Original Article

Appendicitis with Right Iliac Fossa Pain

Prevalence of Appendicitis in Patients with Right Iliac Fossa Pain Presented to General Surgery Department of DHQ Teaching Hospital Bannu KPK, Pakistan

Ajmal Shah Bukhari[1], Waqas Ahmad Khan[1], Tehmas Ahmad Khan[1] and Wasim Ahmad[2]

ABSTRACT

Objective: The objective of the study was to know the number of cases of RIF pain presentation to General Surgery Department and the number of cases of appendicitis out of presented RIF pain Cases.

Study Design: Case series study

Place and Duration of Study: This study was conducted at the Department of General Surgery, Bannu Medical College Bannu from December 2016 to May 2017.

Materials and Methods: Records of patients aged 5-60+ years from surgical unit and Operation theater of DHQ teaching hospital were reviewed.

Results: Total number of cases presented with right iliac fossa pain along with nausea vomiting were 220 containing 57.7% Males and 42.3% females. Out of those 194 were diagnosed as Acute appendicitis of which 108(55.6%) and 86(44.3%) were male and female cases respectively. Acute appendicitis was mostly seen in teenagers with percentage of 49.9% collectively. Perforated cases recorded were 30% and rate of negative appendectomy was 16.6% overall. During study period not asingle mortality associated with appendicitis wasseen.

Conclusion: Acute appendicitis was mostly seen in Teenage Group i.e 11-19 years old. Delay in diagnosis lead to perforated appendicitis leading to emergency and increase in complications. Most of the cases belonged to low socioeconomic class.

Key Words: right iliac fossa pain, acute appendicitis, negative appendectomy.

Citation of articles: Bukhari AS, Khan WA, Khan TA, Ahmad W. Prevalence of Appendicitis in Patients with Right Iliac Fossa Pain Presented to General Surgery Department of DHQ Teaching Hospital Bannu KPK, Pakistan. Med Forum 2017;28(8):10-14.

INTRODUCTION

In any hospital setting functional emergency department is necessary and a backbone to provided initial management to patients who require acute management. Right Iliac fossa pain is a chief complaint among many chief complaints presented to Emergency Departments in various Hospitals.[1] Among many differentials of Right Iliac Fossa Pain, Acute Appendicitis is the major one and requires prompt management.

Appendix, a small tube, about 4 inches long, is often present at the junction of the small intestine and cecum (Larger intestine).[1] Till date the exact function of appendix is a big mystery.

[1.] Department of Surgery, Bannu Medical College Bannu.
[2.] Department of Biotechnology, University of Science and Technology Bannu.

Correspondence: Wasim Ahmad, Research Associate, Department of Biotechnology, University of Science and Technology Bannu.
Contact No: 0322-5534847
Email: vazim4847@gmail.com

Received: May 03, 2017; Accepted: June 27, 2017

Often theoraticized are the beliefs that it may be a storehouse for good bacteria that may act as storehouse for spores that may replenish the intestinal normal flora. Others consider that appendix may be a useless leftover from evolutionary process. Often, the surgical removal of the appendix causes no health problems.[1]

Acute Appendicitis is the inflammation of appendix. For unclear reasons, the appendix often becomes inflamed and infected.[1] Inflammation leads to severe pain in the right lower part of the belly along with nausea and vomiting. Acute Appendicitis is a surgical emergency that almost always requires prompt surgery to remove the appendix. Left untreated, an inflamed appendix will finallyrupture, or perforate, leakinginfective materials into the abdominal cavity. This can lead to peritonitis, defined as inflammation of the abdominal cavity's lining (the peritoneum) that can be fatal unless it is treated quickly with strong antibiotics. [1]

The definitive symptoms of appendicitis include:

1) Dull pain near the navel or the upper abdomen that becomes sharp as it moves to the lower right abdomen. This is usually the first sign.
2) Loss of appetite
3) Nausea and/or vomiting soon after abdominal pain begins

