled in the study. Total number of patients diagnosed with ACS was 301(75.2%).

75.1% were male with mean age of  $51.3 \pm 6.2$  years whereas mean age of female patients was  $59.1 \pm 9.1$  years. One or more risk factors were present in all the

patients; Hypertension 37.2% (n =112), smoking history 50.1% (n=151), Diabetes Mellitus 29.5% (n=89), Family history 41.5% (n=125) and sedentary habits 33.2% (n=100) [Table No. 1].

STEMI 66.7% (n=201) was the most common while NSTEMI 8.3% (n=25) was the least common diagnosis in ACS. 163 (81.1%) males and 38 (18.9%) females were affected by STEMI. 50 (66.7%) males and 25 (33.3%) females were affected with unstable angina while 13 (52%) males and 12 (48%) females were affected by NSTEMI [Table No. 2]. It was also found that greater number of males were affected as compared to females.

HTN was more common in males (89.3%, n=100) compared to females (10.7%, n=12), (P= 0.01). Positive smoking history was found in males (91.4%, n=138) as compared to females (8.6%, n=13), (P= 0.04). Presence of DM was not significantly different between males (57.3%, n=51) and females (42.7%, n=38), (P=0.06). [Table No. 3]

One striking point was that, patients with DM (48%) and HTN (48%) were more common in NSTEMI group as compared to STEMI and UA. Majority of patients with MI had anterior and inferior wall MI.

**Table No. 1: Association of various risk factors with Acute Coronary Syndrome**  
Total No. of Patients n= 301

|             | Males | Females | Hypertension | Smoking History | Diabetes Mellitus | Family history | Sedentary habit |
|-------------|-------|---------|--------------|-----------------|-------------------|----------------|-----------------|
| Numbers     | 226   | 75      | 112          | 151             | 89                | 125            | 100             |
| Percentages | 75.1% | 24.9%   | 37.2%        | 50.1%           | 29.5%             | 41.5%          | 33.2%           |

**Table No. 2: Distribution of important risk factors in three different entities of Acute Coronary Syndrome**

|             | Male        | Female     | Hypertension | Diabetes Mellitus |
|-------------|-------------|------------|--------------|-------------------|
| STEMI (201) | 163 (81.1%) | 38 (18.9%) | 88 (43.7%)   | 51 (25.3%)        |
| NSTEMI (25) | 13 (52%)    | 12 (48%)   | 12 (48%)     | 12 (48%)          |
| UA (75)     | 50 (66.7%)  | 25 (33.3)  | 12 (16%)     | 25 (33.3)         |

**Table No. 3: Distribution of various risk factors among males and females**

| Risk Factors           | Males       | Females    | P Value |
|------------------------|-------------|------------|---------|
| Hypertension (112)     | 100 (89.3%) | 12 (10.7%) | 0.01    |
| Smoking history (151)  | 138 (91.4%) | 13 (8.6%)  | 0.04    |
| Diabetes Mellitus (89) | 51 (57.3%)  | 38 (42.7%) | 0.06    |

## DISCUSSION

Coronary heart disease and in acute form, Acute Coronary Syndrome (ACS) is the number one cause of death world wide.<sup>9</sup> A number of risk factors are known to promote coronary artery disease (CAD). Some of these risk factors like age, gender, race and family history cannot be changed while other risk factors like, hypertension, hyperlipidemia, smoking, diabetes and sedentary life can be changed.

The first study in pursuit of risk factors associated with coronary artery disease was done by Keys et al and since then, numerous studies have been done.<sup>10</sup>

Age is a very important risk factor for ACS and its incidence increases with increasing age. In our study we have found that ACS was more common in fifth and sixth decade as mean age was  $51.3 \pm 6.2$  for males and  $59.1 \pm 9.1$  for females. In a study by Rosengren et al it was found that ACS was more common in old age (52% patients were between 55-84 yrs).<sup>11</sup>

ACS is more common in males than females. In our study 75.1% patients were males while in the study of Jafary et al 68% patients with ACS were males.<sup>12</sup> The result in our study that women experience first episode of ACS about 10 years later than men is consistent with the study of Anand et al who found that women experience first acute MI on average 9 years later than men.<sup>13</sup> It is because premenopausal women have a lower incidence of the disease than age and risk matched males.

Many studies have shown that family history (41.5% in our study) is indeed a risk factor in development of ACS. In a study by Burazeri et al<sup>14</sup>, family history of coronary heart disease was found to be a strong predictor of acute coronary syndrome in both men and women. This is paving way in new discoveries in the emerging field of cardiovascular genetic medicine.<sup>15</sup>

In our study, among modifiable risk factors smoking (50.1%) was the leading risk factor in patients with ACS. This is similar to a study by Jafary et al in which frequency of smoking in ACS was found to be 52%.<sup>12</sup> In USA smoking causes 225000 deaths due to coronary heart disease. So smoking cessation counseling should be given to healthy subjects, adolescents and children. This will really cut down the burden due to smoking related diseases especially coronary heart disease on the health system of the country.<sup>16</sup> According to World Health Organization, one year after quitting, risk of CAD decreases by 50%. Pell et al found a 17% reduction in the number of hospital admissions for acute coronary syndrome after enactment of smoke-free legislation.<sup>17</sup>

Hypertension is a very important risk factor for ACS. In our study (37.2%) patients were hypertensive. This is similar to the study by Jafary et al<sup>12</sup> in which 55.2% patients of ACS had hypertension. Control of BP has been shown to prevent myocardial infarction. HOPE and EUROPA trials demonstrated that control of BP reduces fatal and non fatal vascular events.<sup>18,19</sup>

Diabetes is the fastest growing public health problem both in developing and developed countries. Framingham Heart Study suggests that patients with diabetes mellitus have increased prevalence of ACS with adverse outcomes.<sup>20</sup> American heart Association has designated Diabetes mellitus as a major risk factor for ACS. In our study diabetes was found in 29.2% cases. Esteghamati et al found that MI was significantly higher in diabetic patients than in non diabetics (36.4% vs. 19.2%).<sup>21</sup> In many studies it has been found that improving glycemic control in diabetic patients decreases the incidence of cardiovascular events.<sup>22</sup> American Diabetic Association (ADA) has emphasized the importance of glycemic control in DM for risk modification.

Sedentary lifestyle (33.2% in our study) is a significant modifiable risk factor in cardiovascular disease

morbidity and mortality as was found in the study of Burazeri G et al.<sup>14</sup> Removing this factor via exercise is an extremely effective, safe and inexpensive preventive modality.

Prevention is better than cure. To reduce the incidence of ACS efforts should be directed towards primary as well as secondary prevention like controlling hypertension, smoking cessation, decreasing cholesterol and exercise. In a study by Unal B et al, major benefit was achieved by smoking cessation and controlling hypertension.<sup>23</sup>

## CONCLUSION

Hypertension, smoking history, diabetes mellitus, old age, male gender, family history and sedentary habits were the risk factors present in most of the patients with ACS. Incidence of ACS can be reduced by controlling the modifiable risk factors like, Hypertension, smoking, Diabetes mellitus and sedentary habits.

Mass media and public campaigns should be started to educate people about risk factors and should be told the ways regarding their prevention. In years to come if these preventive methods are adopted by the community, then incidence of ACS will surely decrease.

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**Original Article**

# Management Options of Basal Cell Carcinoma in Surgery

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## ABSTRACT

**Objective:** To describe the prevalence, mode of presentation and various surgical options of reconstruction in the management of basal cell carcinoma.

**Design of Study:** Descriptive Study.

**Place and Duration of Study:** This study was conducted at Nishtar Hospital, Multan from 2006 to 2009

**Materials and methods:** 60 patients were taken in this study. A separate file was maintained for each patient. A thorough history and full physical examination was conducted, relevant investigations were carried out.

**Results:** Out of sixty cases, 50 (83%) were male and 10 (17%) were female. Majority of the patients presented to us above the age of 45 years and the incidence of BCC increases with the age. The male to female ratio was 5:1. Out of 60 cases 26 (20 male, 6 female) 43.3% were farmer, 16 (all male) 26.6% were construction workers, 10 (8 male, 2 female) 16.6% were unemployed and 8 (all female) 13.3% were household. No patient presented before 5 years after the development of the lesion. 34 (30 male, 4 female) 56.6% for the last 6-10 years, 20 (16 male, 4 female) 33.3% for the last 11-15 years, 2 (all male) 3.3% for 16-20 years and 4 (2 male, 2 female) 6.6% had lesions for > 20 years.

**Conclusion:** Delay in presentation has an overall negative effect on the outcome.

**Key Words:** Skin cancer, Basal cell carcinoma, Reconstruction, Biopsy.

## INTRODUCTION

Basal cell carcinoma is the most common skin malignancy, accounting for about 80% of all skin cancers and may be lethal. Their recognition and management should be familiar to all the general surgeons<sup>1</sup>.

Basal cell carcinoma (BCC), which arises from the epidermal of the skin, is the commonest malignancy in Caucasians<sup>2</sup>. Pakistan is a developing country and South Punjab is a backward area with a scarce health facilities. Most of our farmers and others having outdoor occupations having maximum exposure to the sunlight and the chances of development of BCC in them is great as compared to the people sitting idle or household workers. So due to low socio-economic status and negligible health services in rural areas, people neglect initial stage of the disease and take treatment from the local hakims and quacks, and fail to reach the tertiary care hospitals in early stages which then ultimately progress to advanced disease<sup>3</sup>.

The most important risk factor is exposure to ultraviolet radiation in the sunlight, but the other risk factors are, like skin damage by irradiation or chemicals. Ingestion of arsenic and immunosuppressant for instance in the case of renal transplant patients, may result in multiple BCC. Male have more affection for the disease as compared to the female<sup>4</sup>.

The peak incidence of BCC occurs in 7<sup>th</sup> decade of the life. The age group commonly affected is above forty

but patients of all ages can be affected, including children, which usually associated with congenital defects<sup>5</sup>.

The nodulo-ulcerative type of the most common variety, while pigmented BCC need to be distinguished by biopsy from melanoma. It grows slowly but becomes locally invasive and penetrates the deeper tissue hence given the name of rodent ulcer<sup>6</sup>. BCC occurs, most commonly in the head and neck region in about 85% of the cases<sup>7</sup>.

Metastasis and death are extremely rare. Although rarely metastasizing to lymph nodes or distant organs, the real menace is local tissue destruction leading to disfigurement or functional loss. These are clinically more aggressive and hence difficult to manage<sup>8</sup>.

The present study was carried out to evaluate the prevalence, mode of presentation and various surgical options available in the management of basal cell carcinoma.

## MATERIALS AND METHODS

The present descriptive study was conducted at Nishtar Hospital, Multan from 2006 to 2009. A separate file was maintained for each patient. A thorough history and full physical examination was conducted, relevant investigations were carried out. Biopsy specimens were sent to Pathology Department of Nishtar Medical College, Multan.

**RESULTS**

A total of 60 patients were managed during the period of one year in Nishtar Hospital, Multan. Out of sixty cases, 50 (83%) were male and 10 (17%) were female (Graph-I).

Majority of the patients presented to us above the age of 45 years and the incidence of BCC increases with the age. The male to female ratio was 5:1 (Table No.1).

Out of 60 cases 26 (20 male, 6 female) 43.3% were farmer, 16 (all male) 26.6% were construction workers, 10 (8 male, 2 female) 16.6% were unemployed and 8 (all female) 13.3% were household (Table No.2).

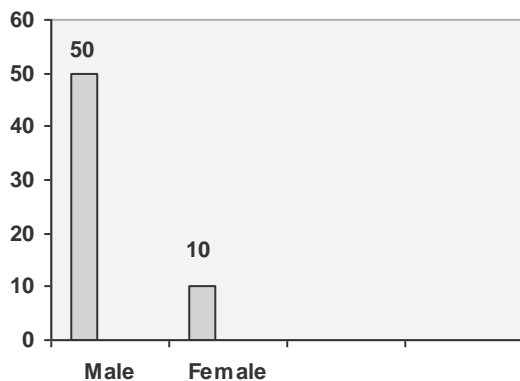
No patient presented before 5 years after the development of the lesion. 34 (30 male, 4 female) 56.6% for the last 6-10 years, 20 (16 male, 4 female) 33.3% for the last 11-15 years, 2 (all male) 3.3% for 16-20 years and 4 (2 male, 2 female) 6.6% had lesions for > 20 years (Table No.3).

All the lesions encountered in present study occurred on exposed head and neck region as is evident from the Table No.4. Most of the patients had the nodular pigmented type of BCC and majority of them were male. None of them have Gorlin's syndrome (Table-5). Common variant on histopathology was found to be solid type with adenocystic type being the commonest lesion. After the excision of the lesion the skin defect most of the time closed by the mean of split skin graft. Direct closure done in quarter of the patients.

A number of postoperative complications were observed after various reconstructive procedures. Wound was found to be commonest complication; with majority of cases getting only minor wound infection (Table No.5).

Out of the 60 cases of BCC, in 2 (all male) 3.3% cases lesion size was < 1 cm, in 18 (14 male, 4 female) 30% 1-2 cm, in 28 (26 male, 2 female) 46.6% 2-4 cm and in 12 (8 male, 4 female) lesion size was > 4 cm. Most of the patients i.e. 20 (16 male, 4 female) 33.3% were given local anaesthesia and in remaining 40 (34 male, 6 female) 66.6% patients were given general anaesthesia.

**Graph-I: Sex distribution**



**Table No.1: Age distribution**

| Age (years) | No. of patients | percentage |
|-------------|-----------------|------------|
| 30-50       | 16              | 26.7       |
| 51-60       | 24              | 40.0       |
| 61-70       | 14              | 23.3       |
| > 70        | 06              | 10.0       |

**Table No.2: Distribution of patients according to occupation**

| Occupation          | Male | Female | Total | %age |
|---------------------|------|--------|-------|------|
| Farmer              | 26   | -      | 26    | 43.3 |
| Construction worker | 16   | -      | 16    | 26.6 |
| Unemployed          | 08   | 02     | 10    | 16.6 |
| Household           | -    | 08     | 08    | 13.3 |
| Total               | 50   |        |       |      |

**Table No.3: Delay in presentation**

| Time in years | Male | Female | Total | %age |
|---------------|------|--------|-------|------|
| < 5           | -    | -      | -     | -    |
| 6-10          | 30   | 04     | 34    | 56.6 |
| 11-15         | 16   | 04     | 20    | 33.3 |
| 16-20         | 02   | -      | 02    | 03.3 |
| > 20          | 02   | 02     | 04    | 06.6 |
| Total         | 50   | 10     | 60    |      |

**Table No.4: Mode of reconstruction**

| Method         | Male | Female | Total | %age |
|----------------|------|--------|-------|------|
| Direct closure | 12   | 02     | 14    | 23.3 |
| Skin graft     | 20   | 04     | 24    | 40.0 |
| Forehead flap  | 08   | 02     | 10    | 16.6 |
| Cheek flap     | 10   | 02     | 12    | 20.0 |
| Total          | 50   | 10     | 60    |      |

**Table No.5: Follow up**

| Complications         | Male | Female | Total | %age |
|-----------------------|------|--------|-------|------|
| Minor wound infection | 04   | 02     | 06    | 10.0 |
| Wound dehiscence      | 02   | 02     | 04    | 06.6 |
| Nerve damage          | 02   | -      | 02    | 03.3 |
| Flap necrosis         | -    | -      | -     | -    |
| Secondary procedure   | 02   | -      | 04    | 06.6 |

**DISCUSSION**

Basal cell carcinoma of the skin is the single most common malignancy seen today and its incidence continues to increase. A spectrum of risk factors, environmental and congenital is linked to development

of the disease and need to be elicited from the patient being evaluated a BCC.

The number of new cases per year currently approaching one million in the United States alone. About more than 800,000 new cases have been diagnosed in 1996 in USA, which would be more than one third of all new cancer cases expected<sup>9</sup>. Metastatic BCC is rare, the incidence varying in reports from 0.0028% to 0.1%<sup>10</sup>. Metastatic BCC is 2 times more common in men than in women and has an earlier age of onset<sup>11</sup>. Surgical excision is the most commonly used method of tumour treatment by surgeon. Cure rate is 95%, approaching 99% when histopathological margins are negative<sup>12</sup>.

Reconstruction of facial defects poses the interesting challenges of finding the most satisfactory flap both aesthetically and functionally. It requires not just a knowledge of the flap, but an ability to think and plan in three dimensions<sup>13</sup>.

No patient came below the age of 40 years. About 14 (24%) cases of the study belonged to the age above 61 years. But in elders this study shows the equal ratio of sex incidence. In this study the average male to female ratio is 5:1, which is much higher than the American study, over the sex incidence in BCC, which was about 3:2<sup>14</sup>. The reason for this difference is that in our setup male has maximum exposure to the outdoor activities as compared to the female. In contrast to this in United States female also took part in the outdoor activities and wear light clothes and have maximum exposed areas of the body to the sunlight, leads to the increase incidence in them which has been reported to be the single most important causative factor<sup>15</sup>.

The mean age group in this study was 49.5 years. It is a widely established fact that air skinned people exposed more to the sunlight, are at a greatest risk of developing BCC<sup>16</sup>. Most of the lesions were of 2-4 cm in size in about 47% patients. Only 4% patients presented early with a lesion size of 0.9 cm. Thirty per cent patients have tumour size range between 1-2 cm. Few patients (20%) present with advanced lesions disfiguring the face which were due to the late presentation of the patients. As reported in literature large lesions tend to be more difficult to excise and reconstruct, so have great tendency to recur<sup>17</sup>.

BCC is reported to occur anywhere on the body, especially on the sun-exposed area like face, neck and extremities. About 85% of the BCC occur in head and neck region only<sup>7</sup>. In present study, all the patients presented had lesions on different part of the face area only. In 13% of our patients had the involvement of more than one area on the face. All of them had extensive tissue destruction requiring wider excision margins and complex method of reconstruction. One of the patients had lost his left eye during the disease process. About 23.3% patients with lesion over the nose

area, the incidence of which was nearly equal to the study conducted in USA, which showed about 26% incidence of BCC over nose<sup>18</sup>.

In the same way about 20% cases had lesions over the cheek region, which also comparable to the American study having 16% incidence in cheek region<sup>18</sup>. Maximum patient presented with a lesion in the area of peri-orbital region (34%)<sup>19</sup>. We have also a comparison incidence of this area with another American study. No lesion seen over the ear and extremities. Forehead and scalp region involved in only 10% of the patients, which is a quite notorious area in term of recurrence. Most common variant found on histopathology was of solid type in about 60% cases showing little or no differentiation. Both keartotic and adenocystic variety seen in almost 7% and 30% cases respectively which were well differentiated<sup>20</sup>.

## CONCLUSION

It is concluded that an earlier diagnosis of lesion can reduce the rate of complication. Preventive measures should be taken to avoid the occurrence of this lesion such as using the sunscreens, protective clothing and education programmes, as they relate to the hazards and potential sequelae of sun exposure and tanning parlors.

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**Original Article**

# Complications of Thyroid Surgery

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## ABSTRACT

**Objectives:** To determine the percentage of complications in thyroid surgery & compare these complications with the other national & international studies.

