Original Article

Critical Analysis of Adverse Outcomes in Delayed Presentation of Ectopic Pregnancy

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ABSTRACT

Objective: The objective of study is to critically analyze the adverse outcomes of delayed presentation in ectopic pregnancy to enhance the importance of early diagnosis and prompt treatment in females with acute abdomen in childbearing age.

Study Design: Descriptive / observational study

Place and Duration of Study: This study was conducted at the Gynecology Department, Nishtar Medical University and Hospital, Multan from January 2018 to December 2018.

Materials and Methods: This study was performed in patients with suspected ectopic pregnancy. The purposive non-probability sampling technique was used for the selection of patients, included patients between 13-50 years of age with abdominal pain with/without bleeding per vagina, missed cycles and hemodynamic instability. The patients with coagulation disorders and on anticoagulant treatment were excluded. Pregnancy was confirmed by urine dipstick/β- human chorionic gonadotrophin and ultrasound. The data was analyzed using statistical analysis program. Frequencies and percentages were presented for variables. Chi-square test was applied to establish the relationship between delayed presentation and complications and $p \leq 0.05$ considered significant.

Results: Sixty two patients were diagnosed as ectopic pregnancy among total 7450 patients admitted in emergency department so the frequency of ectopic pregnancy was 0.85%. The main focus was emphasized on the time duration of symptoms to admission which showed strong relationship, delayed presentation lead to multiple risks like ruptured ectopic pregnancy (90%), presence of shock(76%), multiple blood transfusions (62%) and laparotomy (87%).Only six patients(10%) presented early and they received medical treatment (5%) and laparoscopy(5%), so timely diagnosis and treatment can reduce the morbidity and mortality related to ectopic pregnancy complications.

Conclusion: Timely diagnosis and proper management of patients presenting with ectopic pregnancy can improve outcomes and reduce the complications.

Key words: Mortality, Morbidity, Ectopic pregnancy, Shock. Laparotomy.

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INTRODUCTION

Maternal mortality is a major cause of death in early pregnancy complications world wide[1]being more common in nonwhites than whites[2].The risk of death from extrauterine pregnancy is more common as compared to the pregnancy that either results in live birth or is intentionally terminated. The death rate is 1 in 2000 ectopic pregnancies and 15 % of all maternal deaths.

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The incidence of ectopic pregnancy in the UK is 11 per 1000 pregnancies, with a mortality of 0.2 per 1000 cases[3] and Gauvin reported 2% incidence of ectopic pregnancy[2]. The risk factors for ectopic pregnancy include pelvic inflammatory disease, previous tubal surgery, previous ectopic pregnancy, copper containing contraceptive device, assisted reproduction and now current use of LNG-IUS and previous use of depot medroxy progesterone acetate has been documented[4,5,6].

In ectopic pregnancy, 90% of fertilized ovum implants in the tubes but it can implant in abdomen[7], cervix, ovary[8], spleen, omentum, cesarean scar[9,10]retro peritoneal pregnancy[10], intramural[11] and rarely patient can present with heterotopic pregnancy in which simultaneous intrauterine as well as extra uterine pregnancy coexist[12].Most of the tubal pregnancies become symptomatic within 12 weeks but small number of tubal pregnancies progress beyond this gestation and are late diagnosed.

The proper management of ectopic pregnancy needs early diagnosis, resuscitation, prompt treatment and

follow up. Early diagnosis of ectopic pregnancy is a difficult task but it can be diagnosed with help of quantitative beta-hCG, transvaginal or transabdominal ultrasonography and laparoscopy[13]. The treatment can be conservative, medical treatment with the use of methotrexate[14]and surgical management depends on the presentation in form of laparotomy or laparoscopy. Early surgical intervention is the key to successful treatment of even heterotopic triplet pregnancy and ensures good neonatal outcome[13].

The purpose of this study was to increase the clinical suspicion of physician for patients who present with sign and symptoms of acute abdomen, missed cycle, hemodynamic instability and to diagnose and treat them promptly. The mortality and morbidity associated with ectopic pregnancy are related to the length of time from symptomatology to diagnosis, increased awareness and knowledge could help by providing better prediction and prevention of delay in at risk-women. Moreover, this could enable an early and accurate diagnosis prior to the rupture, resulting in a reduction in the need for lifesaving surgical procedure and complications.

