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Original Research Article

Analysis of various types of ectopic pregnancies: a five-year review

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ABSTRACT

Background: Ectopic pregnancy (EP) is a common, life threatening emergency during the first trimester and a significant cause for maternal morbidity and mortality. In any woman of reproductive age presenting with abdominal pain and vaginal bleeding, ectopic pregnancy should be considered. The objectives of the present study is to determine the incidence, risk factors, clinical presentation, type of ectopic pregnancy, treatment, morbidity and mortality.

Methods: Retrospective analysis of case sheets of patients admitted with ectopic pregnancy at PSGIMSR, Coimbatore during the period July 2011 to June 2016 was done. The details noted were age, parity, risk factors {previous abortion, previous EP, previous pelvic surgery, intrauterine contraceptive device, tubectomy, history of pelvic inflammatory disease}, treatment for infertility, clinical presentation, ultrasound findings, investigations including beta HCG value and hemoglobin level, treatment offered, need for blood transfusion, operative findings and morbidity.

Results: During the five year, there were 12,407 deliveries at our hospitals and 88 cases of ectopic pregnancies were managed. The incidence is 6.6/1000 deliveries. Among them 44% belonged to the age group of 25-30 years and multi gravida were 73.8%. Most common risk factors were previous abortion (23.8%) and previous surgeries including caesarean section, tubectomy, appendectomy, tubal microsurgery (23.8%). Most common presentation was pain abdomen (85.2%). Out of the 88 cases, 73 patients were managed surgically (82.9%) and 11 cases were managed successfully with methotrexate (12.5%). Three of them underwent conservative management and one had Uterine Artery Embolization.

Conclusions: Early diagnosis based on risk factors and timely intervention plays a main role in reducing morbidity and mortality associated with ectopic pregnancy.

Keywords: Beta HCG, Ectopic pregnancy, Methotrexate, Risk factors, Salpingectomy Transvaginal USG

INTRODUCTION

An ectopic pregnancy is implantation of fertilized ovum outside the normal endometrial cavity i.e, fallopian tube, ovary, caesarean scar, cervix and peritoneal cavity.¹ In the first trimester, ectopic pregnancy is the most common cause for maternal morbidity and mortality.² It has also been shown that EP reduces future fertility and increases the chance of subsequent EP.³ The incidence of EP is increasing since the last decade, but the incidence of

complications like rupture and morbidity are declining due to early diagnosis with serial Beta-HCG(human chorionic gonadotrophin) monitoring, transvaginal USG(ultrasonogram) and minimally invasive surgery.⁴ Early diagnosis not only reduces the risk of tubal rupture but also allows for conservative and medical management.⁵ Prior damage to the fallopian tube due to PID(pelvic inflammatory disease), tubal surgeries, pelvic adhesions are the major risk factors for ectopic pregnancy.⁶ The other identified risk factors are,

advanced maternal age, previous EP, previous pelvic surgeries, IUCD (intra uterine contraceptive device) insertion and infertility treatment.⁷⁻¹² Identifying these risk factors among high risk mothers helps in early diagnosis and reduces the morbidity related to this condition.¹³ Unfortunately, most of the patients presenting with EP do not have risk factors.

METHODS

This was a retrospective analysis of case records of patients admitted with ectopic pregnancy, done at PSG IMSR Hospital, Coimbatore from July 2011- June 2016.

Inclusion criteria

We included all the patients with suspected ectopic pregnancy who were confirmed by βHCG and transvaginal ultrasound.

Exclusion criteria

None

Methodology

The case sheets were retrieved from medical record department and the details such as age, parity, risk factors like previous abortion, previous EP, previous pelvic surgery, contraception in the form of IUCD and tubectomy, history of PID, infertility treatment, clinical presentation, investigations including beta HCG value, hemoglobin level, treatment offered, need for blood transfusion, operative findings and morbidity were collected and analyzed.

Statistical analysis

No statistical tool used.

RESULTS

During the 5-year period, there were 12,407 deliveries at our institution and 88 cases of ectopic pregnancies were managed. The incidence was 6.6/1000 deliveries. Among the patients most of them belonged to the age group of 25-30 years (Table-1). 26% of patients were primigravida, 73.8% of patients were multigravida (Figure -1).

Table 1: Age group.