**Study Design:** A descriptive study.

**Place and Duration of Study:** The study was conducted in the department of Surgery, Foundation University Medical College and Fauji Foundation Hospital Rawalpindi from 1<sup>st</sup> January 2009 to 31<sup>st</sup> December 2009.

**Patients and Methods:** 192 patients above the age of 14 who consented were included in the study. General physical & loco regional examination was done in OPD. Thyroid function tests (T3, T4, and TSH) were done in all the patients besides other routine investigations. FNAC & thyroid scan was done in only selected patients. Anemia, hypertension & other comorbid condition, if present, were corrected & assessed by anesthetist in the pre admission clinic. Only euthyroid patients, both clinically & biochemically & fit for general anesthesia were admitted for operation. Subsequently all the patients were subjected for surgery & the specimens were sent for histopathology after visual examination. Pre as well as per operative findings were recorded on a specially designed proforma. The data were then entered in the computer for analysis & conclusions were drawn

**Results:** Total of 192 patients operated for benign thyroid disease in year 2009. Age ranges between 14 to 80 with 120 patients below the age of 40. Out of 192 patients, only 6 were males. 90 patients were operated for pressure symptoms, 78 for cosmetic reasons & 24 for toxic symptoms. Subtotal thyroidectomy was done in 132 patients while 24 patients ended up with near total & 36 were candidates for lobectomy. 6 patients had symptoms of RLN damage while 24 develop parathyroid insufficiency post operatively. All these patients managed conservatively & discharge on 2<sup>nd</sup> or 3<sup>rd</sup> post op day. They regain normal voice & normal serum calcium levels by the end of 3 months.

**Conclusion:** Subtotal thyroidectomy is one of the commonest procedure done by the surgeons of Rawalpindi Islamabad region. Maximum effort should be done to optimize the patients preoperatively. If patients are euthyroid & assessed carefully for anesthesia fitness before operation, chances of pre or post-operative complications are negligible.

**Key Words:** Recurrent laryngeal nerve, hoarseness, thyroid storm, hypo parathyroidism, goiter.

## INTRODUCTION

Though the incidence of goiter is remarkably decreased in the last 30 years due to introduction of iodinated salt, still its incidence is very high in the northern parts of Pakistan & Kashmir which is labeled as goiter belt due to the high incidence of disease<sup>1-5</sup>. Probably it is due to water used for drinking & cooking purpose the source of which is natural springs with low levels of iodine. The main factor governing the prevalence of thyroid disease is the iodine content of daily diet.

The major complications of thyroid surgery are RLN damage, parathyroid insufficiency & bleeding. Local wound infection, keloid formation, damage to trachea & thyroid storm is rarely seen now days. Of all the above mentioned complications, most annoying & life threatening complication is damage to the RLN specially if occurs bilaterally. The purpose of the study was to assess the complication rate in benign disease & compare it with national & international studies.

## PATIENTS AND METHODS

The study was conducted by the department of General Surgery, Foundation University Medical College (FUMC) & Fauji Foundation Hospital Rawalpindi between 1<sup>st</sup> January to 31<sup>st</sup> December 2009 for the period of one year. 192 patients above the age of 14 who consented were included in the study. General physical & loco regional examination was done in OPD. Thyroid function tests (T3, T4, and TSH) were done in all the patients besides other routine investigations. FNAC & thyroid scan was done in only selected patients. Anemia, hypertension & other comorbid condition, if present, were corrected & assessed by anesthetist in the pre admission clinic. Only euthyroid patients, both clinically & biochemically & fit for general anesthesia were admitted for operation. Subsequently all the patients were subjected for surgery & the specimens were sent for

histopathology after visual examination. Pre as well as per operative findings were recorded on a specially designed proforma. The data were then entered in the computer for analysis & conclusions were drawn.

**Exclusion Criteria**

All the patients who had evidence of malignancy & previous operations on thyroid were excluded from the study.

**RESULTS**

Total of 192 patients operated for benign thyroid disease in year 2009. Age ranges between 14 to 80 with 120 patients below the age of 40 (62.5 %). Out of 192 patients, only 6 were males (3.13 %). 90 patients were operated for pressure symptoms (46.87 %), 78 for cosmetic reasons (40.62 %) & 24 for toxic symptoms (12.5 %).

**Table No.1: Indications of thyroidectomy**

| Indications       | No. of patients |
|-------------------|-----------------|
| Pressure symptoms | 90 - 46.8 %     |
| Cosmetic          | 78 - 40.62 %    |
| Toxicity          | 24 - 12.5 %     |
| Malignancy        | Nil - 0 %       |

Subtotal thyroidectomy was done in 132 patients while 24 patients ended up with near total & 36 were candidates for lobectomy.

**Table No.2: Surgical Procedures.**

| Type of surgery          | No. of patients |
|--------------------------|-----------------|
| Total thyroidectomy      | Nil - 0 %       |
| Near total thyroidectomy | 24 - 12.5 %     |
| Subtotal thyroidectomy   | 132 - 68.75 %   |
| Lobectomy                | 30 - 15.62 %    |

6 patients had symptoms of RLN damage while 24 develop parathyroid in sufficiency post operatively. All these patients managed conservatively & discharge on 2<sup>nd</sup> or 3<sup>rd</sup> post op day. They regain normal voice & normal serum calcium levels by the end of 3 months.

**Table No.3: Post op complications.**

| Complications             | No. of patients |
|---------------------------|-----------------|
| Hemorrhage                | Nil - 0 %       |
| Respiratory obstruction   | Nil - 0 %       |
| RLN injury                | 6 - 3.13 %      |
| Parathyroid Insufficiency | 24 - 12.5 %     |
| Infection                 | Nil - 0 %       |
| Keloid formation          | Nil - 0 %       |

**DISCUSSION**

The mountain regions in north-west of Pakistan & Kashmir are possibly the worst affected areas in the world & are labeled as goiter belt due to high incidence of the disease in the area<sup>6</sup>. The recommended daily allowance of iodine is about 100 nanogram per day<sup>3</sup>. Commonest source of water in the hilly areas of

Pakistan is obtained from snow & fountains which is very deficient in iodine & fails to meet the daily requirements. This deficiency of iodine can cause a lot of complications like goiter, cretinism, mental retardation, high infant mortality rate, decreased fertility rate & increased perinatal death rate<sup>7</sup>.

The iodine deficiency goiter starts as diffuse involvement of the gland due to raised levels of TSH. Later on the diffuse enlargement develops multinodularity due to fluctuating levels of TSH & unequal sensitivity of thyroid cells to the stimulating hormone. Therefore multinodular goiter is the most common presentation of thyroid disease in these areas & the same was observed in this study, that is 84.37 %. The female preponderance is well known & is due to increase requirement of iodine at the age of puberty (puberty onset goiter). Another situation when females require extra iodine is during pregnancy as discussed in detail by M A Zahid et al in Annals of PIMS (January 2006). Majority of our patients were females with female to male ratio is 96.87 to 3.13 & it is comparable with many other studies<sup>8-10</sup>.

Age of the patients ranged between 14-80 years with average being 35.5 years and majority of patients (62.5 %) falling below the age of 40. This reflects the period of reproductive life and therefore greater exposure to deficiencies. The average presenting age in our study is lower than that reported by Ascii et al (43 years)<sup>10</sup> and Steiner M et al (51.2 years)<sup>11</sup>. This could also be because of the population being an endemic area resident: as the goiter starts early its size increases rapidly and results in complications which compel them to seek medical advice. Therefore the patients present at a younger.

In one of the study done in Munich University on 369 patients, who underwent thyroid surgery between 2000 and 2006. 5 cases (0.83%) had a permanent recurrent laryngeal nerve paralysis. There was temporary recurrent laryngeal nerve paresis in 11 cases (1.84%). Up to 1 % incidence of temporary paralysis of RLN in subtotal thyroidectomy is acceptable as mentioned in literature for benign disease. Luckily none of our patient had permanent damage to RLN, all 6 completely recovered within 3 months. Similarly international studies are showing much higher levels of hypocalcaemia, whether transient or prolonged. Scerrino G & Salamone G calculated the chances of hypocalcaemia up to 23 % in sub-total thyroidectomy. In our center, we are using the technique of leaving inferior thyroid artery intact & selectively ligating the small branches resulting in 12.5 % chances of temporary hypocalcaemia.

**CONCLUSION**

Subtotal thyroidectomy is one of the commonest procedure done by the surgeons of Rawalpindi Islamabad region. Maximum effort should be done to optimize the patients preoperatively. If patients are euthyroid & assessed carefully for anesthesia fitness before operation, chances of pre or post-operative complications are negligible.

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**Original Article**

# To Study the Microbiology of Surgical Site Infections (SSIs) Complicating Abdominal Surgeries at DHQ Teaching Hospital D.I.Khan and the Drug Sensitivity against Them

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## ABSTRACT

**Objective:** To collect data of pathogens responsible for surgical site infection in elective abdominal surgeries and the drugs effective against them.

**Place and Duration of Study:** Department of Surgery, District Head-quarters Teaching Hospital, Dera Ismail Khan from 1<sup>st</sup> January 2005 to 31<sup>st</sup> December 2009.

**Materials and Methods:** Retrospective study on all cases of surgical site infections in elective abdominal surgeries over five years. Pus and swabs from infected wounds were sent to find the pathogens responsible for these infections and the drugs highly sensitive against them.

**Results:** 175 cases of abdominal surgeries with surgical site infection were collected over duration of five years. Their culture sensitivity reports showed positive result in 160 cases and negative result in 15 cases.

Organism most commonly responsible for abdominal wound infection in our study was Klebsiella Pneumoniae. It was found in 53 patients (33.12%) followed by Pseudomonas aeruginosa in 43 patients (26.8%) and E coli in 40 patients (25%). Other micro-organisms were Staph-aurous (6.8%), Enterobacter (3.75%), Streptococcus (3.12%) and Clostridia (1.25%).

Sensitivity report of these microbes showed that Sulzone (cefoperazone plus sulbactam) is the most effective antibiotic i.e. In 90 patients (56.25%), followed by Amikacin in 40 patients (25%) and Ciprofloxacin in 15 patients (9.3%). Other drugs showing higher sensitivity against these pathogens were Fosfomycin in 10 cases (6.25%) and Imipenem in 5 cases (3.125%).

**Conclusion:** The study gives us clues to the type of pathogens that we would expect in our surgical site infection wounds of abdominal surgery, and the antibiotics which can be empirically used against these infections.

**Keywords:** Microbes, Culture & Sensitivity, Surgical Site Infection, Abdominal Surgery.

## INTRODUCTION

Nosocomial infections are one of the leading causes of morbidity and mortality in the surgical patients of the hospital. Surgical wound infection takes one of the major fractions of these nosocomial infections<sup>1,2</sup>. . Approximately 60% of patients admitted to the hospital in surgical unit undergo surgery at some stage during their stay<sup>3</sup>. The US Centers for Disease Control and Prevention estimates that out of these operated cases about 500,000 SSIs occur annually only in United States<sup>3</sup>.

Several techniques are used to reduce the chance of infection in surgical wound<sup>4</sup> like, Theater environment

1. Keeping the temperature of the operation theater between 68-73 F.
2. Humidity between 30% to 60%.
3. Air movement from clean to less clean area.

4. Vigilance for break in aseptic techniques by operation room team
5. Maintain normo-thermia during operation<sup>5</sup>.
6. Use surveillance of wound infection with review of preventive measures<sup>5</sup>.
7. Bath before surgery, clean clothes, clean operation theater environments, scrub suits, caps/hoods, masks, gloves, gown,
8. Sterilized and clean post operative environment. Good Surgical Techniques
9. Warming patients for at least 30 min before surgery<sup>5</sup>.
10. Use of prophylactic antibiotics.
11. Good surgical techniques with minimum tissue trauma, blood loss and ideal haemostatic control.
12. Minimum use of drains.
13. Removing devitalized tissue.
14. Gentle handling of tissue.
15. Eradicating dead space.

16. Avoiding inadvertent entries into a viscus.
17. Removing hair by clipping<sup>6</sup>.
18. Limit sutures and ligatures.
19. Using monofilament sutures<sup>6</sup>.
20. Using closed suction rather than open drainage, No drainage if possible.
21. Exercise meticulous skin closure.
22. Administer high intraoperative and post operative inspired oxygen.

Even with all these precaution measures still the surgical site wounds get infected in elective abdominal surgeries.

These wounds have to be re-opened; pus and swabs are sent for culture of pathogens and their sensitivity reports. These wounds are then treated both locally and systemically.

### MATERIALS AND METHODS

All cases of surgical site infections, in elective abdominal surgeries admitted in Surgical Department of District Teaching hospital Dara Ismail Khan over five years were collected. These operations were done for different abdominal conditions. The results of this data were evaluated for the type of pathogen/pathogens and drug highly sensitive against them<sup>7</sup>.

175 cases of surgical site infection in elective abdominal surgeries were collected from patients data of five years i.e. From 1st January 2005 to 31st December 2009.

The inclusion criteria for these cases was,

- All patients of surgical site infection after elective abdominal surgeries during 1st January 2005 to 31st December 2009.

The exclusion criteria were,

1. Skin diseases.
2. Diabetes mellitus.
3. Immuno-compromised disease or therapies.
4. Presence of other infections.
5. Inadequate antibiotic prophylaxis.
6. Emergency procedures.
7. Unexpected contamination.

All these cases had three standard doses of Prophylactic antibiotics i.e. one gram of third generation cephalosporin(ceftriaxone) at the induction of anesthesia, the second dose twelve hours after the first dose and the third dose after twenty four hours the first dose<sup>8</sup>.

175 patients developed surgical site infection in the post operative period<sup>9</sup>. The infected wound was opened and pus/ wound swab was taken and sent for culture and sensitivity.

Culture and sensitivity was done using the standard techniques (both aerobically and an-aerobically).

Infected wound was treated locally using antiseptics like povidone iodine and systemically according to the culture and sensitivity results<sup>10</sup>.

### RESULTS

175 patients were included in the study that developed surgical site infection after elective abdominal surgery during 1st January 2005 to 31st December 2009.

Out of these 175 patients culture result were positive in 160 patients (91 percent) and negative in fifteen patients (9%) (11).

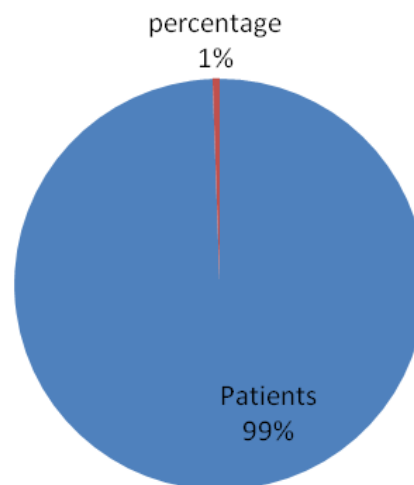
Out of 160 culture positive patients 53 patients had Klebsiella pneumoniae infection (33.12%), 43 patients had Pseudomonas aeruginosa infection (26.8%), 40 patients had E coli infection (25%), 11 patients had Staphylococcus aureus infection(6.8%). Five of which were Methicillin resistant. 6 patients had Enterococcus infection (3.75%), 5 cases had Streptococcus infection (3.12%) and two cases had Candida albicans infection (1.25%).

The drug sensitivity report showed that Sulzone (cefoperazone plus sulbactam) is highly effective antibiotic in largest percentage of cases i.e. in 90 patients (56.25%), followed by Amikacin which is effective in 40 patients (25%), Ciprofloxacin in 15 patients (9.3%). Other drugs showing highest sensitivity were Fosfomycin in 10 cases (6.25%) and Imipenum in 5 cases (3.125%).

**Table No 1: Culture and Sensitivity Results**

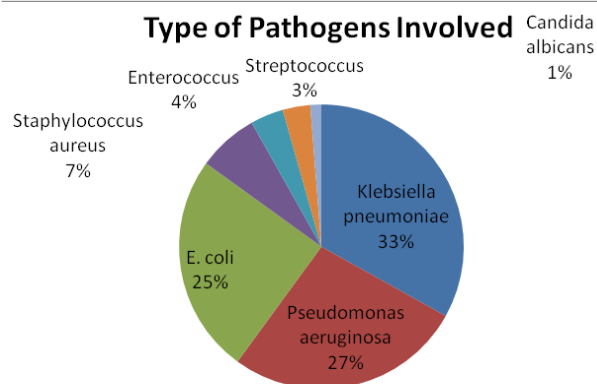
| Total No. of patients | Culture Results | Patients | percentage |
|-----------------------|-----------------|----------|------------|
| 175                   | Positive        | 160      | 91%        |
| 175                   | Negative        | 15       | 9%         |

**Culture and Sensitivity Result**



**Table No 2: Type of Pathogens Involved**

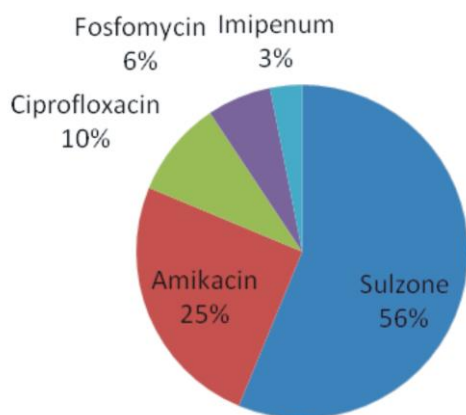
| Type of pathogens      | Patients | Percentage |
|------------------------|----------|------------|
| Klebsiella pneumoniae  | 53       | 33.12%     |
| Pseudomonas aeruginosa | 43       | 26.8%      |
| E. coli                | 40       | 25%        |
| Staphylococcus aureus  | 11       | 6.8%       |
| Enterococcus           | 6        | 3.75%      |
| Streptococcus          | 5        | 3.12%      |
| Candida albicans       | 2        | 1.25%      |



**Table No 3: Sensitivity of Drugs**

| Name of drug most sensitive | Patients | Percentage |
|-----------------------------|----------|------------|
| Sulzone                     | 90       | 56.25%     |
| Amikacin                    | 40       | 25%        |
| Ciprofloxacin               | 15       | 9.3%       |
| Fosfomycin                  | 10       | 6.25%      |
| Imipenem                    | 5        | 3.125%     |

**Sensitivity of Drug**



**DISCUSSION**

As we know that infection is still the leading cause of morbidity and mortality in the surgical department. Nosocomial infections are those infections that originate or occur in a hospital or hospital like setting<sup>8</sup>.

Common site of nosocomial infection is surgical site infection<sup>12</sup>.

Clean operation theater environment, good surgical techniques and use of antibiotics has significantly reduced the incidence<sup>13</sup>.

Still a lot of patients develop surgical site infection as we see in our study<sup>14</sup>. Different microbes are responsible for infection of surgical site wound in different institutions. Similarly the pathogens of wounds at different regions of body are different<sup>15</sup>. Our study showed that Klebsiella pneumoniae is the most commonly found pathogen at the surgical site in elective surgeries (33.12%) followed by Pseudomonas aeruginosa (26.8%) and E coli (25%).

In a study done by F.De Lalla in1999 Streptococcus aurius was the most common pathogen found in the surgical site wound. (16,17). A similar study done in 2008 by F Vyhnanek reported E Coli as the most common microbe in the surgical wound(18,19). While another study by B Schnuriger at al in 2010 on surgical site infections showed E coli as the most frequently found pathogen<sup>20</sup>.

