Original Article

A Retrospective Study to Find out Risk Factors and Management of Ectopic Pregnancy

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Abstract

Background: *Ectopic pregnancy occurs in 2% of all pregnancies and is a potentially life-threatening emergency. The exact aetiology of ectopic pregnancy is unknown although a number of risk factors have been identified.* ***Objective:*** *The present study was conducted to explore the clinical presentation, probable risk factors, associated maternal morbidity and mortality with respect to ectopic pregnancy and its management.* ***Materials and method:*** *The present study involves a retrospective analysis of ectopic pregnancies admitted in BIRDEM General Hospital for two years from January 2020 to December 2021. Relevant data of all the 47 patients diagnosed and treated as ectopic pregnancy during the study period were collected from hospital records and included in this study.* ***Results:*** *The majority of the cases (62%) were between 20-30 years of age, and majority of them were from the lower middle class (64%). Most of the patients were multigravida (77%). Probable risk factors could be identified in 76.59% of cases among which history of previous abortions were more common (36.17%). Abdominal pain was the most common symptom seen in 96% cases. On ultrasound, the most common finding was adnexal mass (38.29%). In the majority of patients (53.19%), the ampullary region of the fallopian tube was the site of ectopic pregnancy. Among the 47 patients, 42(89.36%) underwent surgery, 3 patients (6.38%) underwent medical management and 2 patients (4.25%) received expectant management.* ***Conclusion:*** *The most common site of ectopic pregnancy was ampulla of fallopian tube. Ruptured ectopic is a common complication. Early diagnosis and early intervention are necessary for maternal survival.*

Keywords: *Ectopic pregnancy; Risk factors; Clinical Presentation.*

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Introduction

Ectopic pregnancy (EP) or extrauterine pregnancy is accepted from the Greek word "ektopos" meaning 'Out of place'.[1] Ectopic pregnancy is an abnormal condition in which implantation of the blastocyst occurs outside the endometrium of the uterus. These abnormal sites of implantation

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in decreasing order of frequency include tubal pregnancy, abdominal pregnancy, and ovarian pregnancy.[2,3] Blastocysts that do not implant in the uterine wall are generally unable to develop normally because the space is incapable for developing blastocyst. Ectopic pregnancy can cause rupture of fallopian tube, cervix and abdomen on which they are implanted. Rupture of ectopic pregnancy results in severe bleeding, organ damage and maternal mortality.[4-6] Ectopic pregnancy is the leading cause of maternal mortality in first trimester, with an incidence of 5%-10% of all pregnancy related deaths.[7] The rising incidence of ectopic pregnancy in past few years is due to a number of risk factors which include pelvic inflammatory disease, infertility, intrauterine contraceptive device, tubal surgeries, assisted reproductive techniques and availability of better diagnostic techniques.[8]

Ectopic pregnancy commonly presents between 6 and 10 weeks gestation with classical symptoms triad of amenorrhoea, abdominal pain and per vaginal bleeding in 30% to 40% of patients and the diagnosis requires a high index of clinical suspicion.[9,10] The overall incidence of ectopic pregnancy is increasing, yet the case fatality rate has come down due to early diagnosis and management.[11] Diagnosis of ectopic pregnancy has improved significantly due to advances in ultrasound technology, rapid and sensitive serum hormone assays, the development of specialized early pregnancy units and an increased awareness and understanding of the associated risk factors. Despite this, around half of the women with an eventual diagnosis of ectopic pregnancy are not diagnosed at their first presentation.[12,13] Early diagnosis is crucial in management as it reduces the risk of tubal rupture and allows more conservative medical treatment to be employed.[14] The present study was done to analyze the associated risk factors, clinical manifestation and management options of ectopic pregnancy.

Materials and method

This retrospective study was done in the department of Obstetrics and Gynaecology, BIRDEM General Hospital, from January 2020 to December 2021. The case records of the patients with ectopic pregnancy were traced from medical records department and Operation Theater registers. Data was collected from the case history sheets and operation notes of patients with ectopic pregnancy. Information was obtained regarding the demographic characteristics, risk factors, clinical manifestations, serum β-hCG level, USG findings, therapeutic intervention, site of ectopic pregnancy, and morbidity and mortality associated with ectopic pregnancy. All the relevant information and data were recorded in a structured proforma prepared by the investigator which in turn was analyzed after entering in the excel sheets using descriptive analysis.

