Original Research Article

Ectopic Pregnancy: A study of epidemiology, diagnosis and management

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Abstract

Aims: The study was done to analyze the epidemiology, diagnosis and treatment aspect of patients with ectopic pregnancy. **Methods:** This was a prospective study of patients with ectopic pregnancy who received treatment. The data of all patients admitted during this period with the diagnosis of ectopic pregnancy were collected. Data on age, parity, risk factors, diagnostic methods, treatment, operative findings, etc. were analyzed. **Results:** There were 61 cases of ectopic pregnancy with the hospital incidence of 1.46%. Highest number of patients 20 (32.79%) were in the age range of 28-32 years. Most of the patients were nullipara 22 (36.06%) or with parity two 20 (32.79%). Some risk factors were found in 29 (47.54%) cases. The commonest risk factor was pelvic inflammatory disease in12 (19.67%). All presented with pain abdomen, 48 (78.68%) had per vaginal bleeding, 17 (27.87%) presented in shock. Cervical excitation was present in 38 (62.29%). Urine for pregnancy test was positive in all and 37 (60.66%) had ultrasonography. Ten (16.39%) patients underwent emergency laparoscopic surgery and 40 (65.57%) had emergency laparotomy. Salpingectomy was required in 53 (86.89%) cases. The average hospital stay was 5 days. **Conclusions:** The study showed that ectopic pregnancy could occur at any reproductive age without obvious risk factors. Although not all patients gave history of amenorrhoea, pain abdomen was present in all.

Keywords: Ectopic Pregnancy; Pain Abdomen; Shock.

Introduction

Ectopic pregnancy is implantation of fertilized ovum in an area other than the endometrial lining of uterus[1]. Approximately 1-2% of all naturally conceivedpregnancies end up with ectopic pregnancy[2]. It is the leading cause of maternal mortality in the first trimester of pregnancy[3]. Ectopic pregnancy accounts for 9% of all pregnancy related death[1]. The morbidity and mortality associated with ectopic pregnancy are directly influenced by the time elapsed between the onset of symptoms and start of treatment[4].

Several risk factors are associated with ectopic pregnancy. History of pelvic inflammatory disease(PID) has been shown to be the strongest predictor[5]. The development of sensitive β-hCG assay, increasinguse of ultrasonography and laparoscopy has allowed earlier diagnosis of ectopic pregnancy[1]. The objective of the present study was to analyze the incidence, risk factors, epidemiological characteristics and management of ectopic pregnancy.

Materials and method

This prospective, observational, descriptive, study was conducted at Department of Gynaecology, at ESI PGIMSR, Basaidarapur, New Delhi, India. The study was approved by the institutional research and ethical committee. The study was conducted between January 2014 and August 2016. An informed and written consent was taken from the participating subjects prior to the commencement of the study.

The data of all patients admittedduring this period with the diagnosis of ectopic pregnancy were collected. Data on age, parity, risk factors, diagnostic methods, treatment, operative findings, etc. were analyzed.

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The data was tabulated in Microsoft excel sheet and was further subjected to statistical analysis using SPSS Software version 16.0.

Results

There were 61 cases of ectopic pregnancies out of 4161 live births during the study period with theincidence of 1.46%. Highest number of patients 20 (32.79%) were in the age range of 28-32 years (Table 1).

Table 1:Age distribution of cases (n=61)

18-22	9
23-27	16
28-32	20
33-37	12
38-42	3
43-47	2

Most of the patients were nullipara 22 (36.06%) followed by parity two in 20 cases (32.79%) (Table 2). Twenty-nine (47.54%) patients had risk factors like previous ectopic pregnancy, previous abortions, pelvic inflammatory disease (PID). Thirty-two (52.46%) had no obvious risk factors (Table 2). Nine patients had undergone manual vacuum aspiration and three had medical abortion at other center for the missed diagnosis.