The result of our sensitivity report shows that Sulzone (cefoperazone plus sulbactam) was the most effective antibiotic in SSI of abdominal wounds (56.25%) followed by Amikacin (25%) and Ciprofloxacin (9.3%) while other studies conducted by AG Knapp at al found Daptomycin to be highly effective against surgical site infection<sup>21</sup>. Another study by D Lohsiriwat at al found amoxicillin /clavulanate to be 100% effective in prevention of surgical site infection<sup>22</sup>. For the empirical treatment of nosocomial abdominal infections JM Tellado recommends Carbapenems as highly effective against gram negative pathogens<sup>23, 24</sup>.

**CONCLUSIONS**

Our study shows that gram pathogens are mainly responsible for surgical site infections in elective abdominal surgeries. Sulzone (cefoperazone plus sulbactam) was highly effective against these pathogens.

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**Original Article**

# Insertion of Intrauterine Contraceptive Device (IUCD) at Caesarean Section after the Delivery of Placenta: An Experience with 60 Cases

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## ABSTRACT

**Objectives:** To access the safety of Intrauterine Contraceptive Device (IUCD) insertion at Caesarean section after placental delivery.

**Study design:** Observational analytical study of cohort type.

**Place and duration of study:** Department of Obstetrics and Gynecology, Bolan Medical Complex Hospital, Quetta, from September 2009 to August 2010.

**Patients and Methods:** This prospective study was conducted in the department of Obstetrics and Gynecology Quetta from September 2009 to August 2010. Sixty patients who had IUCD inserted at cesarean section were studied and followed for six months. The age ranges from 20-45 years. Detailed history of each patient was recorded and thorough physical examination was performed. Patients with findings of any medical disorder were excluded. All analysis and computation including data base were done by SPSS 10.

**Results:** During the study period, a total of sixty women who had IUCD inserted at cesarean section were observed. All the cases were within age group ranging from 20-45 years of age. Out of them 53.3% were between 20 – 30 years, 28% between 31 -40 years, 18.3% belongs to 41-45 years of age. The events that were analyzed during the puerperium were pain, bleeding, infection and expulsion. Considering the postoperative complications, pain was the main complication during the puerperium and it occurred in 54% of patients. Endometritis were occurring in 25% of cases and heavy lochia in 21% of cases. The expulsion rate was 8.3%.

**Conclusion:** Women undergoing Cesarean section, who are suitable for using this method, should be given the option of IUCD insertion at the same time.

**Key Words:** cesarean section, intrauterine contraception device

## INTRODUCTION

Pakistan is included in the upper seven most populous countries in the world, so the need for birth spacing exists and suitable strategies for birth spacing require implementation<sup>1</sup>. Intrauterine contraceptive device (IUCD) is the second most common modern method of contraception used by women in regions with large populations, including countries like Pakistan<sup>2</sup>. It is favoured by women who wish to adopt a contraceptive method that does not require regular motivation for use or husband's participation and other hormonal methods do not suit them<sup>3</sup>.

Mostly the IUCD is inserted vaginally after the puerperium as an interval procedure. Health care providers avoid the insertion of IUCD either during puerperium or in a scarred uterus (e.g. due to Caesarean section), for fear of perforating it or introducing infection<sup>4</sup>. With rising rates of Caesarean section<sup>6</sup>, the number of women who would be excluded from using this method of contraception would go on increasing sharply, if the same practice were to be encouraged.

This is despite the fact that a fair number of women undergoing Caesarean section are good candidates for using the IUCD for contraception. The insertion of IUCD at Caesarean section offers the Health care providers an opportunity to insert the IUCD into the uterus under vision, thus obviating the fear of perforating the uterus during the procedure. Moreover a lot of women fail to return for availing contraceptive services, once they leave hospital so the IUCD insertion at Caesarean section also offers women a chance to avail this method of contraception at the same time as they have Caesarean section.

However reported experiences of IUCD insertion at Caesarean section from Pakistan is limited, it is therefore needed that such studies to be undertaken to find ways of promoting birth spacing strategies when women present to Health facilities for other services like delivery, including delivery by Caesarean section.

## PATIENTS & METHODS

It was an Observational analytical study conducted at the department of Gynecology and Obstetrics BMCH,

Quetta, over a period of one year from September 2009 to August 2010.

All the patients in the study were included on the basis of detailed history, physical examination and investigations. Detailed questioning regarding the age, parity, previous obstetrical history, history of any medical and surgical disorder were asked. The patients who have history of heavy/irregular periods, dysmenorrhoea, pelvic inflammatory disease, present pelvic infection, uterine fibroids, or structural uterine abnormality or previous removal of intrauterine contraceptive device for complications were not included in the study. In addition to this the patients, undergoing Caesarean section but having predisposing factors of postoperative infection, like rupture of membrane prior to admission or delivery of still born baby at Caesarean section, were also not included in the study. Each patient was examined thoroughly after complete and detailed history.

All the patients were undergone Caesarean section under general anesthesia and during the Caesarean section after delivery of baby, placenta and membrane IUCD was kept in the uterine cavity through the uterine incision and thread was pushed through the cervical canal into the vagina.

The patients were followed up to six months at regular intervals and any complaint, detailed menstrual history etc. were recorded. Their willingness to continue with the use of IUCD was asked for. If she wanted removal of IUCD, the reason for this was recorded. IUCD threads were visualized through per speculum vaginal examination. In the absence of the history of spontaneous expulsion or deliberate removal of the IUCD, the non-visualization of the thread was further investigated by x-rays and ultrasound examination of the pelvis.

All analysis and computation including data base were done by SPSS version 10. Mean  $\pm$  SD was computed for age. Analysis of different variables was performed using test of significance chi-square test.

## RESULTS

This study consist of the 60 patients undergone Caesarean section, at department of Obstetrics and Gynecology of Bolan Medical Complex Hospital, Quetta during the period of one year from September, 2009 to August, 2010

Regarding the profile of women included in the study, there was no significant difference between their socioeconomic and educational status. There was no significant difference in the duration of their marriages. Less than a third of all women had ever use contraception before.

Regarding the age, all the cases were within reproductive age group ranging from 25 years to 45

years of age. Out of them 32 (53.3 percent) were between 20-30 years, 17 (28 percent) were between 31-40 years and 11 (18.3 percent) belonged to 41-45 years of age. The mean age was 33 years. (Table No.1)

IUCD insertion at Caesarean section did not put any untoward effect on puerperal morbidity or lactation. However among the postoperative and later complications, pain was the main complication during the puerperium and it occurred in 29 (48 percent) of patients. Endometritis were occurring in 14 (23 percent) of cases and heavy lochia in 12 (20.7 percent) of cases. The expulsion of the IUCD was recorded in 5 (8.3 percent) cases. (Table No.2). Among the five women, in whom the expulsion was suspected on basis of absence of the thread on per speculum examination of the vagina, in one of the women, IUCD was expelled in the vagina immediately after completion of the Caesarean section. In other four, the IUCD threads were not visible at eight weeks follow up, two of them have the history of spontaneous expulsion while other two did not have any recollection of these having been expelled. In these two cases the ultrasound scan of the pelvis and x-rays pelvis failed to show the IUCD, so these two cases were recorded as un-noticed spontaneous expulsion.

**Table No. 1: Age Distribution of Cases.**

(n=60)

| Age         | Number | Percent |
|-------------|--------|---------|
| 20-30 Years | 32     | 53.3%   |
| 31-40 Years | 17     | 28%     |
| 41-45 Years | 11     | 18.3%   |

**Table No.2: Complication.**

(n = 60)

| Complication | Number | %     |
|--------------|--------|-------|
| Pain         | 29     | 48%   |
| Endometritis | 14     | 23%   |
| Heavy lochia | 12     | 20.7% |
| Expulsion    | 5      | 8.3%  |

## DISCUSSION

The issue of appropriate contraception for women with Caesarean section is likely to become increasingly important. In the United States in 1981, almost 18 percent deliveries were abdominal<sup>16</sup>. In less developed countries, the Caesarean section rate is also increasing. In one hospital of the Beijing, China, the average annual Caesarean delivery rate was 4.3 percent between 1999 and 2006, but increased to 12.9 per cent in 2008<sup>14</sup>. Despite, the Intrauterine Contraceptive Device (IUCD) is the second most common modern method of contraception used by women, the health care providers are reluctant to insert IUCD in a scarred uterus (e.g. due to Caesarean section) for fear of perforating it, thus depriving a fair number of women undergoing Caesarean section for using the IUCD regardless of

their good candidature for its use. Therefore the insertion of IUCD into the uterus under vision (at Caesarean section) is being encouraged. Excessive postoperative pain, heavy lochia and expulsion of the IUCD is attributed to insertion of IUCD at Caesarean section.

In our study the post operative pain occurred in 29 (48 percent) of patients. This is considerably greater than that found by Azen SP, Roy S, who reported it as 23 percent. A recent study by Zatuchni GI<sup>17</sup>, on fifty patients, found that significant number of patients have postoperative pain and greater analgesia required<sup>14</sup>.

In our study 12% women experienced heavy lochia while another study at a Mexican Institute of Social Security hospital in Cardenas, Tabasco, between August 2005 and December 2006, 78 women were inserted with copper T 220 IUDs during cesarean deliveries, only 6 percent of them had heavy lochia in the puerperium.

A study conducted by Kovac SR<sup>11</sup>, reported the average age as 20.6 years for IUD acceptors while in our study it was found as 33 years.

One of the concerns with immediate postpartum IUD insertions is the early and high incidence of expulsions. The present as well as other studies have shown IUCD insertion at Caesarean section to be effective and safe. The greater risk of expulsion after insertion of IUCD at Caesarean section is a possibility and the present and other studies did not significantly corroborate this possibility. In our study the expulsion rate was 8.3%, while Mackenze and Nickelsen<sup>15</sup> in 2000, reported an expulsion rate of 5.2%<sup>12</sup> and studies from Mexico reported the 7% rate of expulsion.

Insertion of IUCD at Caesarean section also offers an alternative to the common practice of tubal ligation, in cases of multiple repeat Caesarean sections. Women who have had multiple Caesarean sections at short intervals followed by tubal ligations, at a relatively young age may regret it later on, especially in view of the prevalent high perinatal and infant mortality rates<sup>18,19</sup>. Therefore a reversible, albeit a long term contraceptive method like IUCD in this group of women is a feasible option<sup>20</sup>.

## CONCLUSION

Women undergoing Caesarean section, who are desirous of, and suitable for using this method, should be given the option of insertion of IUCD at the same time.

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**Original Article****Antimalarial Drug Resistance in Vitro Studies against Plasmodium Falciparum in Punjab, Pakistan**

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**ABSTRACT**

**Purpose of study:** Antimalarial drug resistance was checked against Plasmodium falciparum in Punjab Pakistan.

**Study Design:** Prospective nonrandomized descriptive study.

**Place and duration of study:** Study was conducted in seven districts “Muzaffargarh, D.G.Khan, Jhang, Sheikhpura, Faisalabad, Lahore and Multan” of Punjab, Pakistan during the transmission season from July-November of 2003 to 2008.

**Materials and Methods:** Out of total positive for P.falciparum 612 (228+192+192) subjects were enrolled for study as per eligibility criteria of World Health Organization (WHO) and in vitro standard test kit was used for study. Differences in proportions and its significance were analyzed by chi-square tests.

**Result:** Resistance (%) to chloroquine was noted higher in males (79.5%) and in females (20.4%). Highest resistance (%) 31.8 was detected in 6-15 years age group. Same resistance (%) trend was observed in basoquine for males (72), females (28.35), for age groups 6-15 years (41.7) and total was 34.8. Sulphadoxine-pyrimethamine found highly effective with only 5.7% resistance. Trend of resistance (%) in male, female and among different age groups was found same in chloroquine and basoquine.

**Conclusion:** Differences among the resistance (%) sulphadoxine-pyrimethamine and chloroquine or basoquine was highly significant ( $p < 0.001$ ) and between basoquine and chloroquine resistance difference was non significant ( $p > 0.177$ ). Male of age group 6-15 years having  $\geq 6000$  parasite/ $\mu$ l must be treated on priority basis by artesunate combination therapy (ACT). Chloroquine was less effective than sulfadoxine-pyrimethamine (adjusted odds ratio [OR], 6.4; 95% confidence interval [CI], 2.4-17.0;  $P < .001$ ) and basoquine (adjusted OR, 8.4; 95% CI, 2.0-36.5;  $P = .004$ ). Chloroquine and sulfadoxine-pyrimethamine were equivalent in efficacy at day 28 (adjusted OR, 1.3; 95% CI, 0.3-7.0;  $P = .73$ ).

**Key Words:** Plasmodium falciparum, resistance, sulphadoxine/pyrimethamine, chloroquine, basoquine, Pakistan

**INTRODUCTION**

Since ancient times, humankind has had to struggle against the pathogenic microorganisms. Among which plasmodium is still the most important pathogenic microorganisms causing malaria worldwide (1). Malaria is a major public health problem; both treatment and control are hampered by the spread of resistance to common antimalarial drugs, especially multi-drug-resistant malaria is highly prevalent (2). Chloroquine resistance in *P.falciparum* contributes to increasing malaria-attributable morbidity and mortality in Sub-Saharan Africa (3). A child dies of malaria every 30 seconds, half of the world's population is at risk of malaria and an estimated 243 million cases led to approximately 863 000 deaths in 2008 (4).

Local strains of *P.falciparum* are resistant to chloroquine and attempt had made to check the susceptibility status of local strains towards

chloroquine, basoquine and sulphadoxine-pyrimethamine by *in vitro* technique in this study. The efficacy of readily affordable antimalarial drugs is declining rapidly in different parts of the world as reported by (4, 5,6,7,8,9,10,11,12, 13,14,15,16).

**MATERIALS AND METHODS**

Based upon the Annual Parasite Incidence (API) and/or high proportion of *P. falciparum* compared with *P. vivax* for *in vitro* studies the rural population of the Punjab Province was tested. Out of 6567 subjects screened during the transmission season (July-November of 2003 to 2008), 1406 were found positive for *P.falciparum*. Out of total positive for *P.falciparum* 612 (228+192+192) subjects were enrolled for study as per eligibility criteria of world Health Organization (17). For chloroquine 228 subjects were selected in seven districts (Sheikhpura, Muzaffargarh, Multan, Jhang, D.G.Khan, Faisalabad and Lahore) of Punjab.

Basoquine was tested on 192 subjects in six districts (Sheikhupura, Muzaffargarh, Multan, Jhang, D.G.Khan, and Faisalabad) and sulphadoxine / pyrimethamine on 192 subjects in the same six districts (Figure-1).



**Figure-1:** Map of Pakistan showing provinces and study districts

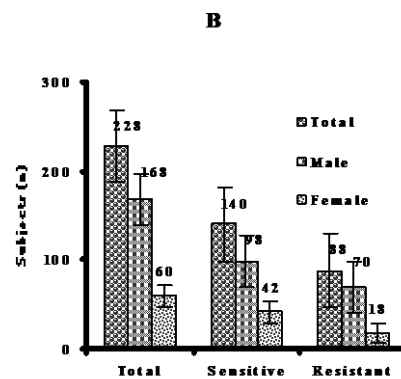
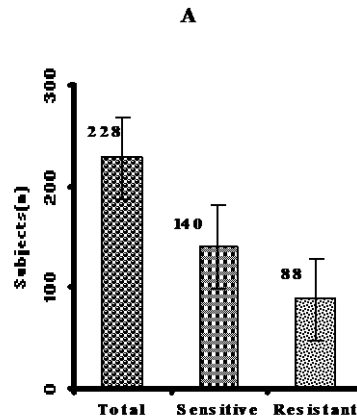
When the patient met all the inclusion criteria was enrolled in the study. The results for chloroquine, basoquine and sulphadoxine-pyrimethamine were recorded and conclusions were drawn. W.H.O. *in vitro* standard test kit was used for study. Differences in proportions and its significance were analyzed by using chi-square tests (18).

## RESULTS

### Chloroquine

228 subjects were treated with chloroquine for uncomplicated *falciparum* malaria in seven districts of Punjab showed 88 (38.6%) resistant cases and malaria incidence was higher among males 168 as compared to females 60 out of total 228 subjects (Figure-2). Total resistant (%) was found 38.6 (88/228), among them male was 30.7 (70/228) and females 7.8% (18/228). It is concluded that male subjects had more tendency to develop resistance as compared to females. Subjects were also analyzed by dividing in three age groups ( $\leq 5$ , 6 to 15 and  $\geq 16$  years) to check the treatment failure. Resistance (%) was found 2.19 (5/228) in  $\leq 5$ , 12.2 (28/228) in 6-15, and 9.2 (21/228) in  $\geq 16$  years group. Resistance (%) among the total resistant subjects in different age group was found 5.6 (5/88), 31.8(28/88) and 23.8 (21/88) in age group  $\leq 5$ , 6 to 15 and  $\geq 16$  years respectively. This study concluded that the age group 6-15 years is more vulnerable to develop resistance. The highest resistance (%) 48.1 (40/83) was found in the group having parasite density  $\geq 6000$  parasite/ $\mu$ l, 37.9 (22/58) had 3000 to 6000 and 29.8 (26/87) had density  $\leq 3000$  parasite / $\mu$ l. On examination of resistance (%) among total resistance subjects found 22.8 (26/88), 19.4 (22/88) and 35.2 (40/88) in the parasite density / $\mu$ l group of  $\leq 3000$ , 3000 to 6000 and  $\geq 6000$  respectively.

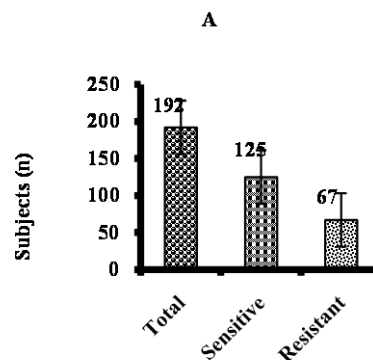
Results showed that chances of resistance increased with the increase of parasite density/  $\mu$ l.



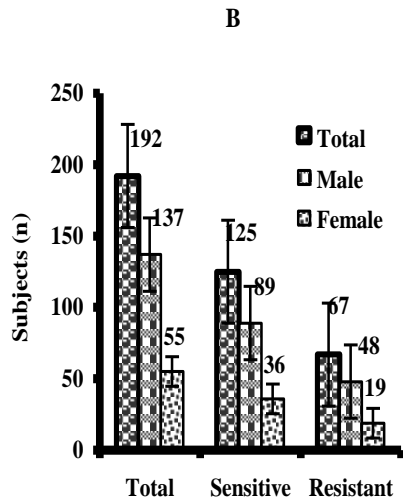
**Figure-2** Showing total, sensitive, resistant (A) and male and female (B) subjects by *in vitro* technique against *Plasmodium falciparum* with chloroquine in seven districts of Punjab, Pakistan from July 2003 to November 2008.(adjusted odds ratio [OR], 6.4; 95% confidence interval [CI], 2.4-17.0;  $P < .001$ ).

### Basoquine

192 subjects were treated with basoquine for



uncomplicated *falciparum* malaria in six districts of Punjab and 34.89 (67/192) resistance (%) was found.