Result

The study was conducted during January 2020 to December 2021. The total number of ectopic pregnancy cases was 47 during this period. Majority of ectopic pregnancy occurred in the age group of 20-30 years (61.70%). About 64% of patients in the study belonged to the lower middle class. Ectopic pregnancy was more common among multigravida (76.59%). (Table I) Maximum number of patients was in gestational age of 6 to 8 weeks.

Table I: Demographic features of the study subjects (n=47)

Parameters	No of cases	Percentage
Age (years)		
<20	1	2.12%
21-30	29	61.70%
>30	17	36.17%
Parity		
Primigravida	11	23.40%
Multigravida	36	76.59%
Socioeconomic status		
High class	3	6.38%
Upper middle class	14	29.78%
Lower middle class	30	63.87%

In present study, 76.59% of patients had identifiable risk factors of which history of previous abortion is noted in 36.17% cases followed by previous cesarean section in 31.04% cases. About 14.89% had infertility issues and were treated with either ovulation induction, IVF or IUI. History of previous ectopic pregnancy was found in 8.51% cases. (Table II)

Table II: Identified risk factors among the study subjects (n=47)

Risk factors	No of cases	Percentage
Abdominal TB	1	2.12%
Previous ectopic pregnancy	5	10.63%
Infertility	7	14.89%
Previous abortion	17	36.17%
Previous caesarean section	15	31.19%
Combined oral contraceptive pills	2	4.25%
Progesterone only pills	3	6.38%
Intrauterine contraceptive device	1	2.12%
Ovulation Induction	4	8.51%
No risk factor	11	23.40%

* Multiple response

Maximum patients (95.74%) reported with abdominal pain, 91.48% cases had history of amenorrhoea, 68% of patients had bleeding pervagina. About 15% of patients presented with features of shock.

Table III: Clinical features of the study subjects (n=47)

Clinical features	No of cases	Percentage
Amenorrhoea	43	91.48%
Abdominal pain	45	95.74%
Per vaginal bleeding	32	68.08%
Pallor	24	51.06%
Tachycardia	16	34.04%
Hypotension	7	14.89%
Abdominal tenderness	39	82.97%
Abdominal distension	7	14.89%

* Multiple response

Most common finding in ultrasonography was heterogenous adnexal mass in 38.29% cases. Ruptured ectopic pregnancy was found in 34% cases on ultrasonography. Among the rest of the patients, 17% had unruptured ectopic, 8.51% had scar ectopic, and 2.12% cases had abdominal pregnancy. (Table IV)

Table IV: Ultrasound findings of the study subjects (n=47)

Ultrasound findings	No of cases	Percentage
Heterogeneousmasswith minimal free fluid in POD	18	38.29%
Unruptured ectopic pregnancy	8	17%
Ruptured ectopic pregnancy	16	34.04%
Abdominal pregnancy	1	2.12%
Scar ectopic pregnancy	4	8.51%

* Multiple response

After evaluating the clinical condition of the patients, site, size of ectopic pregnancy and serum β-hCG level, 3 cases (6.38%) were given medical treatment with Inj. Methotrexate and 2 patients (4.25%) were given expectant management and had spontaneous resolution. Surgical management was done in 42 cases (89.36%). Most of the patients (59.57%) under went salpingectomy and salpingostomy was done in 3 cases (6.38%). (Table V)

Table V: Mode of management (n=47)

Management	No of cases	Percentage
Expectant	2	4.25%
Medical	3	6.38%
Surgical	42	89.36%
Laparotomy	34	72.34%
Laparoscopy	8	17.02%
Salpingectomy	22	46.80%
Partial salpingectomy	4	8.51%
Salpingostomy	3	6.38%

* Multiple response

It was found that 36 cases (85.71%) were tubal pregnancies and 52.38% was ruptured. Four cases (9.52%) were cesarean scar ectopic pregnancies. Only 2 cases (4.76%) were ovarian pregnancies and one of them was ruptured. One case (2.38%) was abdominal pregnancy of about 27 weeks with dead fetus. Among tubal ectopic pregnancies, majority of cases were ampullary pregnancies (59.52%) followed by isthmic (13.88%), fimbrial (11.11%) and cornual (2.77%). Hemoperitonium was present in 33 cases (78.57%) and 45.23% cases had more than 500 ml of blood loss. (Table VI)

Table VI: Operative findings (n=42)