4) Abdominal swelling.
5) Fever of 99-102 degrees Fahrenheit
6) Inability to pass gas

Almost half the time, other symptoms of appendicitis appear, including:

1) Dull or sharp pain anywhere in the upper or lower abdomen, back, or rectum
2) Painful urination and difficulty passing urine
3) Vomiting that precedes the abdominal pain
4) Severe cramps
5) Constipation or diarrhea with gas

The incidence of appendicitis is due to regional and racial difference[2],In united states there has been in increase in number of cases from 7.6% to 9.3%[(2)] with peek in teenagers[3] how ever in Pakistan, epidemiological data is very scarce[(3)] as most of studies have been on western population[4-9],association of factors like eating habits, hygiene conditions have been suggested but are not widely accepted[10]

Obstruction is most common cause of appendicitis with fecolith or lymphoid aggregation being usual causes,gut organism invade appendix after lumen obstruction by lymphoid hyperplasia or fecolith leading to appendicitis.

The objective of the study was to evaluate

1) Number of cases presenting with Right Iliac Fossa Pain to DHQ Hospital Bannu.
2) Prevalence of Acute appendicitis among the presented cases of Right iliac Fossa pain.

Complications developed after patients underwent appendectomy.

MATERIALS AND METHODS

It was a case series study design was selected that was conducted from Dec, 2016 to May 2017. During these days, following work has been done i.e. data collection, analysis, and making interpretation about the result and to provide recommendations based on this study findings.

Sample Technique: Convenience sampling technique

Sample Size: Patients who were admitted in General Surgery ward of DHQ Hospital, Bannu during the period of dec 2017 to May 2017.

Data Collection: Data records of the Patients was taken from the record room of DHQ Hospital Bannu for the aforementioned period and analysis was carried out by the researchers.

Inclusion/Exclusion Criteria: Patients with complaint of Pain in Right Iliac Fossa of Abdomen, nausea, vomiting, aged 5 to 60+, who were admitted in General Surgery Department of DHQ Hospital Bannu were included in our study and other admissions during the study period with other complaints were excluded.

Data Entry/Analysis: Data analysis was done using SPSS 20.0 and for the graphical presentation MS Excel version 2013 was used.

Scale used for diagnosis of Appendicitis: The Alvarado Scoring scale was used for diagnosis of acute appendicitis.

RESULTS

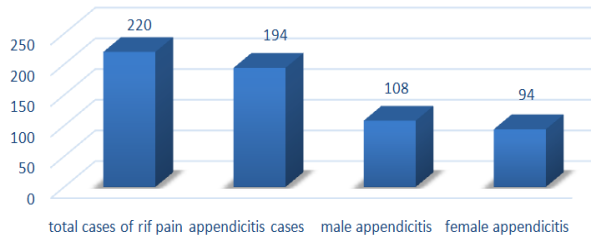
Table No.1: Alvarado Scoring scale

Characteristics	Points Given
Migration of Pain to Right Iliac Fossa	1
Anorexia	1
Nausea and Vomiting	1
Tenderness in Right Iliac Fossa	2
Rebound Tenderness	1
Elevated Temperature	1
Leukocytosis	2
Shift of White Blood Cell Count to Left	1
Total	**10**

Table No.2: Diagnostic Criteria

Total Score based on Alvarado scoring system	Diagnosis
Score <5	Appendicitis Unlikely
Score 5/6	Appendicitis Possible
Score 7/8	Appendicitis Likely
Score 9/10	Appendicitis Highly Likely

A total of 220 patients were presented to DHQ Hospital, Bannu with right iliac fossa pain and other symptoms mimicking acute appendicitis in time period ranging from Dec 2016 to30 may 2017. Out of 220 patient 194 patients were diagnosed to be having acute appendicitis. Out of those 108 patients were male and 86 females comprising 55.67% and 44.32% respectively.