**Figure-3** Showing total, sensitive, resistant male and female subjects by *in vitro* technique against *Plasmodium falciparum* with basoquine in six districts of Punjab, Pakistan from July 2003 to November 2005.(adjusted odds ratio [OR], 6.4; 95% confidence interval [CI], 2.4-17.0; P<.001).

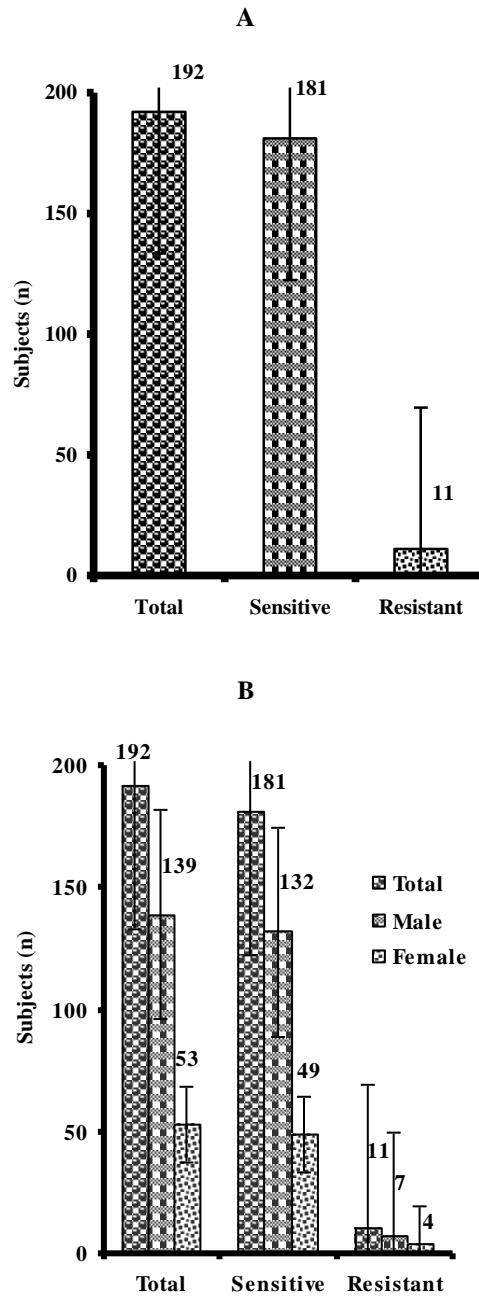
The incidence (%) of malaria was higher among males 71.3 (137/192) as compared to female subjects 28.64 (55/192), resistant (%) out of total subjects was found 34.89 (67/192), in males was 25(48/192) and females 9.89 (19/192). Genders wise further analysis of resistance described that out of 67 total resistant subjects, resistance (%) in males was 72 (48/67) and 28.35(19/67) females. There were 137 total male subjects out of them 35% (48/137) were found resistant and among 55 females subjects the percentage of resistant subjects was also 35% (19/55). Data was also analyzed by dividing the 192 subjects in three age groups ( $\leq 5$ , 6 to 15 and  $\geq 16$  years) and significant difference of failure was found (p=0.000).

Resistance (%) was found 21.2% (11/192) in  $\leq 5$ , 53.7% (28/192) in 6 to 15 and 51.8% (27/192) in  $\geq 16$  year's old group. Among the same age group subjects resistance (%) was 57.8% (11/19) in 6-15 the resistance (%) was 27.7% (28/101) and in  $\geq 16$  year group resistance (%) was 37.5% (27/72). Resistance among total subjects in different age groups was found 6.4% (11/67), 41.8 % ( 28/67) and 40.3% (27/67) in age groups of  $\leq 5$ , 6 to 15 and  $\geq 16$  years respectively (Figure-3).

**Sulphadoxine-pyrimethamine**

Sulphadoxine-pyrimethamine was also tested on 192 subjects against un-complicated *falciparum* malaria in

seven districts of Punjab and found 5.72% (11/192) resistance (P=. 000[95%CI=. 000-.000], Mean± S.D, 1.9427±. 23301) (Figure-4).



**Figure-4** Showing total, sensitive, resistant, male and female subjects by *in vitro* technique against *Plasmodium falciparum* with sulphadoxine-pyrimethamine in six districts of Punjab, Pakistan from July 2003 to November 2008.(adjusted OR, 1.3; 95% CI, 0.3-7.0; P = .73).

The resistance found against this drug was low and this was might be due to some hidden factors, which could

not be found during this study. The incidence of malaria infection was higher among males 72.3% (139/192) and females 27.6% (53/192). Total resistant (%) was found 5.7% (11/192). Genders wise further analysis of resistance, described that out of total 11 resistant subjects 63.6% (7/11) were males and 36.3% (4/11) were females. Among the same gender, out of total males subjects were 139 out of which 5% (7/139) were found resistant and females subjects were 53 out of which 7.5% (4/53) were *P.falciparum* resistant subjects. No significant difference between male and female were found.

Data was also analyzed by dividing the 192 subjects in three age groups ( $\leq 5$ , 6 to 15 and  $\geq 16$  years) and significant difference of failure was found ( $P=0.005$ ) among three groups for treatment with the same group analysis. Failure percentage was found 5 to 51% highest in age group  $\geq 16$  years 63.3% (7/11). Among the total study subjects 192, the young one group ( $\leq 5$ ) contributed 0% resistance, 2<sup>nd</sup> age group had 2% and  $\geq 16$  year's group had 3.4% resistant subjects. Parasite density / $\mu$ l of resistant subjects was found very important factor toward resistance development. The subjects were divided in three parasite density groups ( $\leq 3000$ , 3000-6000 and  $\geq 6000$  parasite density / $\mu$ l). In resistant subjects 18.2 % had parasite density  $\geq 6001$  parasite/ $\mu$ l. 54.5% (6/11) had 3000 to 6000 and 27.2% had density  $\leq 3000$  parasite / $\mu$ l. Although, the outcome of study is on the limited number of subjects but it concluded that situation is alarming because the incidence of *P.falciparum* and resistance against chloroquine is increasing.

## DISCUSSION

A merging multi-drug resistance problem in *P.vivax* and *P.falciparum* malaria parasites in Pakistan and concluded that despite resistance, chloroquine was prescribed in patients with malaria requiring hospitalization (19, 20, 21). We found a high proportion of single antimalarial drug use as well as inappropriate combination therapy (22.7%), and inadequate use of primaquine terminal prophylaxis. Physicians need to be acquainted with malaria treatment guidelines in an endemic zone. In present study chloroquine resistant (%) was found 38.6 by *in vitro* and 35.4 by *in vivo*, in another study conducted in Madagascar (22) resistance (%) detected by *in vitro* was 6.3%.

In this study area wise (Sheikhupura, Muzaffargarh, Multan, Jhang and D.G.Khan) development of resistance (%) detected against chloroquine was 41.6, 50, 41.6, 44.5, and 36.2 respectively. The differences in resistance (%) among different areas were found in the range 0.7 to 15 which is high as compared to difference in resistances (%) among different countries but cumulative difference of resistance (%) was detected

3.7, which does fall in the range 2.6 to 6.3 noted globally. In the same study areas development of resistances (%) against chloroquine and basoquine by *in vitro* technique were detected 41.6, 50, 41.6, 44.5, 36.2 and 33.3, 36.2, 33.3, 30.5, 36.22 in Sheikhupura, Muzaffargarh, Multan, Jhang and D.G.Khan respectively reported by various authors. Resistance differences between two drugs were found of 8.3 to 13.8 which were significant and confirmed that basoquine is more effective in all study areas than chloroquine. In Muzaffargarh and Jhang chloroquine found more resistant as compared to other districts. In D.G.Khan both drugs were found having the same percentage of resistance.

By *in vitro* resistances developed between chloroquine and sulphadoxine-pyremethamine were found 41.6, 50, 41.6, 44.5, 36.2 and 4.1, 8.3, 5.5, 2.7, 5.5 in Sheikhupura, Muzaffargarh, Multan, Jhang and D.G.Khan respectively. Results showed that sulphadoxine-pyremethamine is more effective drug in all study areas than chloroquine. In Muzaffargarh its resistant (%) was comparatively high (8.3) as compared to other districts, which is a matter of concern and cause of it needs to be detected. Basoquine is the antimalarial drug of the same group (4-aminoquinoline) of chloroquine; it is known more effective than chloroquine in the treatment of *P.falciparum* malaria. In the present study basoquine was tested against *P.falciparum* by *in vitro* technique and resistance (%) was found 34.8, which was 3.8% less than chloroquine (38.6), although it is not a big difference but it proved the assumption that it is more effective than chloroquine. Districts wise resistances (%) determined were 33.3, 36.2, 33.3, 30.5 and 36.22 in Sheikhupura, Muzaffargarh, Multan, Jhang and D.G.Khan respectively any significant difference was not found among different study areas.

The highest resistance (%) detected by *in vitro* was 26 and by *in vivo* was 18 to basoquine against *P.falciparum* showed 8% less resistance development by *in vivo* in Kenya (23). The development of resistance (%) to basoquine by day 28 was determined by *in vivo* 22.8 (95% confidence interval) and by *in vitro* 28.7. The difference of resistance (%) found between two techniques was 5.9 in Indonesia which was also similar to present study (24). In Kampala Uganda efficacy of basoquine was assessed by *in vitro* and found resistance (%) 56 in the treatment of uncomplicated *P.falciparum* malaria (25).

In present study by *in vitro* development of resistance (%) against sulphadoxine-pyremethamine was also checked and found 5.7 (11/192) with distribution in different study areas 4.1, 8.3, 5.5, 2.7 and 5.5 in Sheikhupura, Muzaffargarh, Multan, Jhang and D.G.Khan respectively. The resistance (%) detected of sulphadoxine-pyremethamine was less than chloroquine

and basoquine in Punjab, Pakistan. Drug pressure has been recognized to be an important factor in promoting the emergence and propagation of drug resistance, especially in areas with intensive malaria transmission. In Thailand, a decrease in the frequency of *falciparum* malaria was attributed to lower gametocyte carriage rates associated with the introduction of therapy with artemisinin derivatives. Monotherapy of any antimalarial drug should be stopped and switch to combination therapy. A sentinel site surveillance system for surveillance of antimalarial drug efficacy should be established to accomplish the dual goals of timely and ongoing data collection being the best tool.

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**Original Article**

# Prevalence of Hepatitis C Virus in Blood Donors

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## ABSTRACT

**Objective:** To determine the prevalence of hepatitis C virus in healthy blood donors.

**Study Design:** A prospective descriptive study.

**Place & duration:** This study was conducted in the Pathology Department Combined Military Hospital, Multan within 3 years from 01-07-2007 to 30-06-2010.

**Patients & method:** A total of 18042 blood donors ranging from 18 – 55 years of age were screened for hepatitis C virus antibodies by ELISA method.

**Results:** Hepatitis C virus antibodies were positive in 602 (3.3%)

**Conclusion:** Seroprevalence of hepatitis C is high even in healthy young blood donors.

**Keywords:** Serological screening, Hepatitis C, Hematology.

## INTRODUCTION

Since the discovery in 1989, hepatitis C virus (HCV) has been recognized as a major cause of chronic liver disease throughout the world. According to WHO report Seroprevalence of hepatitis C is 2% representing about 123 million people <sup>(1)</sup>. It is increasing day by day especially in under developed and developing countries. It is most common chronic blood born infection in USA <sup>(2)</sup>. As there is no vaccine and no post-exposure prophylaxis for HCV, focus of primary prevention efforts should be safe blood supply after proper screening, safe injection practices and safety measures for health care providers.

## PATIENTS AND METHODS

This study was carried out at Hematology section of Department of Pathology, Combined Military Hospital, Multan, for a period of three years from 01-07-2007 to 30-06-2010. All healthy blood donors coming for blood donation for their own patients, exchange of blood groups and volunteers of age between 18 – 55 years were included in study. Screening of all donors for hepatitis C, hepatitis B and human immunodeficiency virus by ELISA technique was performed. The sero positive persons were informed about it. Results were recorded at the end of study and record of hepatitis C positive cases was analyzed separately.

## RESULTS

Screening of total number of 18042 donors between 18 – 55 years of age was performed. Out of them 16138 (90%) donors were males and 1804 (10%) donors were females. HCV positive cases were 602 (3.3%). WHO reported HCV prevalence in most populous nations as below:

| Country              | Sample size  | HCV prevalence % |
|----------------------|--------------|------------------|
| China                | 68000        | 3.2%             |
| USA                  | 21214        | 1.8%             |
| Indonesia            | 7572         | 2.1%             |
| Brazil               | 66414        | 1.1%             |
| Pakistan             | 103858       | 4.0%             |
| <b>Present Study</b> | <b>18042</b> | <b>3.3%</b>      |

**Table No. 1: Male to Female Ratio in Screened Persons.**

| Male | Female |
|------|--------|
| 90%  | 10%    |

**Table No. 2 Hepatitis C Prevalence in various age groups.**

| Age in year | Percentage |
|-------------|------------|
| 18-25       | 2.0%       |
| 25-35       | 3.6%       |
| 35-45       | 4.2%       |
| 45-55       | 2.5%       |

**Table No. 3: Prevalence in Gender.**

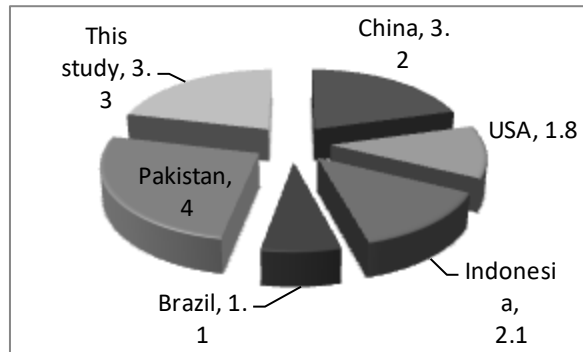
| Male | Female |
|------|--------|
| 3.6% | 2.8%   |

## DISCUSSION

Hepatitis C is endemic in most parts of World. According to various studies its prevalence ranges from 0.4% to 14.4% in different parts of World <sup>(3)</sup>. It is more common in developing countries as compared to developed World <sup>(4)</sup>. According to local literature Seroprevalence of Anti HCV antibodies varies from 4% to 7% <sup>(5,6)</sup>. Incidence is increasing day by day. Studies from Karachi by Shirazi et, al <sup>(7)</sup> and Zubia et, al <sup>(8)</sup>, is

even higher upto 9% and 11% respectively. According to WHO reports data on World Wide Prevalence of HCV, it is less common in less populated as Germany 0.6% <sup>(9)</sup>, Canada 0.8% <sup>(10)</sup>, France 1.1% <sup>(11)</sup> and Australia 1.1% <sup>(12)</sup>. Low rates are reported in populous though developed countries as USA 1.8% <sup>(13)</sup>, Japan 2.3% <sup>(14)</sup>, Italy 2.2% <sup>(15)</sup>, China 3.2% <sup>(16)</sup>, Indonesia 2.1% <sup>(17)</sup> Pakistan 6.5% <sup>(18)</sup> and Egypt has the highest reported rate of 22% <sup>(19)</sup>.

**Table No. 4: Comparison of Percentage in Various populations in the different countries.**



## RECOMMENDATIONS

On the basis of above mentioned facts, following measures are recommended.

- Public health education regarding hepatitis C, its risk factor, complications, mode of transmission, preventive measures and treatment of seropositive carriers.
- Every person should be discussed for hepatitis.
- Prevention & protection measures for health care providers.
- Use of disposable items. In case of non disposable separate equipments for seropositive cases and cleaning with anti viral chemicals after every use.
- Disposable items should be destroyed in incinerator.

## CONCLUSION

Seroprevalence of hepatitis C is high and increasing day by day especially in developing and populous areas.

Protocol should be prepared preferably by Government and World Health Organizations for screening of every individual, protective and preventive measures and treatment of carriers.

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**Original Article**

# Evaluation of the Efficacy of *Saccharomyces Boulardii* in Children with Acute Diarrhea

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## ABSTRACT

**Objective:** To evaluate the efficacy of the yeast *Saccharomyces boulardii* (SB) as an antidiarrheal agent in 100 children with acute diarrhoeal illness.

**Study Design:** Analytical observational study.

**Materials and Methods:** Study was conducted From 1st April 2008 31<sup>st</sup> August 2008, 200 children 6 months to 12 years of age with acute watery diarrhea with duration of less than 07 days without history of fever or blood in stool or severe malnutrition admitted in Paediatric department PMCH were included in the study group.

**Results:** Evaluation of the results showed reduction in the number of stools and an improvement in their consistency in *Saccharomyces boulardii* group. After 48h and 96h children treated with *Saccharomyces boulardii* scored better than controls. It is concluded that in *Saccharomyces boulardii* group significantly more children recovered and normalized stools than controls without adverse reactions.

**Conclusion:** It is concluded from our study that in infant and small children with acute diarrhea treatment with SB achieves significant reduction in the duration of diarrhea and number of stool even in the early period of SB preparation use. This yeast (SB) can be used as an adjunct to oral rehydration in treating acute diarrhea in children.

**Key Words:** *Saccharomyces boulardii*, efficacy, acute diarrhea.

## INTRODUCTION

According to the Food and Agriculture Organization of United Nation and World Health Organization, Probiotics are the live organisms which when consumed in adequate amounts as a part of food confer a health benefit on the host.<sup>1</sup> They function by competing with pathogens for nutrients and receptors, by inducing hydrolysis of toxins and receptors, production of antimicrobial substances (including peptides of the innate immune system) and organic acids and modulation of nitric oxide synthesis.<sup>2</sup> *Saccharomyces boulardii* is non-pathogenic probiotic yeast considered to be useful against enteropathogens. Although the exact mechanism by which *S. boulardii* might exert its activity remains unclear, several possible mechanisms have been proposed, mostly based on results of *in vitro* and animal studies. These include inhibition of pathogen adhesion,<sup>3</sup> strengthening of enterocyte tight junctions,<sup>4,5</sup> neutralization of bacterial virulence factors<sup>6,7</sup> and enhancement of the mucosal immune response.<sup>8,9</sup>

*Saccharomyces boulardii* has been shown to reduce the duration of diarrhea<sup>10</sup> and also the duration of hospitalization.<sup>11</sup> It also reduces the frequency of stools and improves consistency of the stools as compared to the children kept on other treatment modalities for acute diarrhea and is well tolerated with almost no adverse effects<sup>12</sup>

As multiple studies on efficacy combining *Saccharomyces boulardii* along with other probiotics have been conducted with varying results but limited studies are available showing the efficacy of only *Saccharomyces boulardii*. This study will assess the efficacy of *Saccharomyces boulardii* for treating the children with acute diarrhea and will be beneficial in adding on to pre-existing data.

## MATERIALS AND METHODS

From 1st April 2008 31<sup>st</sup> August 2008, two hundred children 6 months to 12 years of age (140 below 5 years of age and 60 were more than 5 years of age) with acute watery diarrhea with a duration of less than seven days admitted in the pediatric ward of PMC hospital Nawabshah. Exclusion criteria were; fever > 38.5°C, macroscopic blood in the stools, intake of anti-biotic drugs, or existing severe malnutrition (weight-to-height ratio < 70%). Patients who exhibited during the study deterioration of their diarrhoeal illness or any concomitant disease thus required other drugs were excluded from the study.