Table 2: Reproductive, gynecological history and riskfactors of cases (n=61)

Reproductive history	Number (%)
P_0	22 (36.06)
P_1	14 (22.95)
P_2	20 (32.79)
P_3 and above	5 (8.20)
Risk factors	
PID	12 (19.67)
Previous abortion	7 (11.47)

Previous LSCS	4 (6.56)
Subfertility treatment	3 (4.92)
Previous ectopic	2 (3.28)
Copper T in-situ	1 (1.64)
No obvious risk factor	32 (52.46)

Clinical features on presentation are shown in Table 3. History of pain abdomen was present in all cases and 17 cases (27.87%) presented in shock/collapse. Urine for pregnancy test (UPT) was positive in all cases. Ultrasonography was done on 37 (60.66%) cases, which showed various amounts of hemoperitoneum and adnexal masses suggestive of ectopic pregnancy. Seven (11.48%) had hemoglobin less than 5 gm% (Table 3). Diagnosis on admission was ectopic pregnancy in 54 (88.52%), acute pelvic inflammatory disease (PID) in 5 (8.19%) and chocolate cyst in 2 (3.28%) cases.

Table 3: Clinical features and investigations on admission (n=6)

Clinical features	**Number (%)**
Amenorrhoea	42 (68.85)
PV bleeding	48 (78.69)
Pain abdomen	61 (100)
Shock	17 (27.87)
Abdominal tenderness	61 (100)
Cervical excitation	38 (62.29)
Adnexal mass on pelvic examination	9 (14.75)
Investigations	
UPT	61 (100)
USG	37 (60.66)
Hemoglobin in gm%	
< 5	7 (11.47)
5 to 7	17 (27.87)
8 to 10	16 (26.23)
above 10	21 (34.43)

One patient was treated conservatively with injection Methotrexate. She improved and was discharged after3 days. Laparoscopy was done in 10 (16.39%) and emergency laparotomy was done in 40 (65.57%) cases. One patient required total abdominal hysterectomy and right salphingo ophorectomy as she had previous ectopic pregnancy and all pelvic structures were adherent. Twenty-two cases (36.07%) had right- sided tubal pregnancy and 31 cases (50.82%) had leftsided tubal pregnancy. Milking was done in 3 cases (4.92%) and cornual wedge resection was done in 3 cases (4.92%). The most common site of ectopic pregnancy in our series was the ampulla in 50(81.97%) cases (Table 4).

Table 4:Treatment and operative £ndings in cases (n=61)

Treatment	**Number (%)**
Laparotomy and right salphingectomy	18 (29.51)
Laparotomy and left salphingectomy	25 (40.98)
TAH with RSO	1 (1.64)
Milking of POC	3 (4.92)
Cornual wedge resection	3 (4.92)
Laparoscopy and right salpingectomy	4 (6.56)
Laparoscopy and left salpingectomy	6 (9.84)
Conservative (Methotrexate)	1 (1.64)
Rupture site	
Tubal abortion	2 (3.28)
Cornual ectopic	3 (4.92)
Isthmus	5 (8.20)
Ampulla	50 (81.97)
Site unknown	1 (1.64)

Various amount of hemoperitoneum was observed during operation. The highest amount was more than two liters in 15 cases (24.59%) {Table 5}. Most ofthe patients (24.59%) required four units of blood transfusion. No transfusion was required in 28 cases (45.90%). The highest number of blood transfusion was six units in 3 (4.92%) patients, five units ofblood was transfused to 1 (1.64%), three units to 1 (1.64%) and two units to 13 (21.31%) patients. The patients who presented in shock had largest amount of hemoperitoneum on operation and they required more amount of blood transfusion.

The range of hospital stay was 3-7 days with average hospital stay of 5 days. Five (8.20%) patients had longest hospital stay of 7 days. Six (9.84%) weredischarged on 6^{th} day, 28 (45.90%) on 5^{th} day, 10 (16.39%) on 4^{th} day. Twelve (19.67%) patients had short hospital stay of 3 days. The patients who presented in shock and required more amount of blood transfusion had longest hospital stay, whereas who were treated laparoscopically and conservatively had shortest hospital stay. There was no mortality.