MATERIALS AND METHODS

Descriptive observational study was performed in Nishtar medical university and Hospital during 1st January 2018 to 31st December 2018 in Gynecology department in patients with suspected ectopic pregnancy prospectively. The purposive (non-probability) sampling was used for the selection, included patients between 13-50 years of age with abdominal pain with/without bleeding per vagina, missed cycles, hemodynamic instability and unexplained shock. The patients with bleeding disorder and on anticoagulant therapy were excluded. All the investigations were performed to diagnose ectopic pregnancy including urine pregnancy test, β-hCG and ultrasonography along with other routine investigations. The different variables like age, parity, gestational age, levels of β-hCG, hemodynamic status, number of blood transfusions and mode of treatment were studied. Time duration between the onset of symptoms and admission were gathered and analyzed by SPSS-17. The results were shown in frequency and percentage tables. The tests of significance was performed and P –values less than 0.05 was considered significant and chi square test was applied to all the categorical variables.

RESULTS

Total 7450 patients were admitted during 1stjan to 31stdec 2018, 62 patients were diagnosed as ectopic pregnancy so the frequency of ectopic pregnancy was 0.85%. Fifty six (90%) patients were diagnosed as ruptured ectopic pregnancy and six (10%) had un-ruptured ectopic pregnancy. There was significant relationship of ectopic pregnancy with age of patients, more common in 26-35 years ($p<0.05$) (Table I). Pain abdomen was the most common symptoms present in all most 100% of patients followed by vaginal bleeding 87%(n=54). The most significant sign was abdominal tenderness 96% (n=60). Most of the patients shared multiple symptoms. (Table 2). β-hCG and ultrasonography were the most important tools of diagnosis in ectopic pregnancy.(Table 3). The main focus was emphasized on the time duration of symptoms to admission that showed strong relationship between delayed presentation lead to multiple risks like ruptured ectopic pregnancy (90%), presence of shock (75%), multiple blood transfusions (62%) and laparotomy (90%), laparoscopy (5%) and conservative management (5%).(Table 4).

Table No.I Patient's data(N=62)

Variables		No. of patients		Test of significance
Age	<25 yrs	7	11.3%	X^2(4, N=62)= 9.435, p< 0.05
	26-35yrs	50	80.6%	
	>35yrs	5	8.1%	
Gestational age				
	4-6 weeks	14	22.6%	X^2(4,N=62)= 11.11, p< 0.024
	6-8 weeks	36	58%	
	>8 weeks	12	19.4%	
Parity	Primi-gravida	26	42%	X^2(2,N=62)= 2.85, p< 0.24
	Multi-gravida	36	58%	

Table No.2. Clinical presentation (N=62)

Clinical features	No.of patients	percentage
Pain abdomen	62	100%
Vaginal bleeding	54	87%
Amenorrhea	45	72%
Shock	47	75%
Pallor	50	80%
Abdominal distension	40	64%
Abdominal tenderness	60	96%

Table No.3: investigations (N=62)

Investigations		No.of patients	%tage
Beta HCG (mIU/ml)	<1000	13	21%
	1000-3000	33	53.2%
	3000-5000	16	25.8%
Transvaginal Ultrasound findings (extrauterine)	Adnexal mass	24	38.7%
	Gestational sac	15	24.1%
	Cardiac activity	2	3.2%
	hemoperitonium	52	83.8%

DISCUSSION

Ectopic pregnancy is a high risk condition and a leading cause of maternal death in first trimester[3] and accounts for 10% of all maternal deaths[13]. Under developed countries have highest incidence of maternal mortality (1-3%) which is ten times higher than developed countries, in Ghana 8.7%, Cameroon 12.5% of maternal deaths are due to ectopic pregnancies[13]. This could be explained by late diagnosis, although the early diagnosis of ectopic pregnancy became possible with transvaginal ultrasonography and quantitative measurement of the β - human chorionic gonadotropin (β-hCG). A delay in diagnosis most often leads to severe complications like hemodynamic instability, rupture and hemoperitoneum, multiple blood transfusions and shock which consequently leads to many morbidities like surgical treatment by laparotomy with salpingectomy and even mortality.