Children were divided into 2 groups. First group received 250 mg SB every 24 hour diluted into 5 ml of cold liquid. Second group received 250 mg placebo (glucose) diluted into 5 ml of cold liquid every 24hour. All patients were given World Health Organization low osmolar oral rehydration solution and normal food for their ages.

After 48h and 96h stool frequency and its consistency were recorded. The criterion of treatment efficacy was an absence of liquid stools and progressive reduction of stool frequency.

Statistical analysis was carried out using the Chi-square test and Student's t-test for two independent samples.

**RESULTS**

Two hundred patients completed the study. Group 1 (100 patients) represented 62 boys and 38 girls (mean age 15 ± 7.4 months), group 2 (100 patients); 58 boys and 42 girls (mean age of 14.1 ± 7.1 months). There were no significant differences between the two groups (p>0.05). Patient characteristics at baseline did not differ between the two groups. The mean duration of diarrhea was 3.18 days in S. boulardii group and 4.28 days in the control group (P < 0.05). On day 2, the defecation frequency was less than three times a day in 51 (51%) of 100 in the S. boulardii group and 32 (32%) of 100 in the control group (P = 0.019) (Table 1 ). On day 3, S. boulardii and ORS was two times more to reduce the frequency of stools to less than three per day than ORS alone. On day 4, 95 (95%) of 100 in the S. boulardii group had less than three stools per day compared with 80 (80%) of 100 in the control group.

On day two, S. boulardii had no significant effect on the consistency of stools. However, after day 3, stool consistency was significantly more solid in the S. boulardii group (Table 2 ). On day 3, 75 (75%) of 100 patients in the S. boulardii group passed solid stools compared with only 26 (26%) of 100 in the control group (P < 0.005). On day 4, patients were 13 times more likely to pass solid stools after receiving S. boulardii plus ORS than patients who received only ORS. After day 5, no patients in the S. boulardii group had liquid stools.

**Table No. 1: Stool frequency in the study population**

| Day | Controls  |          | Saccharomyces boulardii |          | P-Value |
|-----|-----------|----------|-------------------------|----------|---------|
|     | < 3 times | ≥3 times | < 3 times               | ≥3 times |         |
| 1   | 0         | 100      | 0                       | 100      | NS      |
| 2   | 32        | 68       | 55                      | 45       | 0.019   |
| 3   | 56        | 44       | 76                      | 24       | 0.019   |
| 4   | 80        | 20       | 94                      | 6        | NS      |
| 5   | 96        | 4        | 100                     | 0        | NS      |
| 6   | 100       | 0        | 100                     | 0        | NS      |
| 7   | 100       | 0        | 100                     | 0        | NS      |

**Table No. 2: Stool consistency in the study population**

| Day | Controls |        | Saccharomyces boulardii |        | P-Value | Odds Ratio( 95%CI)      |
|-----|----------|--------|-------------------------|--------|---------|-------------------------|
|     | Solid    | Liquid | Solid                   | Liquid |         |                         |
| 01  | 0        | 100    | 0                       | 100    | --      |                         |
| 02  | 2        | 98     | 4                       | 96     | < 0.307 | 3.167 (1.888 - 5.312)   |
| 03  | 25       | 75     | 70                      | 30     | < 0.005 | 13.17 (1.909 – 88.889 ) |
| 04  | 63       | 37     | 97                      | 3      | < 0.005 | 13.025 (1.909 – 88.889) |
| 05  | 84       | 16     | 100                     | 0      | 0.001   |                         |
| 06  | 97       | 3      | 100                     | 0      | 0.001   |                         |
| 07  | 100      | 0      | 100                     | 0      | 0.001   |                         |

**DISCUSSION**

The efficacy of S. boulardii has been documented in various types of diarrhea such as the prevention of antibiotic-associated diarrhea,<sup>13</sup> Clostridium difficile-associated enteropathies,<sup>14</sup> chronic diarrhea caused by giardiasis<sup>15,16</sup> and amebiasis,<sup>17</sup> prevention of traveler's diarrhea,<sup>18</sup> prevention of diarrhea in critically ill tube-fed patients,<sup>19</sup> and treatment of human immunodeficiency virus-associated diarrhea.<sup>20</sup> However, the major indication is acute diarrhea in children and adults.<sup>21-25</sup>

In the present study we found remarkable reduction of stool frequency in the active treatment group vs placebo and higher percentage of cases cured starting from 48h. Lactose intolerance was recorded in 8% of SB treated cases and in 26% of cases in placebo group; these

results are in consistency with other international studies<sup>10,26</sup>.

**CONCLUSION**

In conclusion, we confirmed that in infant and small children with acute diarrhoea treatment with SB achieves significant reduction in the duration of diarrhoea and number of stool even in the early period of SB preparation use. In the light of these results and the previously established safety, Saccharomyces boulardii preparation might be recommended for routine use in children with acute diarrhoea parallelly with oral rehydration solution. As this is a costly practice to introduce the probiotics on national level in developing countries like Pakistan, so still more studies

are needed to look for the efficacy of probiotics in management of acute watery diarrhea.

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**Original Article**

# Midline Neck Swellings - Frequency of Occurrence of Thyroglossal Cyst

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## ABSTRACT

**Aims and objectives-**To study the frequency of occurrence of thyroglossal duct cyst in comparison to other midline neck swellings.

**Study Design:** It is a prospective descriptive study.

**Place and Duration of Study:** It is conducted in SUI in Allied hospital Faisalabad from March 2006 to March 2008.

**Materials and Methods:** In this study 35 patients were studied. They were admitted through outdoor to surgical unit I with midline neck swellings. Patients of both sexes from 5 to 45 years old were examined. Their detailed history and physical examination were carried out. It was determined on physical examination that the midline swellings were solid or cystic, tender or non tender and moved with swallowing and tongue protrusion or not.

**Inclusion criteria:** All patients with central midline swellings of the neck.

**Exclusion criteria:** Patients with lateral neck swellings were excluded from this study.

**Results:** In our study of 35 patients of midline neck swellings, 21 were males and 14 were females. Out of 35 patients 20 patients(57.14%) were having acute or chronic lymphadenitis, One out of 35 patients had Hodgkin's lymphoma(2.85%),3 patients (8.5%) had thyroglossal cysts,8 patients(22.85%)had solitary thyroid nodule of isthmus,2 patients(5.7%)were suffering from dermoid cyst while 1 patient(2.8%) had plunging ranula. Out of 3 patients of thyroglossal cysts 2(5.71%) were males and 1(2.85%) was female. The age range was between 5 to 45 years.

**Conclusion:** Lymph node enlargement are among the most common causes of midline neck swellings. Thyroglossal cysts are also found among the midline neck swellings but not as frequently as solitary thyroid nodules of the isthmus. Dermoid cysts and plunging ranulas are quite rare causes of midline neck swellings.

**Key Words:** Midline neck swellings, thyroglossal duct cyst, lymphadenitis, solitary thyroid nodule of isthmus, Dermoid cyst, Plunging ranula.

## INTRODUCTION

Midline swellings in the neck are congenital, inflammatory or neoplastic in nature. Amongst the congenital swellings thyroglossal cysts are quite common<sup>1,2,3</sup>. Other midline swellings which can be considered as the differential diagnosis of thyroglossal cysts are plunging Ranula, dermoid cyst, teratoma, thymic cysts, midline ectopic thyroid gland, enlarged isthmus of thyroid gland (solitary thyroid nodule), lymphadenitis or lymphangioma. While making a diagnosis of thyroglossal cyst it is desirable to keep in mind that these swellings are not always in the midline, being on one side or the other in the neck on some rare occasion probably because of infection or some branching remnants<sup>4</sup>.It is desirable to excise these swellings because of their tendency to get infected or rarely to become malignant (1%) particularly in female patients. Sometimes these swellings after getting infected transform into an abscess which may later discharge on a surface leading to a sinus formation.

Thyroid gland develops from thyroglossal duct which descends to its anatomic position from foramen caecum

present at the junction of anterior two third and posterior one third of the tongue. During its descent it either passes anterior or posterior or through the hyoid bone. Remnants of thyroglossal tract along its path of descent may lead to presence of thyroglossal duct cysts located at different positions like intraglossal, submental, suprahyoid, infrahyoid, at thyroid cartilage, at cricoids cartilage or suprasternal position.<sup>5</sup>Thyroglossal cysts occur in infants, children and young adults. However, they can occur in elderly patients as well<sup>6</sup>. These cysts can fill with fluid or mucus, and may enlarge if they become infected. Very enlarged cysts can cause difficulty in swallowing or obstruct breathing passages<sup>6</sup>.

The thyroid gland is a midline derivative of the pharynx. It is first identifiable in embryos of approximately 20 somites as a median thickening of endoderm lying in the floor of the pharynx between the first and second pharyngeal pouches and immediately dorsal to the aortic sac. This area is later invaginated to form a median diverticulum which appears late in the fourth week in the furrow immediately caudal to the median tongue bud. It grows caudally as a tubular duct.

The tip of the duct bifurcates from which the isthmus and the lateral lobes of the thyroid gland are developed. The median diverticulum is connected to the pharynx by the thyroglossal duct. The site of its initial connection with the endodermal floor of the mouth is marked by the foramen caecum, whence it extends caudally in the midline ventral to the primordium of the hyoid bone (behind which it later forms a recurrent loop). The distal part of the duct may differentiate into the pyramidal lobe and levator muscle – or suspensory fibrous band – of the thyroid. The remainder becomes fragmented and disappears, although the lingual part is often identifiable until late in fetal life. Occasionally, parts of the midline thyroglossal duct persist and may occur in lingual, suprahyoid, retrohyoid or infrahyoid positions. They may form aberrant masses of thyroid tissue, cysts, fistulae or sinuses, usually in the midline<sup>24,25</sup>.

The following are the most common symptoms of a thyroglossal duct cyst. However, each patient may experience symptoms differently. Symptoms may include:

- a small, soft, round and non tender mass in the front of the neck
- tenderness, redness, and swelling of the mass, if infected
- a small opening in the skin near the mass, with drainage of mucus from the cyst
- difficulty in swallowing or breathing

Generally, diagnosis is made by physical examination. The mass typically moves upward when the tongue is extended and with swallowing since the thyroglossal duct often connects at the base of the tongue. It is important to determine if the thyroglossal duct cyst contains thyroid tissues. In addition to a complete medical history and physical examination, diagnostic procedures for a thyroglossal duct cyst may include the following:

- blood tests (to assess thyroid function)
- ultrasound examination - To differentiate between a solid and a cystic swelling.
- thyroid scans - a procedure that uses radioactive iodine or technetium (a radioactive metallic element) to reveal any physical abnormalities of the thyroid and to know that the swelling is the only thyroid tissue present ectopically.

Treatment may include:

- antibiotic medication (to treat the infection)

Surgical removal of the cyst and the thyroglossal duct, called the Sistrunk procedure. Infection of the cyst prior to surgery can make the removal more difficult and increase the chance for regrowth. Body of hyoid bone and core of lingual tissue alongwith thyroglossal duct cyst is removed in Sistrunk operation to avoid any recurrence in future.

The recurrence rate associated with simple excision of a thyroglossal duct cyst is approximately 50%, whereas the recurrence rate associated with a formal Sistrunk procedure is approximately 5%. The rate of recurrence after a Sistrunk procedure is increased however, when a thyroglossal duct cyst is ruptured during dissection. A history of previous infection of the cyst, previous incision and drainage procedures, and adherence of the cyst to the skin all increase the risk of rupture during dissection. If the cyst is infected at the time of diagnosis, treatment with antibiotics, such as ampicillin/sulbactam, amoxicillin/clavulanate, or clindamycin, is indicated before surgical excision<sup>1,2,3</sup>.

The most common complications of thyroglossal duct cysts are infection with the possibility for abscess formation, spontaneous rupture, and formation of a secondary sinus tract. A Sistrunk procedure mistakenly performed for thyroid ectopia that removes thyroid tissue can cause hypothyroidism. The cysts can compress the trachea and lead to respiratory distress, especially if they are rapidly expanding (although this is not common). Carcinoma is the most feared complication, occurring in about 1% of all cases, with papillary carcinoma accounting for 85-92% of malignancies and follicular carcinoma accounting for the rest. Most patients who develop carcinoma tend to present at a later age. Cancer in a thyroglossal duct cyst seems to be more common in females than in males. The diagnosis of carcinoma arising in a thyroglossal duct cyst is typically made postoperatively by histology<sup>7</sup>.

The majority of cystic neck masses in children are congenital. When midline or paramidline in position, thyroglossal duct cyst and dermoid cyst are the primary differential considerations. When off midline, branchial apparatus cysts and lymphatic malformations should be considered. Based on location and appearance, the majority of branchial apparatus cysts can be differentiated from lymphatic malformations.

The Delphian node (prelaryngeal) along with paratracheal nodes, pretracheal nodes, perithyroidal nodes make up level VI and not routinely excised in radical neck dissection. Involvement of this node can be as a result of diffuse nodal involvement in squamous cell carcinoma of the Head and Neck or in isolation from direct lymphatic spread of laryngeal cancer through the anterior commissure. Thyroid carcinomas may also involve this node.

The delphian node gains its name from the Oracle of Delphi, whose prophecy in this case would be of an unpleasant death secondary to laryngeal cancer. Plunging ranula is a cystic swelling having mucus secretion with connection to sublingual gland and may penetrate through myelohyoid muscle and present in submandibular regions<sup>8</sup>.

The neck is also divided into six lymph node levels each draining specific anatomical sites of the head and neck and are as follows:

- Level 1 – Submental and submandibular nodes.
- Level 2 – Upper jugular nodes – located anterior to sternocleidomastoid muscle, spanning from skull base to the level of the carotid bifurcation.
- Level 3 – Mid jugular chain - located along internal jugular vein from the level of the carotid bifurcation to the level of the inferior belly of the omohyoid muscle.
- Level 4 – Lower jugular chain – located along the lower jugular vein from the level of the inferior belly of the omohyoid muscle down to the clavicle.
- Level 5 – Nodes located in the posterior triangle posterior to the sternocleidomastoid muscle.
- Level 6 – Nodes are located in the midline anterior neck.

**Aims and Objectives**

To study the frequency of occurrence of thyroglossal duct cyst in comparison to other midline neck swellings

**MATERIALS AND METHODS**

In this study 35 patients were studied. They were admitted through outdoor to surgical unit I with midline neck swellings. Patients of both sexes from 5 to 45 years were examined. Their detailed history and physical examination were carried out. It was determined on physical examination that the midline swelling was solid or cystic, tender or non tender and moved with swallowing and tongue protrusion or not.

**Study design:** It is a prospective descriptive study conducted in SUI of Allied hospital Faisalabad from March 2006 to March 2008.

**Inclusion criteria:** All patients with central midline swellings of the neck.

**Exclusion criteria:** Patients with lateral neck swellings were excluded from this study.

After detailed history and physical examination of the patient provisional diagnosis was made and then relevant investigations were advised to the patients. These investigations included CBC, ultrasound of the

neck, thyroid scan, thyroid function test, FNAC and CT scan of neck.

After reaching the diagnosis definitive treatment whether surgical or medical were carried out. After surgery biopsies were sent for histopathology and diagnosis were further confirmed. After getting the desired data incidence of thyroglossal cyst was compared with other midline neck masses. Patients with acute lymphadenitis were treated by giving them antibiotics. Patients with tuberculous lymphadenitis were put on antituberculous therapy after confirming the diagnosis by excisional biopsy and histopathology of enlarged lymph node. While patients having thyroglossal cyst underwent Sistrunk procedure. In case of dermoid cysts excision was carried out. In case of plunging ranula excision of cyst alongwith removal of sublingual gland was undertaken. Patients with hodgkin’s lymphomas were referred to oncology ward for chemotherapy and radiotherapy.

**RESULTS**

In our study 35 patients were included with midline neck swellings with age range from 5 years to 45 years. All patients with lateral neck swellings were excluded from our study. Out of 35 patients 21 were males and 14 were females.

It is evident from table No. I that out of 35 patients 20 patients(57.14%) were having acute or chronic lymphadenitis, One out of 35 patients had Hodgkin’s lymphoma(2.85%),3 patients (8.5%) had thyroglossal cysts,8 patients(22.85%)had solitary thyroid nodule of isthmus,2 patients(5.7%) were suffering from dermoid cyst while 1 patient(2.8%) had plunging ranula. Out of 3 patients of thyroglossal cyst 2(5.71%) were males and 1(2.85%) was female. The age range was between 5 to 45 years.

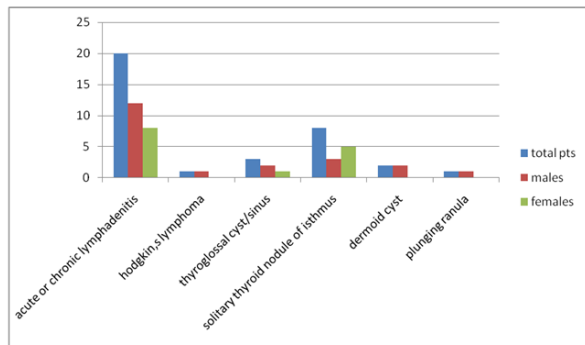
As can be seen from above table patients with acute lymphadenitis are young patients with age range from 5 to 12 years. Out of 21 patients of enlarged lymph nodes in midline of neck 12 were males (57.14%) and 9(42.85%) were females. There were 12 patients of acute lymphadenitis ( 57.14%),8 were of tuberculous lymphadenitis(38%) and one patient of Hodgkin’s lymphoma out of 21 patients of enlarged lymph nodes(4.7%)

**Table No.1**

| Diseases  | No. of Patients | Males | Age range   | Females | Age range   |
|---|-----------------|-------|-------------|---------|-------------|
| Acute or chronic lymphadenitis                      | 20              | 12    | 5-35 years  | 8       | 6-32 years  |
| Hodgkin’s lymphoma                                  | 1               | 1     | 36 years    | -       | -           |
| Thyroglossal cysts/sinus                            | 3               | 2     | 6-20 years  | 1       | 10 years    |
| Solitary thyroid nodule of isthmus of thyroid gland | 8               | 3     | 35-45 years | 5       | 35-40 years |
| Dermoid cyst  | 2               | 2     | 20-31 years | -       | -           |
| Plunging ranula                                     | 1               | 1     | 10 years    | -       | -           |
| Total   | 35              | 21    | 5-45 years  | 14      | 6-40 years  |

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**Figure No.1: No. of patients with midline neck swellings**

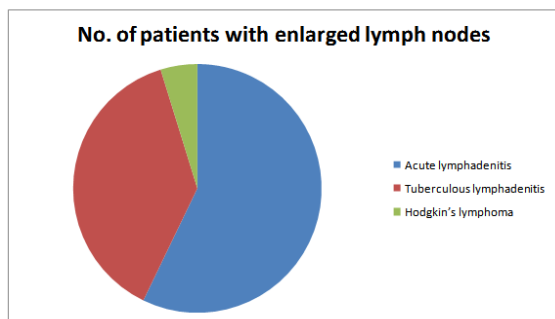


**Table No. 2**

| Disease                   | No. of patients | Males | Age range   | Females | Age range   |
|---------------------------|-----------------|-------|-------------|---------|-------------|
| Acute lymphadenitis       | 12              | 6     | 5-10 years  | 6       | 6-12 years  |
| Tuberculous lymphadenitis | 8               | 5     | 17-35 years | 3       | 20-32 years |
| Hodgkin’s lymphoma        | 1               | 1     | 40 years    | -       | -           |
| Total                     | 21              | 12    | 5-35 years  | 9       | 6-32 years  |

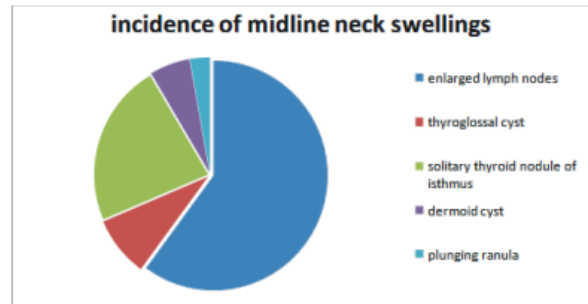
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**Figure No.2**



Out of 35 patients, percentage of patients with acute lymphadenitis is 34.28%,with tuberculous lymphadenitis it is 22.85% and with hodgkin’s lymphoma it is 2.85%.It can be seen from above tables that most common midline neck swellings are because of enlarged lymph nodes( 60% )the second most common cause of midline neck swellings is solitary thyroid nodule of isthmus (22.85% ) then comes thyroglossal cyst 8.5%,then dermoid cyst 5.7% and then plunging ranula 2.8%.