Age in years	Number of cases	%
< 25	22	25
25-30	39	44
31-35	18	20
36-40	5	5.6
>41	4	4.5

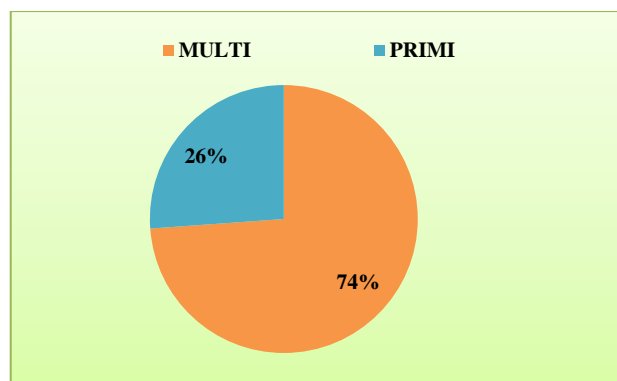


Figure 1: Sonographic pattern of relative risk of abnormal Doppler.

As shown in (Table 2) 23.8% of patients had one or more spontaneous or induced abortions. 23.8% of patients had undergone pelvic surgery (Caesarean section, tubectomy appendicectomy, tubal recanalisation). PID and previous ectopic pregnancy accounted for 4.5% each.

Table 2: Risk factors.

Risk factors	Number of cases	%
Previous abortion	21	23.8
Previous surgeries		
Caesarean section	21	23.8
Tubectomy	14	15.9
Appendicectomy	3	3.4
Tubal recanalisation	2	2.2
Ovulation induction	7	7.9
Contraception		
IUCD insertion	6	6.8
PID	4	4.5
Previous ectopic	4	4.5

Commonest presenting complaint was pain abdomen in 85.2% of patients. Other presenting complaints were Amenorrhoea in 68% and vaginal bleeding in 59% (Table-3).

Table 3: Presenting symptoms.

Symptom	Number of cases	%
Pain	75	85.2
Amenorrhoea	60	68.1
Bleeding PV	52	59

Most of them presented between 5-8 weeks of gestational age (61.3%). 27.2% of patients were diagnosed before 4 weeks of amenorrhoea and 11.3% were above 9 weeks. All the cases had been confirmed by USG. 17 of them had Beta-HCG less than 1000 mIU/ml. A patient with heterotopic pregnancy had Beta -HCG of more than 1 lakh mIU/ml.

Commonest site of ectopic pregnancy was fallopian tube in 93% of patients (Table 4).

Table 4: Site of ectopic pregnancy.

Site of ectopic	Number of cases	%
Tube	82	93
Caesarean scar	3	3.4
Ovary	2	2.4
Heterotopic	1	1

The commonest site of tubal involvement was in ampulla (Table 5).

Table 5: Site of tubal involvement

Tubal site	Number of cases	%
Ampulla	60	73.1
Cornua	10	12.1
Isthmus	6	7.3
Fimbria	4	4.8
Tubal abortion	2	2.4

On receiving, 86% of patients were hemodynamically stable, 13.6% of patients were in various stages of shock. 53.6% of patients presented with ruptured ectopic, unruptured ectopic was noted in 43.9% of patients (Table 6).

Table 6: Condition of tube.

Condition of tube	Number of cases	%
Ruptured	44	53.6
Unruptured	36	43.9
Tubal abortion	2	2.5

Right sided tubal ectopic was noted in 65.8%, left side tube involved in 34.1% of patients. Tubal abortion was observed in 2.5% of patients. Intra-operatively hemoperitoneum was noted in 64% of patients. Most common treatment offered for tubal ectopic was surgical, i.e. salpingectomy (Table 7).

Table 7: Treatment.

Treatment	Number of cases	%
Medical	11	12.5
Surgical		
Laparotomy	49	59.7
Laparoscopy	9	10.9
Medical failed		
Laparotomy	8	9.7
Laparoscopy	2	2.4
Conservative	3	3.6

Twenty-one patients were fit into medical management, among them 12.5% of patients were managed medically with methotrexate successfully.

10 cases failed to medical management which were subsequently managed with either laparoscopic or laparotomy and salpingectomy.

3 cases were managed conservatively by observing the declining trend of Beta-HCG.

