A STUDY ON ECTOPIC PREGNANCIES IN A TERTIARY CARE CENTRE

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ABSTRACT

BACKGROUND

Ectopic pregnancy is among the leading causes of mortality among pregnant women in the first trimester. Ectopic pregnancy occurs at a rate of 1-2% of all the pregnancies and can occur in any sexually active woman of reproductive age. We wanted to analyse the various risk factors associated with ectopic pregnancy, assess the morbidity and outcome associated with the risk factors and assess the results of management of ectopic pregnancy.

METHODS

A five-year retrospective cohort study was conducted from July 2011 to June 2016 at a hospital in Southern India.

RESULTS

199 out of 29,548 pregnancies were diagnosed with ectopic pregnancy, leading to an incidence of 6.73 per 1000 deliveries. Majority of the ectopic pregnancies were seen in the age group of 26-30 years and among multigravidas. Missed menstrual cycle (62%) and bleeding per vagina (45.7%) were the most common presenting symptoms. The most common risk factor was history of a previous abdominal surgery (26%), followed by pelvic inflammatory disease (17%) and previous abortion (14.5%). The most common site of ectopic gestation was tubal ectopic (96.4%), of which 65% was ruptured at the time of diagnosis. 97.9% patients were surgically managed, 2.5% patients were successfully treated medically with methotrexate. Five patients were shifted to ICU in view of severe shock. There was no mortality.

CONCLUSIONS

Early diagnosis with clinical examination, use of ultrasonography, beta HCG levels, and immediate intervention is crucial in the management of ectopic pregnancy to reduce the mortality. Surgical morbidity can be avoided with conservative surgeries. Literacy, health education, good ambulance services plays vital role in reducing the morbidity in rural areas.

KEYWORDS

History of Abortion, Pelvic Inflammatory Disease, Methotrexate, Lower Segment Cesarean Section, Infertility

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BACKGROUND

Ectopic pregnancy was first described in the 11th century. It was one of the main causes of maternal death. It is an obstetrical emergency in the first trimester of pregnancy.[1,2] The incidence was noted to range from 1-2%.[1] The prevalence of fertile women exposed to the chance of pregnancy and the distribution of risk factors for ectopic pregnancy can predict the number of ectopic pregnancies.

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The most common site of ectopic gestation was ampulla, followed by isthmus. Ovarian ectopic is also seen but is less common. Other rare sites are abdomen and uterine cervix.

Several risk factors have been identified for ectopic gestation. The most important risk factors are previous abdominopelvic surgery, prior ectopic pregnancy or abortions, history of pelvic inflammatory disease especially with chlamydia.[1] Women with history of Pelvic inflammatory disease (PID) is at 7.5 times more risk of developing ectopic pregnancy.[3,4] PID causes impaired tubal transport and tubal obstruction. Chlamydial infection causes mucosal damage and swelling within the tube that leads to formation of diverticula and impairment of ciliary activity.

METHODS

This was a retrospective study conducted at a tertiary care center in the period from July 2011 to June 2016

(retrospectively from July 2011 to August 2014 and prospectively from October 2014 to June 2016).

The data was collected in a proforma which included last menstrual period (LMP) to calculate the expected date of delivery (EDD) & weeks of gestation, history of vaginal discharge, any abortions, previous abdominal surgeries including previous ectopic pregnancy, history of treatment for infertility.

Diagnosis was based on clinical symptoms like missed menstrual cycle, bleeding per vagina and abdominal pain. Positive urine pregnancy test (UPT) and pelvic ultrasound was supported by serum beta human chorionic gonadotrophins.

Ethics

Approval from the Institutional Ethical Committee was obtained (IEC KMC MLR 11-14/248), to collect the data from hospital records which included patient details, clinical examinations with relevant investigations and management.

RESULTS

There were total 29, 548 pregnant mothers in the hospital during the study period out of which 199 patients were diagnosed with ectopic pregnancy with an incidence of 6.73 per 1000 live births (0.67%). Majority of patients were between the age group of 20 years to 35 years (72.3%) (Table 1, Figure 1); there were 65.8% multigravida and 34.2% primigravida.