**Figure No.3**



**DISCUSSION**

In our study acute and chronic lymphadenitis are among the most common causes of midline neck swellings (57.14%).

Acute lymphadenitis is quite common among children either viral or bacterial and can be treated by medicines. Lymph nodes are painful and tender .In our study most of the patients with acute lymphadenitis are children between 5-12 years of age. Out of 35 patients 12 were having acute lymphadenitis(34.28%) which is quite close to other studies like Larsson et al<sup>9</sup>.In this study incidence of lymphadenopathy among children varies between 38-45%<sup>9,10</sup>.The second most common cause of midline neck swellings in our study is tuberculous lymphadenitis i.e. 8 out of 35 patients were having cervical tuberculous lymphadenitis(22.85%).The frequency of occurrence of tuberculous lymphadenitis among the enlarged cervical lymph nodes in our study is 38%.It is comparable to other studies conducted in the other parts of the world<sup>11,12</sup>.Enlargement of cervical lymph nodes because of Hodgkin,s Lymphoma is less common (2.85%) as compared to acute or tuberculous lymphadenitis.

This is comparable to other studies conducted in Pakistan and india.<sup>13,14</sup> Most cases of thyroglossal cyst become apparent during the first decade of life. Although it is regarded as a lesion of the young, thyroglossal cyst may be encountered in adults, as found in some of our cases.<sup>15</sup>In our study 3 out of 35 patients of midline neck swellings(8.5%) were having thyroglossal cysts which are comparaple to other studies like Kurt A, Ortug C et al.<sup>16,17</sup>Thyroglossal

cysts are usually midline neck swellings though some of them may deviate to either side of midline.<sup>18</sup> But in our study all of our cases of thyroglossal cysts presented with midline neck swellings.

All of our patients with thyroglossal cysts underwent Sistrunk operation to avoid any recurrence.<sup>6,19</sup> It is important to rule out ectopic thyroid tissue in the neck which may be mistaken for the thyroglossal cyst and can be the only thyroid tissue present in the body.<sup>20</sup> For this thyroid scans of the patients were done to avoid inadvertent removal of the only thyroid tissue present in the body. No ectopic thyroid tissue was found during our study. Amongst midline neck swellings, solitary nodules of thyroid isthmus have the incidence of 22.85% in our study. Most of the solitary thyroid nodules were benign swellings as shown on FNAC.<sup>21</sup> Plunging ranula and dermoid cysts are amongst the most uncommon midline neck swellings as seen in our study as well as other studies conducted in other parts of the world.<sup>22,23</sup> In case of plunging ranula the cervical swelling was associated with prolongations of sublingual gland into or through the mylohyoid muscle.

## CONCLUSION

Lymph node enlargement are among the most common causes of midline neck swellings. Thyroglossal cysts are also found among the midline neck swellings but not as frequently as solitary thyroid nodules of the isthmus. Dermoid cysts and plunging ranulas are quite rare causes of midline neck swellings.

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**Original Article**

# Laparoscopic Pyloromyotomy for Hypertrophied Pyloric Stenosis – Experience of 14 Class

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## ABSTRACT

**Aim of study:** To share the first ever national experience about laparoscopic pyloromyotomy and its technical details

**Study design:** Descriptive study

**Place and Duration of Study:** Study conducted at private hospital at Nawabshah Sind from sept 2009 to Dec 2010,

**Introduction:** Hypertrophic pyloric stenosis is a common problem in pediatric surgery. Conventional management by the open extra mucosal pyloromyotomy has been the method of choice for many decades. Advanced, minimally invasive surgery also allows successful laparoscopic management of this entity.

**Material & methods:** In this study 14 cases of laparoscopic pyloromyotomy, concentrating on technical details. Patients operated at some private hospital Nawabshah.

**Results:** 14 patients underwent laparoscopic pyloromyotomy with standard technique. Initial operating time was more of initial learning curve. The infants tolerated the operative procedure well. There was one conversion to the open method because of immaturity of patient and technical difficulty.

**Conclusion:** Our experience suggests that laparoscopic pyloromyotomy can be a safe and efficient procedure, but during the learning phase, laparoscopy should be decided on a case-by-case basis and performed by an experienced laparoscopic surgeon. Careful selection of patients is helpful to increase confidence and operative comfort.

**Key Words:** IHPS, Pyloromyotomy, Laparoscopic

## INTRODUCTION

Infantile Hypertrophic Pyloric Stenosis is a common cause of gastric outlet obstruction in infants.<sup>1</sup> Since Alain et al.<sup>2</sup> published the first laparoscopic pyloromyotomy, this procedure has been accepted in few pediatric surgery centers.<sup>3–14</sup> The traditional Ramstedt pyloromyotomy via a right upper-quadrant transverse incision remains the gold standard operation for IHPS. However, primarily to improve cosmesis, several other approaches have been described, but technical modifications that have been published recently<sup>8,10,12,13</sup> report equal safety and procedure duration<sup>6,8,9,11,12</sup> with less surgical stress, a shorter hospital stay,<sup>11,12,14</sup> and better cosmetic results. These reports offer strong arguments in favor of the laparoscopic approach. The experience and encouraging results of other endoscopic procedures encouraged us to start performing laparoscopic pyloromyotomy.

Many studies have been done for this procedure but this is our first ever national study done.

## MATERIALS & METHODS

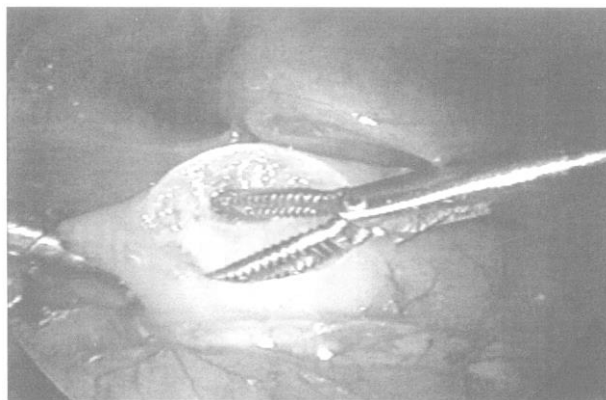
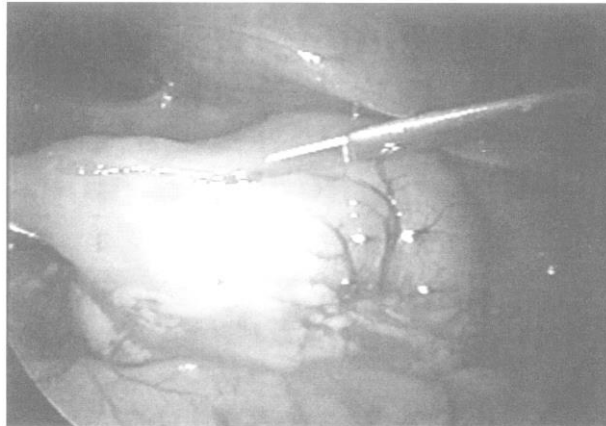
Study conducted at private hospital at Nawabshah Sind from sept 2009 to Dec 2010, 14 cases selected which were stabilized and fit for laparoscopic procedure. They were without serious fluid or electrolyte imbalance, and without other pathologic conditions that could increase the risk of the operative procedure. The procedure was performed under general endotracheal

anesthesia with standard monitoring, and special attention was paid to the control of ventilated CO<sub>2</sub>.

Standard STORTZ instruments were used, including two 3.5mm ports and 5.5 -mm port, a 5-mm 0-degree telescope, a pyloromyotomy spreading forceps for splitting, endoknife, a standard Babcock forceps. The camera port was established through a supraumbilical incision, and the other two ports were placed in each upper abdominal quadrant. After Pneumoperitoneum, which was maintained at a pressure of 8- 10 mm Hg, the pylorus was fixed by using a standard Babcock forceps which was introduced through the right upper quadrant port and placed on the first part of the duodenum, which was pulled slightly up and laterally to expose the avascular plane of the enlarged pylorus.

Endoknife was placed through the left upper quadrant port. The seromuscular incision was made in the direction of the pyloroduodenal junction toward the antrum, in a manner similar to that used in the open method. The pyloromyotomy spreading forceps was used for muscular splitting at an angle of approximately 45 degrees to the plane of incision, enables good muscular splitting. When the desired level of muscular spreading and adequate mucosal visualization were achieved, special attention was paid to visual assessment of the mucosal integrity and possible bleeding sources. When both conditions appeared to be satisfactory, we closed the supraumbilical incision in two layers, including the fascia. Both upper incisions were closed with skin sutures only.

Surgery time ranged from 45 to 60 minutes in the initial 5 cases then shortens to 30 – 45 minutes in last 5 cases. The first feeding was established 8 hours after the procedure with saline solution, and feeding was advanced to formula as tolerated.



Figures: Steps of Laparoscopic Pyloromyotomy

**RESULTS**

Table No.1. Laparoscopic pyloromyotomy cases 14

| Serial Number | Age (d) | weight (kg) | operating time (min) |
|---------------|---------|-------------|----------------------|
| 1             | 23      | 3.4         | 50                   |
| 2             | 36      | 4.2         | 55                   |
| 3             | 32      | 4.6         | 60                   |
| 4             | 27      | 5.2         | 45                   |
| 5             | 33      | 3.8         | 57                   |
| 6             | 35      | 3.3         | 40                   |
| 7             | 26      | 5.4         | 43                   |
| 8             | 22      | 4.7         | 45                   |
| 9             | 41      | 4.3         | 40                   |
| 10            | 36      | 4.5         | 35                   |
| 11            | 24      | 3.6         | 35                   |
| 12            | 36      | 5.2         | 40                   |
| 13            | 37      | 3.4         | 30                   |
| 14            | 35      | 4.9         | 32                   |

**DISCUSSION**

Laparoscopic surgery for infants as well as older children is well established nowadays. Our initial selection of patients for laparoscopic pyloromyotomy were not seriously compromised that gave us confidence that the procedure was safe and allowed us to proceed. Infants tolerate pneumoperitoneum of up to 8- 10 mm Hg with out change of the parameters of ventilation during anesthesia. With the evacuation of capnoperitoneum, they were immediately taken off the ventilator, and no further procedures were required that’s why co2 monitoring is important in every patient. Despite the fact that Downey 4 and Greason et al.9 strongly support the modification of Tan et al.3,11,12 with 2-mm stab incisions without laparoscopic ports, our experience in working without ports was

Good . Instrument manipulation and replacement and maneuvering proved to be technically as easy as through the ports when the incisions were too small.

Sometime because of little difficulty we ultimately decided to perform our procedures via cannulas, as originally described by Alain et al.2 and later supported by Ford et al.,7 to have enough mobility with the instruments.

0-degree 5mm camera enabled good visualization of the pylorus, especially when the duodenum was slightly pulled to the right and anteriorly. Having in mind the risk for perforation with claw-type grasping forceps emphasized by Ford et al.,7 we completely abandoned using this instrument. Rather we hold with Babcock forceps.

Atraumatic grasping forceps provide adequate strength with moderate pressure for all duodenal manipulations without the risk for perforation.

We made the incision with great caution, keeping in mind the experience of Downey 4 and trying to fulfill two basic requirements: a sufficiently long incision and a “one-cut” procedure to achieve one plane of muscular splitting to avoid the effect known as “railroad tracking” and a difficult multiplane myotomy. A standard arthrothomy knife enables a precise and safe incision, and all procedures have to be performed under visual control.

We were doubtful about muscle splitting. Our experience with pyloromyotomy spreading forceps for splitting when applied as described above, from the left side at a 45-degree angle to the plane of incision, proved effective despite the fact that we could not completely avoid slipping out. Repeated gentle splitting enables good muscular retraction and mucosa bulging. Avoiding forceful pushing toward the mucosa prevents mucosal tear. We had to keep in mind the “no-spread zone” and did not force the spreader in the lateral recesses of the pyloric incision, which is the weak point and the most common site of perforation. The use of a

spatula for the rotation maneuver as the initial spreading or the maneuver for breaking down the fibrous bands as advocated by Alain et al.<sup>8</sup> could be helpful, but in our experience, these maneuvers could be performed satisfactorily by using the hook-form preparation forceps. Our impression is that the hookform preparation forceps can be reliably used for splitting the muscular layer, as in the open surgery.

In our experience, the method of Hamada et al.<sup>10</sup> of electrocoagulating the plane of incision before the incision is made is not necessary. When the incision is made on the plane of the "avascular zone," bleeding is rare. Insertion and manipulation with the spreading forceps usually last 5 to 10 minutes, which was approximately one fifth of the total operative time by the end of our series. This technique will not prevent a small amount of bleeding after the incision and spreading. Minor bleeding can be controlled with bipolar electro coagulation.

Perforation usually not happens but when happens can be stitched or re-myotomy can be done.

Finally mucosal integrity can be assessed by injecting air through N/G tube and produce bulging of the mucosa to evaluate the success of the procedure. Once the procedure was finished, all ports were removed, the capnoperitoneum was evacuated, and the incisions were closed. Considering the experience of two omental extrusions reported by Ford et al.,<sup>7</sup> we closed the supraumbilical incision in two fascia/skin layers.

A total average procedure time of 50 minutes in our first five cases compared with 30 minutes for the last three underscores the significance of the learning curve of laparoscopic pyloromyotomy.

## CONCLUSION

One cannot conclude on the basis of short series of 14 cases but some facts are encouraging in our series.

The advantages are less operative stress, a shorter hospital stay, a better cosmetic result, and no reported wound

infections. The only disadvantage is more operating time but only in initial learning curve as compared to conventional open method. Another important observation is based on our experience and by different authors it is obvious that chances of mucosal perforation and an inadequate myotomy are a bit more frequent than in open surgery during learning curve.<sup>4,5,7</sup>

Therefore, the question remains whether laparoscopic pyloromyotomy during the learning phase is as safe and effective as open surgery. Open pyloromyotomy, with a good outcome, rare mortality, and little morbidity, still remains the gold standard in the operative treatment of infantile hypertrophic pyloric stenosis in most pediatric

surgery centers worldwide. However, laparoscopic pyloromyotomy has found its place in pediatric surgery. The size and general condition of a baby and surgeon experience are the factors that should be considered before the therapeutic approach is chosen. In our opinion, during the learning phase, the indication for laparoscopy should be decided on a case-by-case basis, and an experienced laparoscopic surgeon should perform the surgery. A proper selection of patients is helpful in increasing confidence and operative comfort.

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**Original Article****The Delima of Wisdom Tooth**

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**ABSTRACT**

**Background:** estimation of age from 17years to 23 is being in practice on the basis of eruption of 3<sup>rd</sup> molar tooth. However it is important to know whether this method is and will still be applicable in the present decade or in coming decades.

**Study Design:** Cross Sectional Study.

**Place and Duration of Study:** This study was conducted at Frontier Medical College, Abbottabad from May 2007 to April 2009.

**Materials and Methods:** A cross sectional study is carried out in 400 students of FMC Abbottabad between 18 to 23 yrs of age to evaluate the status of eruption of 3<sup>rd</sup> molar tooth of both males and females. All informations were gathered on a performa especially designed for this purpose.

**Result:** Record of 400 students was collected. 6 performas were bias and rejected. Out of 394, 196 were males and 198 were females. All 4 erupted 3<sup>rd</sup> molar were seen in 90( 22.84%) students, 3 erupted 3<sup>rd</sup> molar in 67(17%), 2 erupted 3<sup>rd</sup> molar in 63(15.98), 83(21.06) showed eruption of only one 3<sup>rd</sup> molar and last but not the least 91(23%) didn't show eruption of 3<sup>rd</sup> molar at all.

**Conclusion:** Result regarding 3<sup>rd</sup> molar tooth eruption shows that human beings of these decades are passing through evolutionary process of contracted jaw and resultant impaction of most of 3<sup>rd</sup> molars at the sight of eruption is the usual outcome. So we can predict that a time will come in coming few decades when forensic experts have to resort to some other factors to determine the age onwards from 17yrs rather than 3<sup>rd</sup> molar tooth eruption and development.

**Key Words:** forensic science, third molar, dental development, juvenile, adult, contracted

**INTRODUCTION**

Teeth which provide the life history of an individual, contribute as a reliable mean of determination of age from approximately 10wks of intra uterine life up to old age. Determining age using stages of tooth development, eruption, structural changes on teeth and changes in chemical composition of teeth have been successfully advocated by many researchers.

Teeth being the hardest calcified tissue in the body tend to be intact even when other component of skeleton has disintegrated. The high resistance of teeth to severe insults such as cold, heat, fire and chemicals make them the favorite tissue in forensic investigation.

Accurate age of children can be assessed with the help of pattern of tooth eruption. However after the early teen most teeth are calcified and erupted except the 3<sup>rd</sup> molar. This makes the 3<sup>rd</sup> molar development most important choice for age assessment from the late teens to early twenties. Two very important ages of medicolegal significance i.e. 18 and 21 yrs fall in this age group. Furthermore the use of other biological indicators such as epiphyseal fusion, changes at pubic

symphysis, wrist bones, fusion of cranial sutures are not credible during these years. Therefore 3<sup>rd</sup> molar becomes most useful when there is a need to determine juvenile and adult status of an individual when no valid document of recorded age is available.

**MATERIALS AND METHODS**

A cross sectional study is carried out in 400 students of FMC Abbottabad between 18 to 23 yrs of age to evaluate the status of eruption of 3<sup>rd</sup> molar tooth of both males and females. All informations were gathered on a performa especially designed for this purpose.