Graph No.1: Percentage ratio of Male and Females diagnoses with Acute Appendicitis

As the graph shows that total **number** of cases with right illiac fossa pain were 220 out of whuch 194 had inflamed appendix containing 108 male paitents and 94 female patients.

Out of the included patients the age range was from 5 years old to more than 60 year old, the most patients belonged to the age group of 5 to 20 year group with almost 50% patients(n=96, 49.48%) followed by 21 to 30 years age group(n=54, 27.83%).The rate was lowest

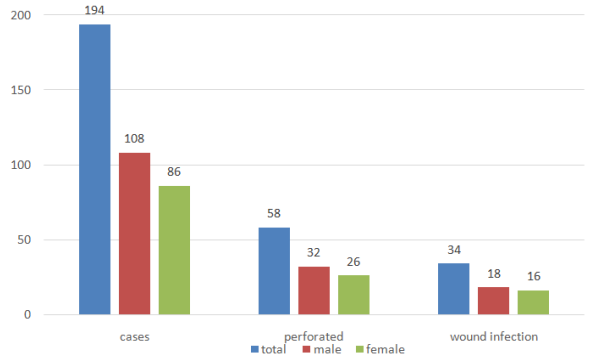
in >50years age group and is (n=16,8.22%) collectively.

For both female and male groups appendicitis is most prevalent in the 11 to 20 years age group with rates of (n=50, 46.29% and (n=46, 53.48%) respectively and least prevalent in age > 50 years. Appendicitis was more common in males (n=108,55.67%) than females (n=86, 44.32%) and ratio among above is 1.255.

During our Study, We found that 29.89% cases were perforated appendicitis citing males (n=32,29.6%) and females (n=30.2%).while 32.989% cases got Post-OP wound infection with ratio of 33% males and 28% females.

Table No.3: Ratio of Male and Female Patients diagnosed with acute appendicitis in DHQ Hospital Bannu.

Age Group	Male Cases	Female Cases	Total
5-20	50(46.29%)	46(53.48%)	96(49.48%)
21-30	38(35.18%	16(18.6%)	54(27.83%)
31-40	4(3.7%	10(11.62%)	14(7.21%)
41-50	10(9.2%	4(4.65%)	14(7.21%)
51-60+	6(5.55%)	10(11.6%)	16(8.24%)
total	108(55.67%)	86(44.32%)	194(100%)

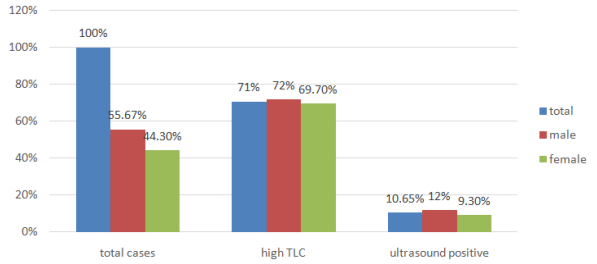


Graph No.2: Patient cases with post op wound infection or Perforation

Negative appendectomy, i.e patient with no inflamed appendix, were 34 cases about17.25%, out of which male patients were r18 (16.6%) and female patients were 16(18.6%). Among all cases (220), 26 cases (11.81%) were having symptoms mimicking appendicitis but were other pathologies found during Surgery . Other pathologies in male were(n=18,14.2%) mostly seen in early age group, and female cases were (n=8,8.51%).

The socioeconomic status of our patients in study was of Average to Poor in 70-80% of cases.

High wbc count was seen in 70% of cases of male and 69.767% in female as noted from our record books. And positive ultrasound finding were 12% in male and 9.3%in female cases respectively from available data.