Age	Number of Cases	Percent
< 20 Years	2	1.00
20 - 25	55	27.6
26 - 30	89	44.7
31 - 35	39	19.5
36 - 40	14	7.0

Table 1. Age Distribution

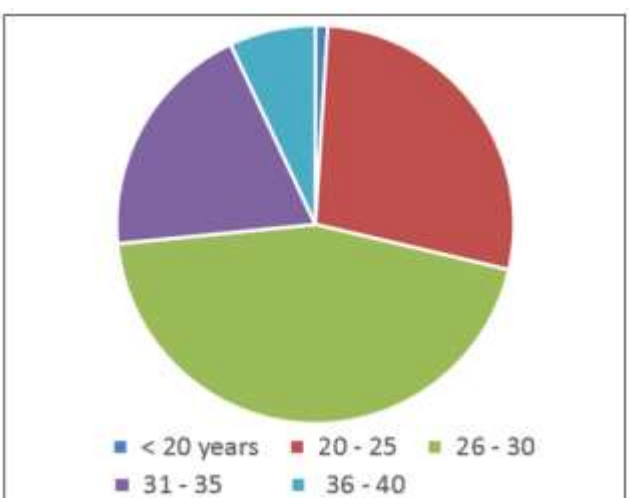

Figure 1. Age Distribution

Majority of the patients presented with more than two symptoms. The most common presentation was with missed cycles representing 62.1%. (Table 2, Figure 2)

Symptoms	Number of Cases	Percent
Missed Menstrual Cycle	118	62.1
Abdominal Pain	57	30
Bleeding per Vagina	87	45.7
Hypotensive Shock	14	7.0

Table 2. Distribution of Clinical Presentations

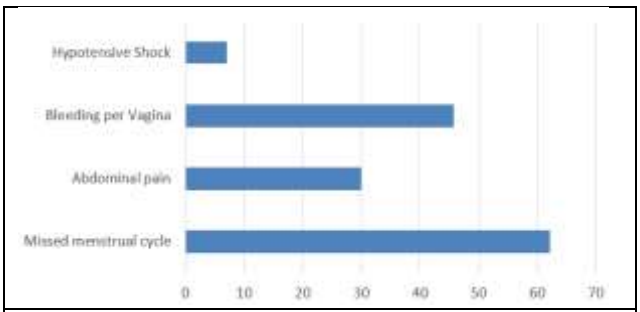

Figure 2. Symptomatology

Most common risk factor was noted to be a history of surgery that included 14.5% patients who had a prior history of lower segment caesarean section and 7% following failed sterilization. Some patients also gave history of having undergone appendicectomy and myomectomy. Second common factor was pelvic inflammatory disease which is 17%, whereas 14.5% patients had history of miscarriage. (Table 3, Figure 3)

Risk Factor	Number of Cases	Percent
Previous Ectopic Pregnancy	8	4
Previous Abortion	29	14.3
Sterilization *		
Laparoscopic	6.0	3.0
Abdominal	7.0	3.5
History of Abdominopelvic Surgeries *	52	26.1
IUCD	2	1
Infertility		
Primary	11	5.5
Secondary	4	8.0
PID	34	17

Table 3. Distribution of Risk Factors

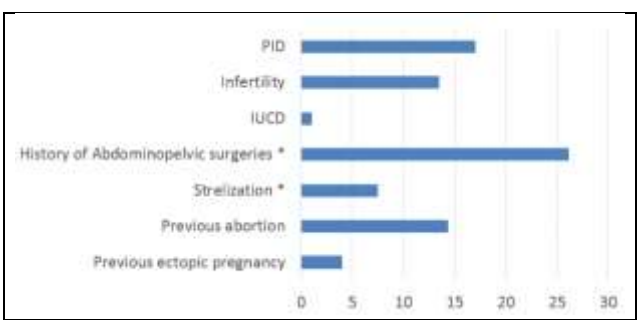

Figure 3. Risk Factors

Total 15 patients had history of infertility out of which 11(5.5%) had primary infertility and 4 (8%) had secondary infertility. (Figure 4)

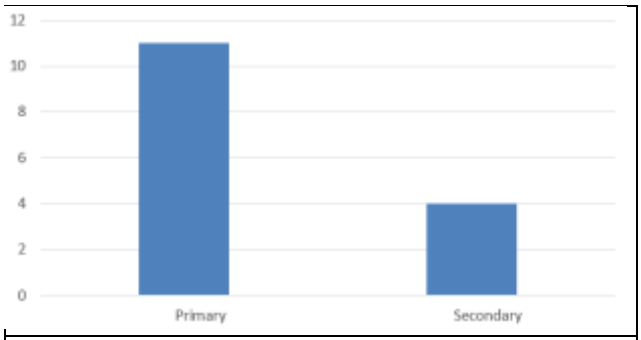

Figure 4. Infertility

3 patients out of this 11 had ectopic pregnancy after IVF. One percent of patients had ectopic gestation with intra uterine contraceptive device (IUCD) in situ.

