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Original Research Article

Diagnosis and management of cases of ectopic pregnancy in a tertiary care centre: our experience

Anushka S. Mehta, Riya R. Patel, Parav D. Shah*

Department of Obstetrics and Gynecology, Smt. NHL Municipal Medical College and SVPIMSR Hospital, Ahmedabad, Gujarat, India

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***Correspondence:**
Dr. Parav D. Shah,
E-mail: paravshah9@gmail.com

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ABSTRACT

Background: Ectopic pregnancy is a leading cause of maternal morbidity and mortality. With our study, we aim to highlight the importance of risk factors and effect of clinical presentation on the management modalities of ectopic pregnancy and study changing trends of modern management from radical surgical methods to medical and laparoscopic management of ectopic pregnancies.
Methods: This prospective study was undertaken at a tertiary care hospital between May 2021 and May 2022.
Results: The most common age group of presentation was 26-30 years. The most common risk factor was history of previous abortion. Amenorrhoea and abdominal pain were the most commonly encountered symptoms in this study. Cervical motion tenderness was significantly associated with ruptured ectopic pregnancy. Conservative medical management with injection methotrexate (Mtx), which was successful in 50% cases. Success rate was 100% for laparoscopic management and 100% for laparotomy in this study. No maternal mortality was observed during the present study.
Conclusions: Our hospital being a tertiary centre, had to manage a number of cases as surgical emergencies by laparotomy and not conservatively, as they brought in either diagnosed cases of ruptured ectopic pregnancy, or failure of medical management. It is important that in the face of this diagnostic dilemma, all physicians should be should maintain a high level of suspicion and be sensitive to the fact that in the reproductive age group any woman presenting with pain in the lower abdomen, diagnosis of ectopic pregnancy should be considered irrespective of the presence or absence of amenorrhea or tubal sterilisation.

Keywords: Amenorrhea, Ectopic pregnancy, Laparotomy, Methotrexate, Tubal sterilisation

INTRODUCTION

Ectopic gestation is an unmitigated disaster of human reproduction. Ectopic pregnancy is a leading cause of maternal morbidity and mortality in the first trimester. The incidence of ectopic pregnancy is approximately 2%.[1]

Some associated risk factors are considered to be responsible for the increasing incidence of ectopic pregnancy. Dramatic rise in the sexually transmitted diseases, use of intrauterine contraceptive devices, genital tuberculosis in developing countries, use of assisted reproductive technologies (ART) to name a few are contributory to the increasing ectopic pregnancies in the world.

With the advent of high-resolution ultrasonography and beta hCG levels, it is possible to diagnose ectopic

pregnancy at an earlier gestation than in the past. This enables several cases to be managed medically or conservatively rather than a radical surgical route. Rapidly changing diagnostic and therapeutic approaches makes ectopic pregnancy an exciting and ever evolving field of study.[1]

The objective of our study was to study and estimate the importance of risk factors and clinical features on management of ectopic pregnancy and to study changing trends of modern management from radical surgical methods to medical and laparoscopic management of ectopic pregnancies at our centre.

METHODS

This prospective study was undertaken at a tertiary care hospital between May 2021 and May 2022 in the Department of Obstetrics and Gynaecology, SVPIMSR Hospital and Smt. NHL Municipal Medical College, Ahmedabad, Gujarat.

Total number of deliveries during the study period was 9,503 and there were 36 cases of ectopic pregnancy giving an incidence of 1:264 pregnancies.

Inclusion criteria

All cases of suspected ectopic pregnancy, admitted to my hospital during the time of study were included.

Exclusion criteria

About 38 patients of ectopic pregnancy were admitted to our hospital out of which 2 cases were found to be misdiagnosed as ectopic pregnancy and hence, were excluded from the study.

Detailed clinical evaluation, laboratory parameters including urine pregnancy test, serum beta hCG and ultrasonography was done and patients were managed accordingly either medical or surgical management.

Patients who presented with shock were resuscitated by appropriate iv fluids, blood and blood products transfusions, ICU admission and detailed serial laboratory evaluations.

Medical management was done by inj. Methotrexate and surgery was performed either laparoscopically or by laparotomy based on individual patient profile.

Patients are closely monitored for any complications after inj. Methotrexate and treatment failure was promptly looked after by necessary decisions to manage surgically.

Postoperative patients were also monitored for development of complications like wound infections, blood transfusions. Patients were followed up till the time of discharge and were asked to follow up after one week on discharge.

RESULTS

Incidence of ectopic pregnancy in relation to intrauterine pregnancy in the present series is 1 in 264.

The maternal age ranged from 21-35 years. The maximum number of ectopic pregnancies in this study occurred between the age group of 26-30 years (Table 1).

Table 1: Age distribution of ectopic pregnancy.