Graph No.3: Investigative Finding in Patients

DISCUSSION

In our study there were total 220 cases with Right Iliac Fossa pain out of which 194 were diagnosed to be Acute Appendicitis. 108 male cases and 86 female case accounting for 55.6% and 44.3% respectively, which shows ratio of 1.12 indication male preponderance also quoted in other studies [4]. In our study, Appendicitis was mostly seen in patient with age group of 5-20 years with study giving results of49%, (n=50,46.29%) and (n=46,53.48%) in males and females respectively. Studies from different part of world support these observations. Aslam MN et al observed similar results in Lahore Pakistan[12] while Noudeh YJ et also showed highest appendicitis incidence in males aged 20-29 and female aged 10-19 years in their study conducted in Tehran.[13] Sulu B et al from turkey and l-omranet alfrom Canada also support these figures.[14, 15]

In our study, rate of perforated appendix at time of presentation was 30% which may be due to delayed presentation at hospital level. Results were not much different from a similar study conducted by Omar sallaudinin, POF hospital wah cantt; Pakistan that revealed 33.3% perforated cases in their study.[17]

In our study, 32.94% cases had suffered from post operated wound infection where mostly seen in patients having perforated appendix. this high rate of wound infection was due to perforation and long stay of patients in hospital..

Negative appendectomy was 17.6% of the total cases, containing 16.6% male of all male cases and 18.6% females of all female cases that had undergone appendectomy. Our result was much lower from a similar study by Okobia et al. in Benin City, Nigeria who reported an incidence of 32.2% with representation of both males and females18. Similarly, Ogbonna et al. reported a negative appendectomy rate of 29.7% in males and 47% in females over a five year period innigeria[19]. Kakande and colleagues in Uganda reported a negative appendectomy rate of 29.5% [20]. Gilmore in England reported a negative appendectomy rate of 22.5% [21]. In contrast with all these studies our study showed better results which is due to good clinical assessment better diagnostic sense.

70% of cases showed leukocytosis and only 10% showed positive ultrasound finding. Ultrasound is mostly use to exclude other pathologies otherwise the results don't show any convincing figure regarding ultrasound in appendicitis. A white cell count greater than 1O, 000/pL was observed in 82% cases of appendicitis by SudhaElangovan[22]. A study by Lau and colleagues showed 42 % increase in WBC count.[23]
Other pathologies mostly seen in patients were mesenteric lymphedinitis and ascaries in teenagers. In females ovarian endometriosis was seen after negative appendectomy. Few cases of intestinal tb was seen particularly ilio-cecal.

CONCLUSION

Quite a large number of Patients with acute abdomen have been diagnosed with Acute appendicitis. Our findings of the study are as under:

1) Appendicitis was most commonly seen in teenager i.e patients of age 11-20.
2) Delay in diagnosis lead to perforated appendicitis leading to emergency and increase in mortality
3) Majority of patients with acute appendicitis were of poor to average socioeconomic status
4) Mortality rate during our study was none indicating better and prompt diagnosis and treatment.

Recommendations: On basis of our study we recommend the following:

1) Awareness regarding abdominal pain and appendicitis may be provided to community to prevent complications due to acute appendicitis.
2) Prompt provision of necessary investigations and ease of access to health centers may lead to better treatment of Acute Appendicitis.
3) People with poor socioeconomic may visit hospital on prompt to prevent complications.
4) And Specialist/ Consultant Surgeon opinion may be taken on the suspected Appendicitis cases that are presenting to emergency department.
5) Alvarado Scoring Charts may be displayed in Emergency department leading to Prompt diagnosis of Acute appendicitis and prevention of complications

Author's Contribution:

Concept & Design of Study:	Ajmal Shah Bukhari
Drafting:	Waqas Ahmad Khan
Data Analysis:	Waqas Ahmad Khan
Revisiting Critically:	Tehmas Ahmad Khan, Wasim Ahmad
Final Approval of version:	Ajmal Shah Bukhari

Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES

1. Schwartz SI. Appendix. In: Schwartz SI, editor. Principles of surgery. 6th ed. New York: McGraw Hill; 1994.p.1307-1
2. Addiss DG, Shaffer N, Fowler BS, Tauxe RV. The epidemiology of appendicitis and appendectomy in the United States. Am J Epidemiol 1990;132: 910–25.
3. Epidemiological observations on appendicitis in Peshawar, Pakistan: Pakistan. Pak J Surg 2012; 28(1);30-33.
4. Al-Omran M, Mamdani M, McLeod RS. Epidemiologic features of acute appendicitis in Ontario, Canada. Can J Surg 2003;46:263–8.
5. Andersson R, Hugander A, Thulin A, Nyström PO, Olaison G. Indications for operation in suspected appendicitis and incidence of perforation. BMJ 1994;308:107–10.
6. Blomqvist P, Ljung H, Nyrén O, Ekbom A. Appendectomy in Sweden 1989–1993 assessed by the Inpatient Registry. J Clin Epidemiol 1998; 51:859–65.
7. Körner H, Söndenaa K, Söreide JA, Andersen E, Nysted A, Lende TH, et al. Incidence of acute non-perforated and perforated appendicitis: age-specifi c and sex-specifi c analysis. World J Surg 1997;21:313–7.
8. Luckmann R, Davis P. The epidemiology of acute appendicitis in California: racial, gender, and seasonal variation. Epidemiol 1991;2:323–30.
9. Sugimoto T, Edwards D. Incidence and costs of incidental appendectomy as a preventive measure. Am J Public Health 1987;77:471–5.
10. Ohmann C, Franke C, Kraemer M, Yang Q. Status report on epidemiology of acute appendicitis. Chirurg 2002;73:769-76.
11. Alvarado A. A practical Score for the early diagnosis of acute appendicitis. Ann Emerg Med 1986:15:557-564.
12. Aslam MN, Kamran A, Gondal KM, Andrabi I, Mahmood T, Chaudhry AM. Appendectomy: A Contemporary Appraisal. Ann King Edward Med Coll 1999;5(2):184-7
13. Noudeh YJ, Sadigh N, Ahmadnia AY. Epidemiologic features, seasonal variations and false positive rate of acute appendicitis in Shahr-e-Rey, Tehran. Int J Surg 2007;5(2): 95-98.
14. Sulu B, Gunerhan Y, Palanci Y, Isler B, Caglayan K. Epidemiological and demographic features of appendicitis and influences of several environmental factors. TJTES 2010;16(1):38-42.
15. Al-Omran M, Mamdani M, McLeod RS. Epidemiologic features of acute appendicitis in Ontario, Canada. Can J Surg 2003;46(4):263-8

16. Gürleyik G, Gürleyik E. Age-related clinical features in older patients with acute appendicitis. Eur J Emerg Med 2003; 10: 200-3.
17. Acute appendicitis in the elderly; Pakistan Ordnance Factories Hospital, WahCantt. Experience. JPMA 2012;62:946.
18. Okobia MN, Osime U, Aligbe JU. Acute appendicitis: review of the rate of negative appendectomy in Benin City. Nig J Surg 1999;6: 1–5.
19. Ogbonna BC, Obekpa PO, Momoh JL, Ige JT, Ihezue CH. Another look at acute appendicitis in tropical Africa: the value of laparoscopy in diagnosis. Tropical Doctor 1993;23:82–4.
20. Kakande I, Kavuma J, Kampala E. Afr Med J 1978;55:172–6
21. Gilmore OJA. Diagnostic error and operative findings in “appendicitis”. Bull Soc Int Chir 1975; 34(6):653-8.
22. Elangovan S. Clinical and laboratory findings in acute appendicitis in the elderly. J Am Board Fam Pract 1996;9:75–8
23. Lau WY, Fan ST, Yiu TF, Chu KW; Lee JMH. Acute appendicitis in the elderly. Surg Gynecol Obstet 1985;161:157-60.