**RESULT**

It is a cross sectional study which is carried out on 394 students of FMC Abbottabad who were between 18 to 23 yrs of age. 196 out of 394 were males & 198 were females. All four erupted 3<sup>rd</sup> molar were present in 90(22.84%) students, 3 erupted 3<sup>rd</sup> molar were seen in 67(17%), likewise 2 erupted 3<sup>rd</sup> molar in 63(15.98), 83(21.06%) were having only one erupted 3<sup>rd</sup> molar and 91(23%) were the students who revealed failure of

eruption of 3<sup>rd</sup> molar at all. Out of 91, 53 were females & 38 were males

**Table No.1. Percentage of Erupted 3<sup>rd</sup> Molars in 394 Students**

| No. of erupted 3 <sup>rd</sup> molar | No of students | Percentage | Gender |        |
|--------------------------------------|----------------|------------|--------|--------|
|                                      |                |            | Male   | Female |
| 4                                    | 90             | 22.84%     | 61     | 29     |
| 3                                    | 67             | 17.00%     | 35     | 32     |
| 2                                    | 63             | 15.98%     | 30     | 33     |
| 1                                    | 83             | 21.06%     | 32     | 51     |
| 0                                    | 91             | 23.00%     | 38     | 53     |
| Total                                | 394            | 99.88%     | 196    | 198    |

**Table No.2: Association of Eruption of 3<sup>rd</sup> Molar With Age & a Difference in Age of Eruption of 3<sup>rd</sup> Molar in Male & Female.**

| Age   | Total No of students |        | All erupted 3 <sup>rd</sup> molar in |        | All unerupted 3 <sup>rd</sup> molar in |        |
|-------|----------------------|--------|--------------------------------------|--------|--|--------|
|       | male                 | female | Male                                 | female | Male                                   | female |
| 18    | 48                   | 69     | -                                    | -      | 17                                     | 21     |
| 19    | 53                   | 40     | 04                                   | -      | 13                                     | 15     |
| 20    | 32                   | 25     | 23                                   | -      | 04                                     | 03     |
| 21    | 33                   | 18     | 28                                   | 03     | 02                                     | 01     |
| 22    | 21                   | 14     | 05                                   | 07     | -                                      | 05     |
| 23    | 09                   | 32     | 01                                   | 19     | 02                                     | 08     |
| Total | 196                  | 198    | 61                                   | 29     | 38                                     | 53     |

**DISCUSSION**

The dental eruption which exposes the dental element in the oral cavity occurs through the subsequent elongation of the root, pushing the crown against the subsequent tissues layers until the gingival surface. ‘Eruption’ incorporates the entire journey of the tooth from its formation in the alveolar crypts to full occlusion..

The 3<sup>rd</sup> molar tooth offers a unique advantage over other teeth because its development tends to continue over a long period and until a later stage. It is observed from our study that a significant percentage of adults i.e.91(23%) doesn’t harbor erupted 3<sup>rd</sup> molar in their mouth. The study has also revealed that among them females predominate 53(58%) the males 38(42%). So it seems that forensic anatomists have to rely upon Demirjian stages and Moorrees method of tooth development rather than mere eruption of 3<sup>rd</sup> molar tooth. But it still has to be considered that contracted jaw is not only responsible for impaction of 3<sup>rd</sup> molar but it is becoming the root cause of congenital absence of the same.

It is also obvious from the rest of study that eruption time for 3<sup>rd</sup> molar is earlier in males as compare to females which is in contrast with the usual eruption time of the rest of the teeth. In all other teeth the eruption time in females is earlier than in males. It is also confirmed by the study of other researchers.

In forensic medicine 18 & 21 yrs are the ages which have to be relied upon eruption of 3<sup>rd</sup> molar teeth. But now it seems that in future mere eruption of 3<sup>rd</sup> molar cannot be relied upon. The stages of development & calcification are needed be to consider like Demirjian and Moorrees but because of evolutionary contracted space for 3<sup>rd</sup> molar there is an ultimate assorted congenital absence of 3<sup>rd</sup> molar. So in near future in coming few more decades forensic scientists will have to resort to some other conclusive anatomical marker for age estimation from 17 to 23 years.

**CONCLUSION**

The 3<sup>rd</sup> molar is the most variable tooth in the dentition with respect to size, time of formation and time of eruption and for this reason it should be categorized as a non- ideal- developmental marker. Its presence can date the person but its absence cannot specify that the person is below 21yrs of age.

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**Original Article**

# Incidence of Helicobacter Pylori in Patients with Nonnuclear Dyspepsia

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## ABSTRACT

**Objectives:** To perform a systematic review of the literature to determine whether chronic infection with H. Pylori is relevant to nonnuclear or uninvestigated dyspepsia.

**Study Design:** Hospital base prospective study

**Place and Duration:** The study was carried in Department of Medicine Sandeman Provincial Hospital Quetta from January 2010 to January 2011.

**Background:** Previous studies have yielded conflicting results and substantial uncertainty about any independent association of Helicobacter pylori infection with dyspepsia.

**Patients and Methods:** 120 patients, 72 Males and 48 females belonging to age group 17 years to 70 years, with upper abdominal symptoms were examined with an Olympus CIF X Q 10 Gastroscope. Patients who had endoscopic features of gastritis and the patients with normal looking gastric mucosa on endoscopy but with upper abdominal symptoms, had biopsies taken from gastric antrum and body for histological and microbiological examination. None of these patients treated with antibiotic or Bismuth preparations before this gastoscopic examination. H2 receptor antagonists were discontinued at least one week before the endoscopic examination.

**Results:** In our study 120 cases with upper abdominal symptoms were entered. They were between 17-70 years of age. 72 were Male and 48 were female. 82 patients who had histological evidence of gastritis had positive H.pylori infestation of gastric mucosa. 38 cases were with normal histological findings were negative for H.pylori infestation. Association of H.pylori and endoscopic evidence of gastritis was 60%. 68% of patient who had histological evidence of gastritis had positive H.Pylori infestation and 32% cases with normal histological findings or negative for H.Pylori.

**Conclusion:** The role of H.pylori in the pathogenesis of chronic gastritis and peptic ulceration has thrown new light of etiology of this condition, but our study revealed the role of H.Pylori in NUD. In the view of above mention study the prevalence of H.pylori with NUD was 68%. Patient with histological proven were 100% positive for H.Pylori infestations in gastric mucosa. In the end question arises whether to treat such patient with H.Pylori eradication therapy to prevent the high rate of the recurrence of symptoms and gastritis in these patient whether these therapy will be cost effective and beneficial for the patient remains to be discovered and open the new door for research.

**Key Words:** Helicobacter Pylori, Nonnuclear Dyspepsia

## INTRODUCTION

Non-ulcer dyspepsia is a symptom complex characterised by postprandial upper abdominal discomfort or pain, early satiety, nausea, vomiting, abdominal distension, bloating, and anorexia in the absence of organic disease. It is a common clinical problem encountered by primary internists and gastroenterologists. Gastric motor abnormalities altered symptom threshold, psychosocial factors, and Helicobacter pylori infection are considered important etiological mechanisms.

The first successful culture of Helicobacter pylori in 1983 introduced the concept of Helicobacter pylori in the pathogenesis of gastritis and peptic ulceration. The etiological role of Helicobacter pylori in type B chronic gastritis has been accepted. Helicobacter pylori is responsible for duodenitis and duodenitis is considered to be a precursor of duodenal ulcer. Chronic

Helicobacter pylori colonization result in Helicobacter pylori induced hypergastrinaemia with gastric hypersecretion in duodenal ulcer disease. Helicobacter pylori infection of gastric epithelium has been associated with epidemic hypochlorhydria especially in acute infections and also with gastric carcinoma. Helicobacter pylori binds with specific lipid receptor present in gastric mucosal tissues. The level of this lipid is higher in antrum than in fundus of stomach. This lipids may protect substrates against proteolytic degradation. A genetic predisposition to the development of Helicobacter pylori associated antral gastritis has been proposed. Urease is produced in abundance by Helicobacter organisms and this protect them from gastric acid by forming ammonia from urea. Some workers have described Helicobacter pylori as a zoonosis by detecting high titres of Ig G to Helicobacter pylori in sera of abattoir workers in direct contact with freshly cut animal parts.

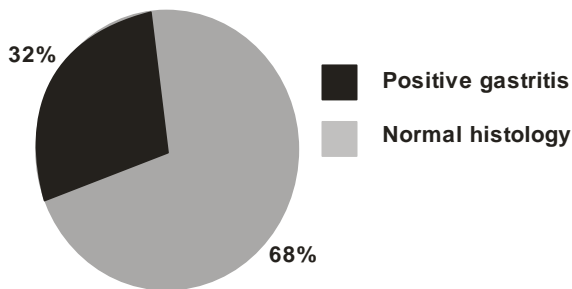
## PATIENTS AND METHODS

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## RESULTS

In our study 120 cases with upper abdominal symptoms were entered. They were between 17-70 years of age. 72 were Male and 48 were female. 82 patients who had histological evidence of gastritis had positive H.pylori infestation of gastric mucosa. 38 cases were with normal histological findings were negative for H.pylori infestation. Association of H.pylori and endoscopic evidence of gastritis was 60%. 68% of patient who had histological evidence of gastritis had positive H.Pylori infestation and 32% cases with normal histological findings or negative for H.Pylori.

Incidence of H.Pylori with Gastritis



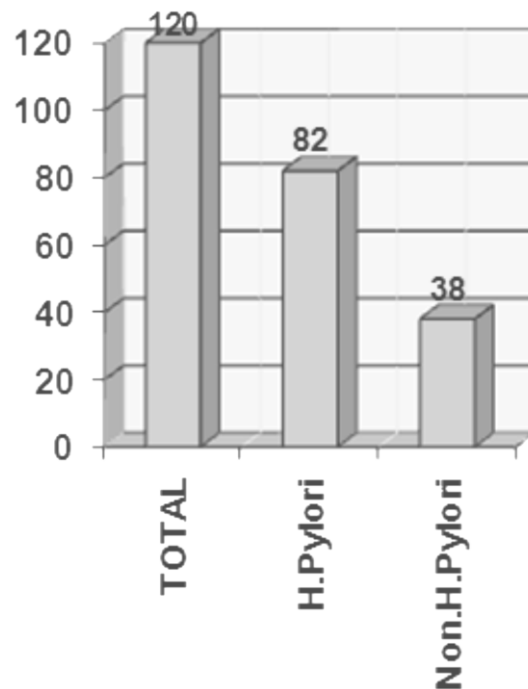
## DISCUSSION

Interest shown by research scientist in the etiological role of H.pylori has thrown new light on the gram negative bacteria it. In the October 1989 the international journal of systemic bacteriology, H.Pylori was suggested instead of old name C.Pylori. The name was purposed because the ultrastructure of H.Pylori, its fatty acid composition and its genomic analysis of RNA sequence has revealed that H.pylori does not belong to C. Bacteria genus. The new genus name reflects the two morphological appearance of organism, helical in vivo but rod like in vitro. H.Pylori may be detected in a greater number of antrum biopsy specimens if histology

and bacterial culture are done besides the urease test. Urease negative patients have very small number of organisms and highly sensitive culture and histological techniques are required to elicit them. Rapid urease test used in endoscopy room to follow up the eradication of H.Pylori after treatment with Tripotassium dicitrate bismuthate (TDR) should be interpreted with caution because TDB strongly affects rapid urease test by giving a false negative result.

Detection of H.Pylori antibodies in the serum by E.L.I.S.A. test and time resolved fluoro immunoassay has been proposed to be highly sensitive and specific, which might replace endoscopy in the diagnosis of gastritis associated with H.Pylori. Most recently H.Pylori detection antigen in the stool is the most convenient way of detecting H. Pylori infection.

Incidence of H.Pylori in Patient with NUD



In 0.3% of patients with gastritis a long corkscrew organism, gastro spirillum hominis is present deep in gastric pits and neck of pyloric glands. They do not cause any characteristic endoscopic appearance. Gastro spirillum hominis has cell wall structure of gram negative bacteria. With 6-8 coils per cell and has up to eight sheated flagella at each pole. Exact pathogenicity and importance of his new organism has yet to be exploited.

## CONCLUSION

The role of H.pylori in the pathogenesis of chronic gastritis and peptic ulceration has thrown new light of etiology of this condition, but our study revealed the role of H.Pylori in NUD. In the view of above mention study the prevalence of H.pylori with NUD was 68%. Patient with histological proven were 100% positive for H.Pylori infestations in gastric mucosa. In the end question arises whether to treat such patient with H.Pylori eradication therapy to prevent the high rate of the recurrence of symptoms and gastritis in these patient whether these therapy will be cost effective and beneficial for the patient remains to be discovered and open the new door for research.

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**Original Article**

# Acute Abdomen Cases Presenting At Fauji Foundation Hospital, Rawalpindi

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## ABSTRACT

**Objectives:** To study the common causes of acute abdomen at Fauji Foundation Hospital, Rawalpindi.

**Study Design:** Descriptive study.

**Place and Duration of Study:** This Study was conducted at the Department of Surgery, Fauji Foundation Hospital, Rawalpindi from December 13, 2009 to February 22, 2011.

**Patients & Methods:** A total of 840 patients who presented with acute abdominal pain and were admitted from the emergency department of Fauji Foundation Hospital, Rawalpindi from December, 2009 to February, 2011 were included in the study. The data of the 840 male and female patients was collected on the Patient Performa and then transferred to the data sheet IV of SPSS 10. The results were analyzed by calculating the frequencies of acute abdomen causes.

**Results:** The most frequent cause was non specific abdominal pain (38.7%) followed by acute cholecystitis (7.7%) and acute appendicitis (6.8%). Total exploratory laparotomies done were 204 (24.3%) while 498 (59.3%) patients were managed conservatively with ultrasound abdomen and pain medication.

**Conclusions:** Non specific pain was found to be the most common cause of acute abdomen followed by acute cholecystitis and acute appendicitis. The diagnostic accuracy can be enhanced especially in females of child bearing age by the use of ultrasonography and selective diagnostic laparoscopy.

**Key Words:** Acute abdomen, Abdominal pain, Non specific pain.

## INTRODUCTION

The term acute abdomen means a non traumatic abdominal disorder in which pain is the predominant symptom and it may or may not require surgical intervention<sup>1</sup>. This change can be due to some kind of infection or inflammation. This intra abdominal disorder is progressive in nature and early diagnosis and treatment is desired to have a satisfactory outcome<sup>2</sup>. The pain is usually a feature but not always the case. A pain free acute abdomen is more likely in the elderly, in children and in the third trimester of the pregnancy<sup>3</sup>. Acute abdomen is a common problem in surgical wards and one of the common symptoms of patients presenting in the accident & emergency department of any tertiary care hospital. From a surgical point of view, abdominal pain is the cardinal symptom of acute abdomen.

There are many causes of acute abdomen which not only can cause serious complications but even can lead to the death of the patient. Hence early diagnosis and proper management are imperative but that does not mean acute abdomen should be equated with the invariable need for surgical intervention. Co-relating the clinical findings with the differential diagnosis helps decide whether surgical intervention is required or the patient can be managed conservatively. Such

cases are tools by virtue of which the junior members of the team can learn the basic principles of surgery.

It has been observed that the acute abdomen is a good test of clinical acumen of the clinician. The vital signs may be normal in the initial phase of the illness and later on the patient may deteriorate rapidly. An accurate and detailed history of the patient with the knowledge of the nature of the pain and its location are really important to make a differential diagnosis<sup>3</sup>.

### Purpose of Study

The rationale of this study is to find the frequency and patterns of different diseases presenting as acute abdomen at Fauji Foundation Hospital, Rawalpindi.

## PATIENTS AND METHODS

This study was carried out in the emergency department of Fauji Foundation Hospital, Rawalpindi from December, 2009 to February, 2011. Almost all patients were ex-service men and their families. All patients who presented with non-traumatic acute abdomen were included in the study.

On arrival in the emergency room, each patient was evaluated by detailed history and thorough physical examination. Complete Blood Count (CBC), urine analysis, serum urea and creatinine, random blood sugar and serum electrolytes were done. Ultrasound abdomen and relevant X-rays were done in cases where

peritonitis or intestinal obstruction was suspected. A provisional diagnosis was made and initial supportive management instituted before shifting the patient to the surgical ward.

**Study Design:** Descriptive Study

**Sampling Technique:** Non probability convenient sampling 840 patients were included in this study

**Inclusion Criteria**

- a Patients of all age group
- b Both male and female patients were included

**Exclusion Criteria**

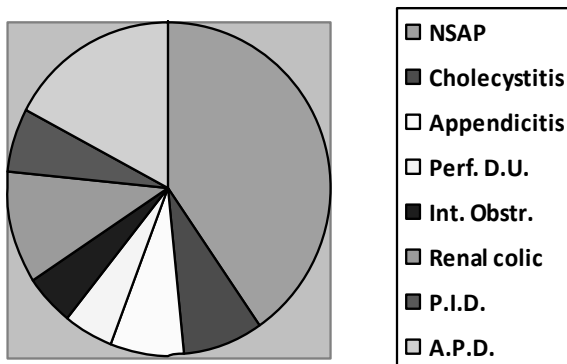
- a All patient with blunt and penetrating trauma
- b Patients with medical causes

The data of the 840 male and female patients was collected on the Patient Performa and then transferred to the data sheet IV of SPSS 10. The results were analyzed by calculating the frequencies of acute abdomen causes.

**RESULTS**

The age range was from 06 years to 78 years. The median age was 42 years. Our study was based on non-probability / convenient sampling. Only 24% patients of our study population were male.

In this study, the most frequent cause of acute abdomen was found to be non-specific abdominal pain (NSAP)(38.7%) followed by acute cholecystitis (7.7%), acute appendicitis (6.8%), perforated duodenal ulcer (PDU) (4.9%), intestinal obstruction (4.8%), renal colic (10.5%), pelvic inflammatory disease (5.8%), acute pancreatitis (2.8%) and meckel’s diverticulum (0.3%) (Figure 1). Miscellaneous causes like acid peptic disease (16.6%), mesenteric lymphadenitis (0.76%), diverticulitis (0.17%) and ischemic colitis (0.17%) were the other causes of acute abdomen in our study.



Total exploratory laparotomies done were 204 (24.3%) while 498 (59.3%) patients were managed conservatively with ultrasound abdomen and pain medication. Patients with renal colic were 89 (10.6%)

which were referred to urology and patients with pelvic inflammatory disease were 49 (5.8%) which were referred to gynaecology department respectively.

**DISCUSSION**

Evaluation of the patient with acute abdominal pain requires a careful history and physical examination by a skilled physician along with appropriate diagnostic testing. A thorough workup and broad differential diagnosis are essential elements to establishing a correct diagnosis<sup>3</sup>. Older adults may have delayed presentations of serious illnesses, and their signs and symptoms of disease may be atypical<sup>3</sup>. If a diagnosis is unclear, an early surgical consultation and hospital admission should always be considered.

It has been seen that the most common cause of acute abdominal pain is acute appendicitis anywhere in the world<sup>4</sup>. This is especially true in case of children. In a study by Akhtar Firdous et al, acute appendicitis, non-specific mesenteric lymphadenitis and urinary tract infection were equally common (20% each), worm infestation and constipation with anal fissure were observed in 10% and 8% respectively while in 14% of cases, abdominal pain was non-specific<sup>5</sup>.

However, geographical differences can result in variable causes. A Series of 173 cases of acute abdominal surgical emergency in a rural hospital of Sierra Leone revealed that the most common cause of acute abdomen was strangulated hernia followed by acute appendicitis<sup>6</sup>.