Age group (years)	Present study	Tahmina et al[3]	Pritti et al[2]
21-25	33.33%	25.5%	39.28%
26-30	52.78%	26.1%	35.71%
31-35	13.89%	40.3%	11%

On studying the review of earlier reproductive performance, it was found that the maximum incidence of ectopic gestation (55%) was seen among the patients with at least previous one viable pregnancy. In 13.89% of the cases, ectopic pregnancy was the first conception and 30.5% of patients were multigravida (Table 2).

Table 2: Distribution of cases according to parity.

Parity	No. of cases	Present study (%)	Pritti et al (%)[2]	Tahmina et al (%)[3]
Primigravida	5	13.89	43.87	27.8
Second gravida	20	55.56	30.61	34.7
Multigravida (third and above)	11	30.56	25.34	37.5
Total	36	100	100	100

Majority of the cases (50%) i.e. 18 out of 36 ectopic pregnancies occurred without the presence of any known risk factors in our study which is comparable to study done by Pritti et al[2] (Figure 1).

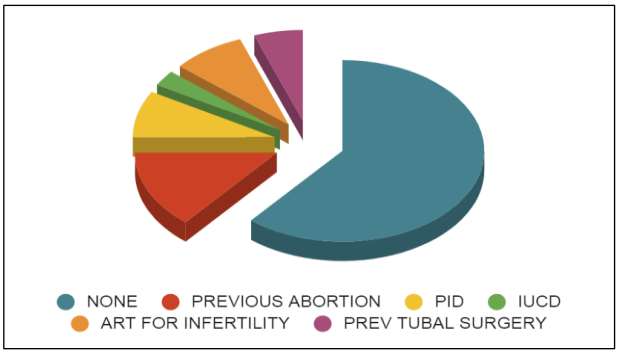

Figure 1: Risk factors of ectopic pregnancy.

Of all tubal pregnancies, Majority of the cases had ampullary pregnancies (66.67%). Also in patients without any risk factors, Ampullary pregnancy was the most commonly encountered pregnancy. Patients who had undergone ART and previous history of TB also had ampullary pregnancies. Next most common was Isthmic pregnancy (22.22%). One case (2.78%) was that of tubal abortion and presented as a chronic mass in pouch of douglas (Table 3).

Table 3: Distribution based on site of pregnancy and risk factor.

Risk factor	Site of tubal ectopic			POD mass (%)	Caesarean scar ectopic (%)	Total (%)
	Ampullary (%)	Isthmic (%)	Interstitial (%)			
None	10 (27.78)	4 (11.11)	1 (2.78)	1 (2.78)	2 (5.56)	18 (50)
Previous TB	4 (11.11)	0	0	0	0	4 (11.11)
Previous abortion	4 (11.11)	0	0	0	1 (2.78)	5 (13.89)
PID	2 (5.56)	1 (2.78)	0	0	0	3 (8.33)
IUCD	1 (2.77)	0	0	0	0	1 (2.78)
ART for infertility	3 (8.33)	0	0	0	0	3 (8.33))
Previous tubal surgery	1 (2.78)	1 (2.78)	0	0	0	2 (5.56)
Total	24 (66.67)	7 (19.44)	1 (2.78)	1 (2.78)	3 (8.33)	36 (100)

The classical triad of amenorrhea, bleeding p/v and abdominal pain was seen in 60% of all patients whereas in the study conducted by Tahmina et al, classic triad was reported in only 40% of patients with ectopic gestations[3] (Figure 2).

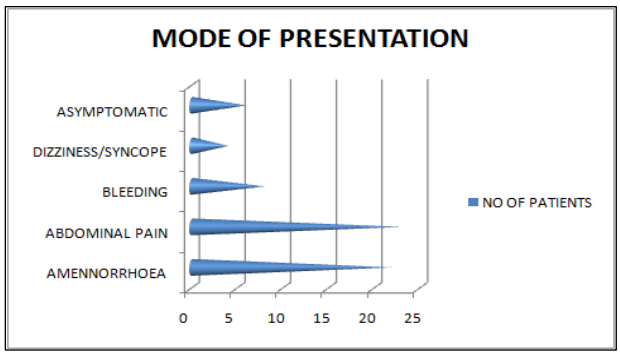

Figure 2: Mode of presentation.

Abdominal pain was the most common presenting symptom in the study. However, out of the 22 patients who presented with abdominal pain, 17 (73.9%) of patients already had ruptured ectopic pregnancy. Amenorrhea was also seen more in ruptured ectopic pregnancies and was encountered in 68.18% of patients. As many as 83.33% of patients with asymptomatic ectopic pregnancies were unruptured. All patients who presented with dizziness and syncope had ruptured ectopic pregnancies (Table 4).

Abdominal Tenderness was seen in 47.22% of patients of ectopic pregnancy. While guarding was seen in 11.11% of ectopic pregnancies in our study. Out of 17 patients with tenderness, 14 were diagnosed to be ruptured ectopic pregnancies (Table 5).