Operative findings	No of cases	Percentage
Site		
Tubal	36	85.71%
Ampulla	25	59.52%
Isthmus	6	16.66%
Fimbrial	4	11.11%
Cornual	1	2.77%
Cesarean scar	4	11.11%
Ovarian	2	4.76%
Abdominal	1	2.38%
Course of ectopic pregnancy		
Ruptured	23	54.76%
Unruptured	8	19.04%
Tubal abortion	11	26.19%
Hemoperitoneum	33	78.57%
<500 ml	2	4.76%
500 ml	12	28.57%
>500 ml	19	45.23%

* Multiple response

Discussion

In the developed world, between 1% and 2% of all reported pregnancies are ectopic pregnancies.[15] The incidence is thought to be higher in developing countries, but specific number is unknown.[16] Rising rates of sexually transmitted diseases, induced abortions, changes in lifestyle and social life, childbearing at a late age, assisted reproductive technologies, and improvement in diagnostic methods are all factors that contribute to an increase in EP around the world.[17]

In the present study, maximum of the patients (61.70%) belonged to 20-30 years of age, were from the lower middle class (63.82%) and most of them were multigravida (76.59%); which were comparable to the study done by Nalini et al.[18] The most common risk factor in the present study was found to be a history of prior abortion in 17(36.17%) cases, followed by history of previous cesarean section in 15(31.19%) cases. In a study, Geremaet al.[19] found that history of induced abortions and history of cesarean section were significantly associated with ectopic pregnancy. Several studies showed the most frequent risk factors of EP include a history of abortions and pelvic inflammatory disease.[5,20] Ectopic pregnancy is more common in women attending infertility clinics even in the absence of tubal disease.[21] In present study, history of infertility was seen in 7(14.89%) cases. In three different studies, history of infertility was present in 16.21%, 48.07%, and 15.1% patients.[22-24] Women with a previous history of ectopic pregnancy also have an increased risk, which increases further in proportion to the number of previous ectopic pregnancies. Shaw et al.[25] found that, the OR for having an ectopic pregnancy was 12.5% after one previous EP and 76.6% after two. In this study previous EP was found in 5(10.63%) cases among them one patient had previous EP two times.

In our study there was no difference in clinical features of ectopic pregnancy as compared to the other studies. Most (95.74%) of the patients presented with pain abdomen, 91.48% of patients had history of amenorrhoea and 68.08% has bleeding per vagina which correlates with the study by Prassan et al.[17] and Murugesan et al.[26] Tenderness was the most common abdominal finding seen in 82.97% of patiens which correlates with the study by Murugesan et al.[26], in which abdominal tenderness was present in 80% of patients. In this study, 15% of patients presented with shock and 51% of patients had anaemia which is almost similar with the study by Murugesan et al.[26] in which 13.7% of patients presented with shock and 50% of patients had anaemia.

Widespread availability of ultrasound imaging in past two decades dramatically changed the practice of obstetrics and gynaecology.[27] In this study, ultrasonography revealed ruptured ectopic pregnancy in 34% of the cases, unruptured ectopic pregnancy in 17% of the cases, adnaxal mass in 38.29% of cases, scar ectopic in 8.51% of cases and abdominal pregnancy in 2.12% cases. Ovarian EP is one of the rarest variants and its rupture causes massive haemorrhage. In our study, 2 cases (4.76%) were ovarian pregnancy and one of the patients presented with shock. Cesarean scar ectopic pregnancy is another rarest form of EP. Banu et al. found scar EP in 3.44% cases.[28]

The treatment options of EP are expectant management, medical management and surgery. In our study, most of the patients (72.34%) underwent laparotomy with salpingectomy in 55.31% cases, 17% cases underwent laparoscopy with salpingostomy in 6.38% cases. Haemoperitonium was found in 70% cases. The reason is that most of the patients were with ruptured ectopic and presented late, as our hospital is a tertiary care centre with many referrals.

In the study, 3 patients underwent medical treatment with inj. Methotrexate and 2 patients underwent expectant management. The selection of the patients for medical management is in accordance with NICE Guideline 2019 that is initial β-hCG level <1500 IU/L with an adnexal mass not >35 mm.[29] One patient responded to a single dose methorexate and two patients responded to 2 dose regimen. Many of the studies worldwide demonstrated success rate close to 90% with methotraxate.[30]

Conclusion

Ectopic pregnancy is an acute emergency that needs prompt diagnosis, immediate treatment to prevent maternal mortality and to save the reproductive capacity. For the early diagnosis of ectopic pregnancy it needs strong suspicion of the physician and its correlation to ultrasonography and serum β-hCG level.

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