Other types of ectopic

Caesarean scar pregnancy was diagnosed in 3 patients, among them 2 patients underwent surgical excision. One patient was managed with UAE (uterine artery embolisation) followed by methotrexate. Heterotopic pregnancy following ovulation induction which resulted in twin intra uterine gestation and tubal ectopic was noted in one patient and she underwent emergency laparotomy and salpingectomy. Two patients were diagnosed as having ovarian ectopic and surgical excision was offered to both of them. Most common morbidity noted was anemia in 42%, out of which severe anemia (4-7gm) was seen in 5.6% (Table 8). Among them 28.4% of patients received blood and blood products. No surgical site infection or mortality was noted.

Table 8: Hemoglobin level on admission.

Hemoglobin level	Number of cases	%
4-7 gm/dl	5	5.6
7-10 gm/dl	32	36.3
>10 gm/dl	51	58.1

DISCUSSION

The incidence of ectopic pregnancy among women attending emergency department with first trimester abdominal pain, bleeding or both is between 6-16 % (14). A study conducted by Shraddha Shetty et al had incidence of 5.6/1000 deliveries.¹⁵ In our study the incidence is 6.6%/1000 deliveries which is comparable. Majority of patients were between 25-30years which is similar to the above study and Khaleeqe et al.^{15,16}

As in Karki et al (17), we had similar higher incidence of ectopic pregnancies (73.8%) in multigravida. In our study, the commonest predisposing factors were previous abortion either spontaneous or induced, previous pelvic surgeries including caesarean section, history of IUCD insertion, tubectomy, history of PID and infertility treatment, which are similar to various other studies.^{17,18} As in the studies by Porwal Sanjay et al, Shraddha Shetty et al, the most common symptom in our series was pain abdomen which is comparable.^{15,18}

Urinary beta HCG, serum beta HCG, transvaginal USG are the diagnostic tools for diagnosing EP. USG should be the investigation of choice for symptomatic women. In asymptomatic women, serial monitoring of serum beta HCG should be done. As in the study by Shraddha Shetty et al, we also had more number of right sided EP and involvement of the ampullary portion of the tube.¹⁵

Heterotopic pregnancy is rare in natural conception which is around 1 in 30,000 pregnancies. But the incidence is more in case of ovulation induction or with

assisted reproduction techniques. In our study, we had a case of triplet heterotopic pregnancy following ovulation induction with clomiphene citrate. It is recommended that even patients shown on ultrasound to have intrauterine pregnancy should be given comprehensive pelvic ultrasound so that possibility of synchronous heterotopic pregnancy can be excluded, particularly in pregnancies following fertility treatment.¹⁹

In our study, ruptured EP was noted in 53% of cases, 43.9% of cases had an unruptured ectopic gestation. In Latchaw G et al study, the same were 59% and 41% respectively.²⁰

Laparoscopy and medical therapy have now emerged as the widely used therapeutic modalities with great success in terms of reduced morbidity, shorter hospital stay and conservation of fertility.²¹ However choice depends upon early identification of ectopic pregnancy and hemodynamic status of the patients.²² In our study, 11% of patients responded well to single dose of methotrexate.

Surgery should be the treatment of choice in unstable patient.¹⁹ In our study 13.6% were unstable and all of them were managed surgically. Commonest surgery performed was partial/total salpingectomy. We did bilateral total salpingectomy for patients who had undergone tubectomy previously and were not desirous of future childbearing. It has been extensively studied and reported that conservative management does not increase the risk of future ectopic.¹⁵ In our study, three patients were managed conservatively by observing the declining trend of Beta HCG. Morbidity included anemia, blood transfusion and wound infection. In our study, we had 42% of patients with hemoglobin level of less than 10grams. Among them 28.4% of patients received blood and blood products. No surgical site wound infection was noted.

No maternal mortality was noted in our study which is consistent with the study by A Abbas et al.²³ Early identification of the patients with EP by a multipronged approach including high index of suspicion, risk prediction, serum beta HCG and transvaginal ultrasound helps in improving the prognosis as far as morbidity, mortality and future fertility are concerned.²⁴

CONCLUSION

Identification of underlying risk factors, early diagnosis with essential investigating modalities like beta-HCG, transvaginal USG, timely intervention with medical or surgical method will definitely reduce morbidity and mortality and improve the future reproductive outcome.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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