Cervical motion tenderness was significantly associated (68.9% patients) with ruptured ectopic pregnancies. Marked pain on cervical motion is a significant finding in ruptured ectopic pregnancies.[4] (Figure 3).

Table 4: Distribution by mode of presentation and condition of tube.

Mode of presentation	Condition of the tube			Total
	Unruptured (%)	Ruptured (%)	Tubal abortion (%)	
Amenorrhea	7 (31.81)	15 (68.18)	0	22
Abdominal pain	5 (21.74)	17(73.9)	1 (4.34)	23
Bleeding	4 (5)	4 (50)	0	8
Dizziness/syncope	0	4 (100)	0	4
Asymptomatic	3 (75%)	1 (25)	0	4

About 2 patients whose beta hCG was below 5000 IU/mL, were medically managed keeping view of the clinical history and vital stability. However, 66.67% patients were managed surgically. All patients whose beta hCG levels were above 5000 IU/mL were managed surgically. Initially 4 patients were started on medical management by

Inj. methotrexate by following strict criteria.[5] in spite of methotrexate injection beta hCG failed to drop substantially (>50% in 48 hours) and hence a decision of surgical management was undertaken (Table 6).

Table 5: Correlation of local abdominal examination and condition of the tube.

Per abdominal signs	Unruptured	Ruptured	Tubal abortion	Total (%)	Present study (%)	Pritti et al[2] (%)
Tenderness	2	14	1	17 (47.22)	58.33	73.46
Guarding	0	4	0	4 (11.11)	44.44	32.65

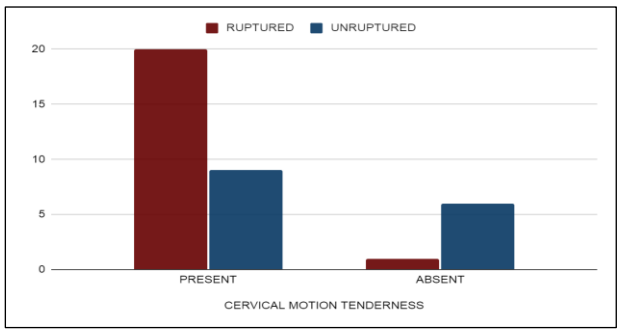

Figure 3: Cervical motion tenderness and its correlation with ruptured and unruptured ectopic pregnancy (p value 0.008 = HS).

About 26 patients underwent salpingectomy at laparotomy. Another two patients later underwent unilateral salpingectomy after failure of methotrexate treatment. 4 patients underwent laparoscopic salpingectomy in stable cases (Table 7).

One patient had to undergo Obstetric hysterectomy in a case of scar pregnancy due to uncontrolled hemorrhage intraoperatively. One patient of caesarean scar pregnancy was managed conservatively by inj. methotrexate and after the fetal demise, it was terminated by dilatation and evacuation.

Table 6: Medical vs surgical management and its association with levels of serum beta hCG levels, P value = 0.125 (not significant).

Beta Hcg levels (IU/ml)	Medical management (%)	Surgical management (%)	Surgery after failure of medical management (%)
<5000	2 (25)	4 (50)	2 (25)
5000-10000	0	5 (100)	0
>10000	0	3 (100)	0

Table 7: Surgical management of ectopic pregnancy.

Operative procedure done	Present study (%)	Pritti et al[2] (%)
Unilateral salpingectomy	28 (80)	75.90
Laparoscopic salpingectomy u/l	4 (11.43)	2.409
Bilateral salpingectomy	1 (2.86)	2.409
Obstetric hysterectomy	1 (2.86)	-
Dilatation and evacuation	1 (2.86)	-
Total	35 (100)	

DISCUSSION

In this study, most common age group of presentation was 26-30 years, while in the studies conducted by Tahmina et al and Pritti et al, maximum ectopic pregnancies occurred in age range from 31-35 years and 21-25 years respectively.[2,3]

Majority of the patients in our study (55.56%) had one previous conception. According to Munro Kerr and Eastman, there is no significant relation between ectopic and parity or age of the patient. As per ICMR multicentric case control study of ectopic pregnancy in 1990, most of the patients were in the younger age group and had low parity.

Majority (50%) of the patients had no known risk factors. However, the most common risk factor was history of previous abortion (27.78%) and history of genital Tuberculosis (22.22%) in the past. In the 18 patients with

known risk factors, previous abortion was found to be the most common risk factor in our study and 27.78% of all the known risk factors in our study. Tahmina et al also reported previous abortion as the most common risk factor in their study (36.1%). Tubal dysfunction or damage appears to be a factor causing ectopic pregnancy.[3]

Genital TB appears to be an important risk factor for development of ectopic pregnancy in a developing country like India due to subsequent damage to bilateral fallopian tubes.[7] 22.22% of patients in our study had a history of tuberculosis and had taken AKT for the same in the past. Gandotra et al also reported tuberculosis to be a major etiological factor in development of ectopic pregnancy.[8]

60% patients presented with the classical triad of amenorrhea, abdominal pain and bleeding per vaginum.