Our study revealed that the most common cause of acute abdomen was non- specific abdominal pain followed by acute cholecystitis and then acute appendicitis. This is most likely due to the fact that our hospital mainly treats the families of retired army personnel and not the general population as such. The majority of our patients are female, also for the same reason.

NSAP is a significant problem in general surgery and accounts for an estimated 13% to 40% of emergency surgical admissions for acute abdominal pain<sup>7, 16</sup>. Many suggestions have been made about improving diagnostic rates in acute NSAP. DeDombal et al<sup>8</sup> have suggested that the proportion of correct diagnoses can be greatly increased by the use of structured questionnaires and diagnostic programs on computers. Although computer-aided diagnosis can improve diagnostic rates by at least 20%, these programs are unpopular<sup>9</sup>. Other researchers have suggested ultrasonography<sup>10</sup>, thermography, peritoneal cytology, CT, and more recently spiral computer tomography<sup>11</sup>. Nevertheless, none of these techniques seems to have been determinant in improving the clinical management of NSAP.

We referred 89 patients with renal colic to urology after getting a confirmatory ultrasound examination. Similarly, 49 patients with pelvic inflammatory disease were referred to gynaecology department after an ultrasound respectively. As a rule, we get an ultrasound examination in every female patient with a complaint of lower abdominal pain. Male patients with mild to moderate lower abdominal pain are also subjected to an ultrasound examination. Ultrasound has shown a sensitivity of 88.8% in the diagnosis of appendicitis while it has shown a specificity of 83.9%<sup>12</sup>. It is recommended to use ultrasonography in every female patient, especially in the child bearing age, to be certain of the diagnosis and to rule out gynaecological causes of acute abdomen.

In the management of acute abdomen, laparoscopy has both a diagnostic and a therapeutic role<sup>13</sup>. Many studies have demonstrated an improvement in surgical decision making associated with its use, particularly when the need for an operation is uncertain<sup>14, 17</sup>. We did not use diagnostic laparoscopy routinely in our patients as the facility is not available in the evening in the emergency. Instead, we relied mainly on ultrasonography to help with the diagnosis. In a study by Mario Morino et al, early laparoscopy as compared to ultrasonography did not show a clear benefit in women with NSAP<sup>15</sup>. We managed the NSAP patients conservatively with serial ultrasound abdomen and pain medication with satisfactory results.

## CONCLUSION

The most common cause of acute abdomen in our study was non-specific pain abdominal pain (38.7%) followed by acute cholecystitis (7.7%), acute appendicitis (6.8%), perforated duodenal ulcer (4.9%) and intestinal obstruction in (4.8%) of the cases. We found that the NSAP patients responded to conservative management with serial ultrasound abdomen and pain medication with satisfactory results.

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**Original Article****Socioeconomic Risk Factors for Asthma in Child****1. Iqbal Bano 2. Ahsan Waheed Rathore 3. Afsheen Batool Raza 4. Farah Naz  
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Health, Lahore.

**ABSTRACT**

**Aim and Objective:** The purpose of the study was to explore and explain different socioeconomic conditions and factors related to childhood asthma.

**Design of Study:** Cross sectional descriptive study.

**Place and Duration of Study:** This study was conducted at the Children's Hospital & the Institute of Child Health, Lahore for a period of three month.

**Patients and Methods:** This is a descriptive study done at the asthma clinic of the Children's Hospital & the Institute of Child Health, Lahore. Total 110 patients were included in the study between 2-16 years. An objectively designed structured questionnaire was used and data was collected after taking consent from the parents.

**Results:** Out of 110 patients, the commonest age was 2-8 years for both males and females. The disease was most common in boys (63.6%) and urban area (57.3%) had higher frequency than patients from semi urban (24.5%) or rural areas (18.2%). Asthma was more common in lower and middle class than upper. Different socioeconomic risk factors involved in the increased frequency of asthma were smoking, animals at home and environmental dust. Allergic reactions to food, change in weather and preceding upper respiratory tract infections also play an important role.

**Conclusion:** Poor socioeconomic class, uneducated families, urban life and environmental allergen exposure are responsible for increase frequency of asthma and by investing resources in to community based education and support services we can provide a better control of asthma to our community.

**Key Words:** Socioeconomic status, tobacco smoke, allergens

**INTRODUCTION**

Asthma is a common chronic disease causing considerable morbidity. Asthma is a problem worldwide, with an estimated 300 million affected individuals. It appears that the global prevalence of asthma ranges from 1% to 18% of the population in different countries (1). The world health organization has estimated that 15 million disability-adjusted life years (DALYs) are lost annually due to asthma, representing 1 % of the global disease burden (2). Asthma prevalence and severity is increasing in many developing countries, the changing pattern of the disease has not been fully studied but it is well documented that the prevalence changes with the environmental exposure especially geographical variations(3). Socioeconomic conditions are associated with asthma occurrence, its severity and hospitalization. Living in underprivileged area is a strong independent predictor of hospital admission for asthma. Several studies from North America have indicated an indirect association between socioeconomic status and asthma prevalence, but in other parts of the world, Europe included the association is not so clear. Socioeconomic status may contribute as an etiological factor per se or

as a surrogate of environmental risk factors (e.g. passive smoking, indoor mould and dampness), as a component in diagnosis and in labeling the conditions, as a factor in the exacerbation of the disease as a determinant of the quality of care that parents receive (4). The epidemiology of childhood asthma and allergies is of considerable interest and importance because of the increasing economic impact on the health services and possible increase in its prevalence and severity in some Asian countries. Factors responsible for causing asthma or precipitating attacks are still poorly defined, and changes in life style and environment that are associated with urbanization and development may be partly responsible for the increase in both prevalence and severity (5). Socioeconomic status is a multi dimensional concept and no single measure can fully account for person's SES. It is advisable to use multiple SES indicators for understanding its possible effects on health (6). Socioeconomic status refers to family's position within a community and can be defined in terms of prestige (e.g. parent's education or occupation) as well as resources e.g. family income or assets (7). Other factors which are included in the SES are area of living (rural/urban, number of rooms in the house, atmosphere

ventilation, exposure to daily smoking and seasonal effects). The study was designed to determine the different socioeconomic risk factors associated with childhood asthma. The purpose of the study was to explore and explain different socioeconomic conditions and factors related to childhood asthma.

**PATIENTS AND METHODS**

This is a cross-sectional descriptive study conducted at the asthma clinic of the children’s hospital and the institute of child health, Lahore. Our study population consisted of 110 children aged 2 to 16 years with diagnosed asthma over a period of 3 months.

Asthma was defined clinically. Its severity was classified on the basis of day and night symptoms commonly reported as asthma symptoms (cough, wheeze, limitation of daily activity and nocturnal cough etc) in literature. All patients with mild, moderate and severe persistent asthma were included in the study. Mild intermittent cases were not included. For data collection an objectively designed questionnaire was filled for each patient. Every mother was interviewed after taking the consent she was asked whether the child was suffering from bronchial asthma at present, or had done so previously, and whether the diagnosis had been confirmed by the doctor. The questionnaire also included some socioeconomic variables like parental education, occupation, overcrowding (which we defined as no. of people per room, excluding baths and kitchens), social class (monthly income of family), exposure to daily smoking or the maternal exposure during pregnancy. Other potential confounding factors were area of living (urban, semi urban, rural), allergic reaction to food, exposure to animals, dust, weather change, upper respiratory tract infections or use of antibiotics in the last 3 months.

Parental education in this study was divided in to 4 levels; 1) illiterates, 2) below matric, 3) matric and 4) graduate. Father’s occupation was also divided into 4 categories; 1) unemployed, 2) professional workers/employed, 3) businessman, 4) laborer/ unskilled worker, while mothers were grouped as house wives and working women. Social class of the study population was determined according to the family’s income per month. 10,000 poor, 10-20,000 lower middle, 20-40,000 upper middle and >40,000 upper class.

**RESULTS**

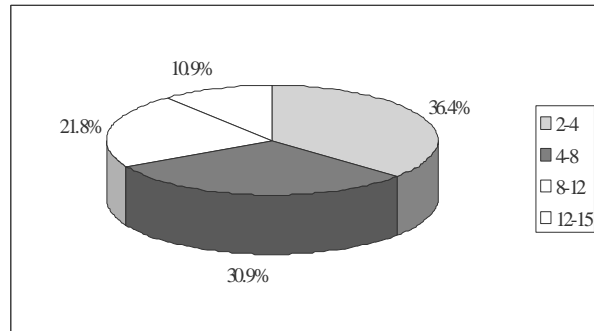
Of the total 110 patients enrolled in the study 67% of the children were between 2 to 8 years of age. (Fig- 1), about 36% were females and 64% were males. (Fig- 2). The disease was most common in urban area 63 (57.3%) than patient from rural area 20(18%) and semi urban 27(24.5%) as shown in Fig- 3.

Asthma was more common in middle and lower socioeconomic class (48.2% and 44.5% respectively) than the upper socioeconomic class (only 7.3%). The distribution of parental educational level and occupation is shown in table- 1. Overall asthma was

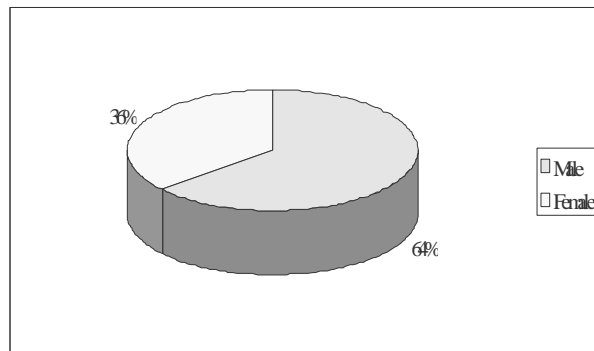
more prevalent 54.6% with father’s educational status below matric while 45.4% were above matric. Same is true for relationship of asthma with maternal education i.e. 60% mothers were below matric (table- I).

Asthma was noted in 4.5% of the unemployed fathers while it was 60% in the professional workers/employees, 19.1% parents belonged to businessman or skilled manual worker class while 16% were unskilled manual workers or laborers. Regarding patient’s mothers 97(88.2%) were housewives whereas, 13(11.8%) were working mothers.

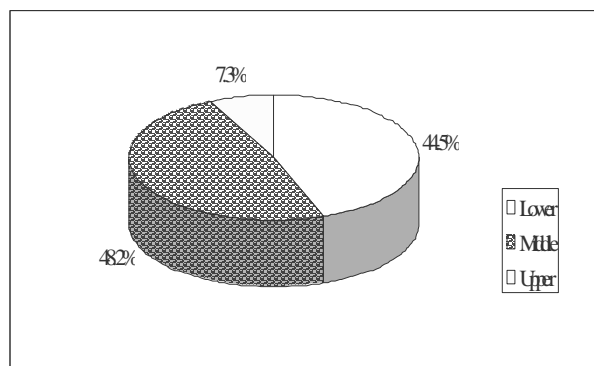
**Figure No.1: Age Groups n=110**



**Figure No.2: Sex Distribution n=110**



**Figure No.3: Socioeconomic Status n=110**



The various environment factors considered as risk for asthma are shown in table- 2. Frequency of asthma was highest in families with 7-8 persons living in single room 71(64.5%). Exposure to daily indoor smoking was present in 40 (36.4%) children, maternal cigarette

smoking during or after pregnancy was present in 44(40%) patients (table 2). Other variables which affect the asthma frequency in children were allergic reactions to food in 84 (76.4%), exposure to animals in 36.4%, to dust in 81.8%. Asthma was found to be more prevalent in winter 50% when compared with spring / autumn 41%, summer 8.2%. The relationship with the preceding upper respiratory tract infections and use of antibiotics in last 3 months was found to be significant (76.4% and 80.9 %) according to frequency (table- 2).

Figure No.4: Area of Residence n=110

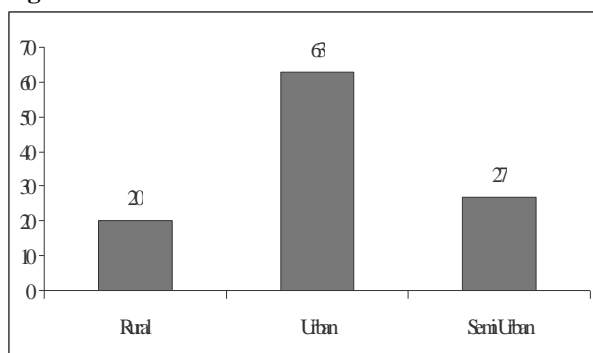


Table No. 1: Association between asthma prevalence & indicators of socio-economic status among children n=110

| Factors                      | Frequency | Percentage |
|------------------------------|-----------|------------|
| <b>Father's Education</b>    |           |            |
| Illiterate                   | 32        | 29.1%      |
| Below Matric                 | 28        | 25.5%      |
| Matric                       | 34        | 30.9%      |
| Graduate                     | 16        | 14.5%      |
| <b>Mother's Education</b>    |           |            |
| Illiterate                   | 48        | 43.6%      |
| Below Matric                 | 18        | 16.4%      |
| Matric                       | 28        | 25.5%      |
| Graduate                     | 16        | 14.5%      |
| <b>Father's Occupation</b>   |           |            |
| Unemployed                   | 5         | 4.5%       |
| Professional worker/employed | 66        | 60.0%      |
| Business                     | 21        | 19.1%      |
| Laborer/unskilled worker     | 18        | 16.4%      |
| <b>Mother's Occupation</b>   |           |            |
| House Wife                   | 97        | 88.2%      |
| Working women                | 13        | 11.8%      |

**DISCUSSION**

Social factors have long been suggested to contribute in childhood asthma. There are number of published studies on childhood asthma and socioeconomic status. This study shows that asthma was most common in age group 2-8 years in both males and females. While study

done by Glushkova et.al showed the common age group was 5-9 years (8) and another study done by Mustafa et al showed more prevalence in 7-11 years old children. The gender analysis showed susceptibility for boys which is in comparison with other studies <sup>3,4,5,8-10</sup>.

Table No. 2: Environmental factors effecting the childhood asthma n=110

| Factors  | Frequency | Percentage |
|--|-----------|------------|
| <b>Crowding index</b>                              |           |            |
| 7 – 8  | 71        | 64.5%      |
| 5 – 6  | 30        | 27.3%      |
| 3 – 4  | 7         | 6.4%       |
| 1 – 2  | 2         | 1.8%       |
| <b>Daily Smoking</b>                               |           |            |
| No   | 70        | 63.6%      |
| Yes  | 40        | 36.4%      |
| <b>Smoking Exposure During Pregnancy</b>           |           |            |
| No   | 66        | 60%        |
| Yes  | 44        | 40%        |
| <b>Allergic reaction of Food</b>                   |           |            |
| No   | 26        | 23.6%      |
| Yes  | 84        | 76.4%      |
| <b>Animal Exposure (Pets, cockroach)</b>           |           |            |
| No   | 40        | 36.4%      |
| Yes  | 70        | 63.6%      |
| <b>Dust Exposure</b>                               |           |            |
| No   | 20        | 18.2%      |
| Yes  | 90        | 81.8%      |
| <b>Weather Change</b>                              |           |            |
| Summer   | 9         | 8.2%       |
| Winter   | 55        | 50.0%      |
| Spring & Autumn                                    | 46        | 41.8%      |
| <b>Preceding upper respiratory tract Infection</b> |           |            |
| No   | 26        | 23.6%      |
| Yes  | 84        | 76.4%      |
| <b>Use of antibiotic in last three months</b>      |           |            |
| No   | 21        | 19.1%      |
| Yes  | 89        | 80.9%      |

In our study asthma was most common in urban area as compare to semi urban or rural areas which is also in comparison with the study done by Aligne et.al. (9). The increased incidence of asthma in urban settings may be due to several factors like more awareness and parental education who seek early medical attention and also more exposure to environmental allergens. Another study reveal urbanization and socioeconomic status had little impact on the prevalence of wheezing or asthma, but might influence the management of asthma (5).

Across all the social factors, socioeconomic status exhibits the most robust and consistent association with physical health outcome. Individuals from lower socioeconomic status families have poor health than from higher socioeconomic status families (4, 7). There is a possible role of poverty as a contributor in the etiology of asthma, independent from a known risk factor like parental smoking (4). As suggested, low social class may be an indicator of several factors relevant in asthma etiology like poor indoor air quality, dampness and mould, allergens, exposure to outdoor air pollution (4). The current study also shows increase risk of asthma in middle and lower socioeconomic class, which is comparable with other studies (10, 11). As living in an area with few social health services could be determinant of poor disease management (4). While a study performed in Italy found that urbanization and socioeconomic status had little impact on the prevalence of wheezing or asthma, but might influence the management of asthma (12). The individual indicators of socioeconomic status are parental education and occupation. The finding that parental education is the strongest predictive indicator in particular father's rather than mother's educational level, suggest that individual indicators are better able to detect socioeconomic differences than geographical ones (4,5), like in our study more than 50 % were under matric, similar is noted in study done by Lind back et.al (10). As far as father's occupation is concerned in our study asthma was more frequent in the children of professional worker and businessman as compare to unskilled and unemployed. It may be due to the poor availability of the health facility to this group or due to health awareness of the professional and businessman group. Asthma was noted more in the children of housewives/unemployed than in the working women, similar is also noted by Glushkova et.al (8). While positive association between social advantages and asthma were reported in U.K, Hermann et.al observed the opposite in Denmark. Unemployed, low educated mother could be more likely to live in suboptimal living conditions with dampness, mould or cockroaches which are in turn associated with asthma in children (8). The rapid rise in childhood asthma suggests a role for environmental exposure in the etiology of this evolving epidemic (14). One of the environmental factors is overcrowding, when we assess asthma with the crowding index, we found it to be directly related with the disease as is also noted by Lind back et al (10). While in another study done by Camilla et al, overcrowding emerged as consistently associated with less asthma symptoms (6). This association would support the hygiene hypothesis (The hygiene hypothesis proposes that the development of allergy and asthma can be prevented by a shift from T-helper type 2 cells to T-helper type 1 cells, which can be induced by

exposure to immune stimulants such as viruses, bacteria and endotoxins, during the prenatal period or early childhood.) (6,16). Another important environmental factor is exposure to tobacco smoke also including smoking during pregnancy. Maternal smoking has been most strongly associated with the adverse respiratory effect in children, suggesting that fetal exposure to maternal smoking may have important long term effects on children's respiratory health (13, 14, 15). As in our study association of maternal smoking is present with increased frequency of asthma. Moreover, in utero and postnatal exposure to maternal smoking increases the life time wheezing and persistent wheezing (13). It is evident that in utero exposure adversely affects postnatal lung function and increases the occurrence of asthma (17). We found an increased frequency of asthma in children having; allergic reaction to food (18); allergen exposure (sensitization and exposure to pets, cockroaches, house dust mite) (8,20); seasonal variation also have some relation with increase frequency of asthma as noted in our study that asthma is more common in winter and spring as compare to summer; upper respiratory tract infections or use of antibiotics in the preceding months also is directly related to increase frequency of asthma, similar was observed in another study (19).

## CONCLUSION

This study has identified potentially modifiable risk factors like poor socioeconomic class, uneducated families, urban life and environmental allergen exposure, which are responsible for increase frequency of asthma. By investing resources in community based education and support services we can provide a better control of asthma to our community.

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