Table 5. Hemoperitoneum in cases (n=6)

Blood loss	**Number (%)**
30 ml (calculated by USG)	1 (1.64)
< 500 ml	20 (32.79)
500-999 ml	11 (18.03)

1000-1499 ml	6 (9.84)
1500-1999 ml	8 (13.11)
> 2000 ml	15 (24.59)

Discussion

The incidence of ectopic pregnancy in our study was 1.46% which is comparable to 1.14% in a study by Abdulaziz[6] and 1.74% in another study by Jabbar[7]. The peak age was 28-32 years in our study whichis comparable to that previous study, which was 26-30 years[8]. In an another study, peak age range was 20-35years[4]. The rising incidence in young women is due to the fact that they are more sexually active[9]. In our study 36.07% were nullipara whereas in the study of NMCTH, 49% were nullipara. In the same study, the gestational age range was 5-11weeks with mean of 6.9 weeks[4]. In our series, gestational age range was 5-12 weeks with majority (37.70%) in 6 weeks which are comparable. In our study 4.92%had amenorrhoea for more than 10 weeks but in the study of Jha et al 1.3% had amenorrhoea for more than 10 weeks[8]. In our study all the patients had pain abdomen, 68.85% had history of amenorrhoea and 78.69% had pervaginal bleeding which is comparable to 97.3% pain abdomen, 73.6% amenorrhoea and 57.8% pervaginal bleeding in a study conducted in Pakistan[10]. In the present study, 27.87% presented in shock. In the study of Jha et al [8], 12% were in shock and in the study done in India by Majhi et al[11], 9.4% were in shock. The difference may be due to the fact that patients who come from outside valley take a longer time to reach hospital. In this study 86.89% had ruptured ectopic which is comparable to 82.6%in the study of Jha et al[8]. In the study of Majhi et al[11] 70.2% had ruptured ectopic pregnancy.

Although the exact etiology of ectopic pregnancy is not well understood, several risk factors have been found to be associated with it. The risk factors are tubal surgery, documented tubal pathology, previous ectopic pregnancy, infertility, pelvic inflammatory disease, multiple sexual partners, previous pelvic or abdominal surgery and exogenous hormones[1]. In our study, 47.5% had risk factors which is comparableto 40% in the study of Jabbar et al[7]. Our study also showed that 19.67% had pelvic inflammatory disease,4.92% had subfertility, 3.28% had previous historyof ectopic pregnancy, 6.56% had previous caesarean section, 1.64% had copper T in-situ. In a study in Pakistan by Shah et al[10], risk factor was higher (60.5%). History of subfertility was 23.6%, previous ectopic pregnancy was 7.8% copper T was 2.6%, previous caesarean section was 10.5%.,abdominal tuberculosis 15.7%,, tubal surgery 2.8%, dilatation and curettage 18.4%, injection depo provera 10.5% and oral contraceptive pills was in 7.8%. In the studyby Majhi et al[11] there was identifiable risk factorsin 65% of cases. History of tubectomy was 14.5%, previous abortion was 26.1%, infertility 12.2%, pelvic inflammatory disease 12.8% and previous surgery was 11.1%. The variation is due to difference in sample size.In our series, urine pregnancy test was positive in all. However, the study of Abound et al[12] showed 11% false negative result. Diagnostic error was 11.48% in our study whereas in another study by Alsulieman et al[13] it was 35.9%. The disparity was due to larger sample size and not using ultrasonography as additional diagnostic tool. In this study 98.08%had tubal pregnancy which is comparable to 98% in another study[14]. Methotrexate was given in 1.64% in our study, whereas in the study of Jha et al 2.6% received methotrxate[8].In the present study, 86.89% required salpingectomy,but salpingectomy was done in 69.3% andsalpingoophorectomy in 17.5% in the study of Jha et al[8]. We had no ovarian pregnancy so ovary was salvaged in our series. In Jha et al 1.3% had ovarian pregnancies[8] and why more number of salpingooporectomy was done was not explained. In our study 54.09% cases required blood transfusion whereas in another study from Jha et al[8], 70.6% cases required blood transfusion. In the study of Madagaskar[15] only 27.1% needed blood transfusion. The requirement of blood transfusion depended onthe status at the time of presentation and the amount of hemoperitoneum. In Jha et al[8] the patients were from remote areas and majorities were from low socioeconomic group and presented late. There was no case fatality in our study. In another study, two case fatalities were reported. This may be due to largesample size[16].

Conclusion

The study showed that ectopic pregnancy could occur at any reproductive age even without obvious risk factors. There may not be history of amenorrhoea neither the patients be in shock. Mannagement included conservative with methotrexate, laparotomy and laparoscopy. If any woman of reproductive age presents with unexplained acute abdomen, irrespective of history of amenorrhoea, ectopic pregnancy must be ruled out.

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