Abdominal pain was seen in 66.67% of all ectopic pregnancies, most common presenting symptoms overall. It was also encountered as the most common presentation in ruptured ectopic pregnancies as opposed to unruptured ectopic pregnancies, where amenorrhea was the most common clinical presentation. This shows that abdominal pain is notoriously scarce in ectopic pregnancies before rupture. With rupture, a marked number of patients have abdominal pain and tenderness on examination.[4]

Tahmina et al reported abdominal pain as predominant finding in 81% of all ectopic pregnancies.[3]

As many as 83.33% of patients with asymptomatic ectopic pregnancies were unruptured. When compared with the condition of tube and mode of other presentations, asymptomatic presentation is significantly associated with unruptured pregnancies highlighting the fact that a significant number of unruptured ectopic pregnancies are asymptomatic on presentation. These cases, if diagnosed on ultrasound or by serum levels of beta hCG timely when asymptomatic, can drastically decrease the morbidity and mortality by intervening before the pregnancy ruptures.

Abdominal tenderness and guarding was seen in most of the patients of ruptured ectopic pregnancies, while cervical motion tenderness was significantly associated with ruptured ectopic pregnancy (p value = 0.008). Per abdomen tenderness and guarding was seen in the majority of patients of ruptured ectopic pregnancies as compared to unruptured ectopic gestations. Marked pain on cervical motion is also a significant finding in ruptured ectopic pregnancies.[4]

Tubal ectopic pregnancy (91.67%) was the commonest site of ectopic pregnancy. Ampulla was the commonest site for implantation of tubal ectopic pregnancy.

Out of 36 cases, 55.56% of cases were ruptured tubal ectopic pregnancy while 33.33% of cases were unruptured tubal ectopic pregnancy. One case in our study was diagnosed on ultrasound as an adnexal mass which was then confirmed as a tubal abortion.

Serum beta hCG <5000IU/ml was found to be associated with unruptured ectopic pregnancy. Out of the total 36 ectopic pregnancies, beta hCG levels were done in 16 patients whose findings on transvaginal ultrasound were doubtful or were monitored on methotrexate therapy to assess the response of treatment and in vitally stable patients on admission. However, serum hCG values alone should not be used to diagnose an ectopic pregnancy and should be correlated with the patient's history, symptoms, and ultrasound findings.[9]

Conservative medical management with injection MTX was done in 4 patients having unruptured ectopic pregnancy of which 2 patients underwent surgical management due to failure of response to inj methotrexate, as the beta hCG levels did not fall to the desired levels. This highlights the fact that in spite of the advent of medical management, surgical management sill remains the gold standard for treatment of ectopic pregnancy.

Success rate of medical management with inj. methotrexate treatment was 50% in this study.

Study by lewis blehall showed that surgical management was more successful and reliable than methotrexate therapy in management of ectopic pregnancy.[10]

Surgical management is imperative in the clinical scenario of a ruptured ectopic pregnancy. Laparotomy followed by salpingectomy was the most common mode of management in 27 of 33 patients (81.82%). Laparoscopic management was done in 11.11% cases.

Success rate was 100 % for laparoscopic management and 100% for laparotomy in this study. Salpingectomy was eventually performed in 91.67% of patients. Studies have shown no benefit or increase in fertility in salpingostomy over salpingectomy.[11]

One patient had to undergo obstetric hysterectomy in a case of scar pregnancy due to uncontrolled hemorrhage intraoperatively. One patient of caesarean scar pregnancy was managed conservatively by inj. Methotrexate and after the fetal demise, it was terminated by dilatation and evacuation. No maternal mortality was observed during the present study.

CONCLUSION

There is an increased incidence of ectopic pregnancy but a decrease in maternal mortality due to ectopic pregnancy, during the past decades. The treatment modality is evolving from radical surgery to conservative surgery to medical and conservative management. But, the paradox noted in this institution is that even though the early diagnostic tools were available, we had to manage quite a number of cases as surgical emergencies, as they brought

in either established diagnosis of ruptured ectopic pregnancy, or failure of medical management. It is, therefore important that all physicians should be sensitive to the fact that in the reproductive age group any woman presenting with pain in the lower abdomen, diagnosis of ectopic pregnancy should be considered irrespective of the presence or absence of amenorrhea and whether or not she has undergone sterilisation. If brought in earlier stages, we can save the patients from a lot of perioperative morbidity and mortality. Having said that, surgeons should not compromise the health of the patient and take appropriate decisions of radical over conservative management as and when required.

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