Table No.4: Relationship between time duration and outcomes (N=62)

Outcome		Time (hours) <24 hours	>24 hours	>48 hours	Test of significance
Admission	<24hrs	8(12.8%)	15(24.1%)	1(1.6%)	$X^2(4,N=62)=1.657$ P<0.043
	>24hrs	7(11.3%)	20(32.2%)	11(18%)	
Mode of treatment	medical	2(3.2%	1(1.6%)	0	$X^2(4,N=62)=11.11,P<0.025$
	laparotomy	32(51.8%)	15(24.1%)	9(14.5%)	
	laparoscopy	0	0	3(4.8%)	
No. of blood transfusion	none	4(6.5%)	20(32.3%)	0	$X^2(6,N=62)=21.5,P<0.001$
	one	7(11.2%)	11(17.7%)	5(8%)	
	two	4(6.5%)	4(6.5%)	3(4.8%)	
	three	0	2(3.2%)	2(3.2%)	
Shock	yes	10(16.1%)	26(42%)	11(17.7%)	$X^2(2,N=62)=8.07,P<0.018$
	no	4(6.5%)	10(16.1%)	1(1.6%)	

The incidence of ectopic pregnancy and its associated maternal morbidity and mortality has emphasized the importance of early detection by appropriate investigations and high index of suspicion of having ectopic pregnancy in the reproductive years of all females. Incidence ranges from 0.25% to 2% of all pregnancies[17]. Our frequency of ectopic pregnancy was 0.85%. The rate of ectopic pregnancy was 1.9%[18] and 4.3% according to other studies.[13,3]

We have observed that primary condition of patient depends upon the time duration between the onset of symptoms and time of admission. We observed 61% patients were admitted after 24 hours of symptoms, 75.8% presented in shock, they had multiple blood transfusion (61.2%), laparotomy (87%). In Tanzanian study Mooij concluded that in low income countries it is a big challenge to diagnose the ectopic pregnancy early, less than half patients 47% were diagnosed as ectopic pregnancy in suspected ectopic pregnancy [19].Marion observed that >85% of patients with tubal ectopic pregnancy were diagnosed before rupture which lead to the medical therapy and laparoscopic surgery with tubal preservation[20]. Stulberg concluded that women who experienced fragmented care during pregnancy presented late were those who experienced more complications[21]. Marion suggested that early intervention saves lives and reduces morbidity, but ectopic pregnancy still accounts for 4 to 10% of pregnancy-related deaths[20].

Six patients presented early within 24 hours of symptomology had unruptured ectopic pregnancy. Their diagnosis was made by theserial beta-HCG and transvaginal ultrasonography. They were kept under observation and three patients (4.8%) underwent laparoscopy and three (5%) patients received medical treatment with methotrexate after confirmation of ectopic pregnancy. All three patients received single dose of methotrexate and they were followed till their beta HCG became negative. Merisio recommended single dose methotrexate for the treatment of ectopic pregnancy[17]. Anni Marie reported the success of 88% in single dose methotrexate versus93% in multiple dose of methotrexate[22].

There were few limitations in our study. This was hospital based study not a community based. Nishtar Hospital is the only tertiary care center in South Punjab draining large area of province. So there were limitations like delay in referral to tertiary care center, lack of Infrastructure and transport, lack of awareness along with low literacy rate which all contributed in the delayed presentation and compromised status of patients with ectopic pregnancy. According to Mooij, making the right diagnosis is more difficult, and delay in diagnosis can occur before and after consulting a doctor even[19].

The objective of our study was to increase the clinical knowledge and degree of suspicion of the physician to diagnose the ectopic pregnancy as early as possible. This will avoid the unnecessary delay in presentation and diagnosis which is very important to avoid maternal morbidity and mortality in patients with ectopic pregnancy. As ectopic pregnancy has many long term complications like recurrent ectopic pregnancy and

infertility, we were unable to do long term follow up, but it is very important to educate the females and families at discharge from hospital about early booking and ultrasound in next pregnancies. Moreover, this could enable an early and accurate diagnosis prior to the rupture, resulting in a reduction in the need for surgery and some complications.

CONCLUSION

We can reduce morbidity and mortality by avoiding delay in diagnosis by good clinical experience and investigations like urine pregnancy test and transvaginal ultrasonography. We observed that delay in presentation ended in laparotomy with salpingectomy as a main treatment option which is not superior to laparoscopy.

Author's Contribution:

Concept & Design of Study:	Saima Yasmin Qadir
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Conflict of Interest: The study has no conflict of interest to declare by any author.

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