Previous abdominopelvic surgery (26.1%) appears to play an important role in ectopic pregnancy. Total 10% patients had undergone tubal surgery that is sterilization, whereas in remaining 16% patients, 14.5% underwent LSCS followed by laparotomy in 3.5%. (Figure 5)

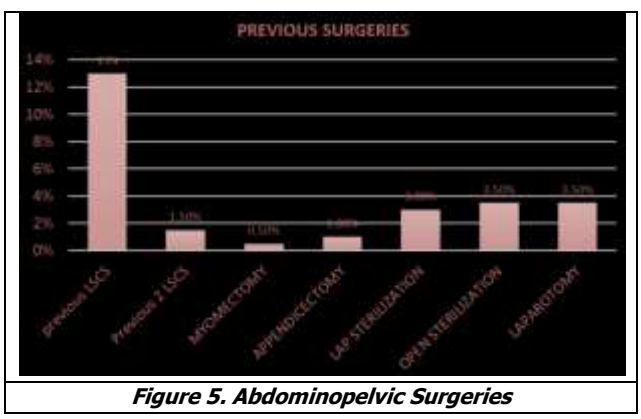

Figure 5. Abdominopelvic Surgeries

A total of 96.4% of patients had tubal gestation in which 84.4% were in ampulla and 8.5% in isthmus (Figure 7).

2.5% had ovarian ectopic. Heterotopic pregnancy was seen in 1% patients among which after undergoing laparotomy one patient continued pregnancy till term and other had spontaneous abortion (Table 4, Figure 6)

Site	Number of Cases	Percent
Tubal	192	96.4
Interstitium	07	3.5
Ampulla	168	84.4
Isthmus	17	8.5
Ovarian	5	2.5
Heterotopic	2	1.0

Table 4. Distribution According to Site of Ectopic Pregnancy

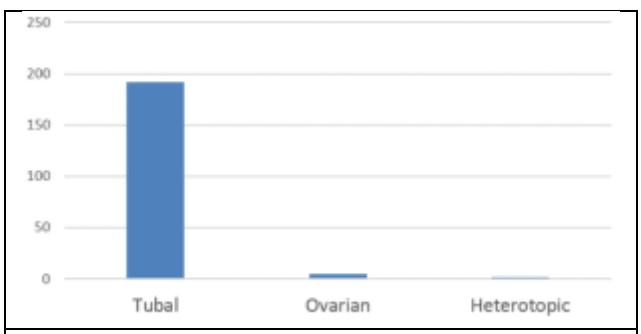

Figure 6. Site of Ectopic

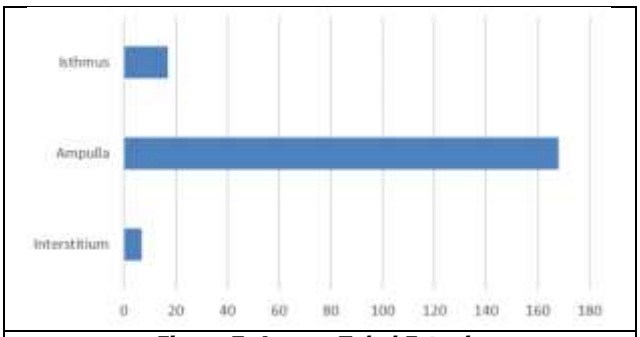

Figure 7. Among Tubal Ectopics

Most of the patients 64.8% presented with ruptured ectopic pregnancy at the time of diagnosis and 35.2% patients had unruptured ectopic pregnancy.

Management

96.5% of the patients were managed surgically whereas 3.5% were successfully managed medically with methotrexate. Almost 82.8% had undergone a salpingectomy, whereas the remaining patients had undergone salpingostomy. (Figure 8, Table 5)

	No. of Cases	Percentage
Laparoscopic Salpingostomy	22	11
Laparoscopic Salpingectomy	10	5.0
Partial Salpingectomy	84	42.2
Total Salpingectomy	71	35.6
Salpingo-Oophorectomy	5	2.5

Table 5. Distribution Based on Type of Surgery

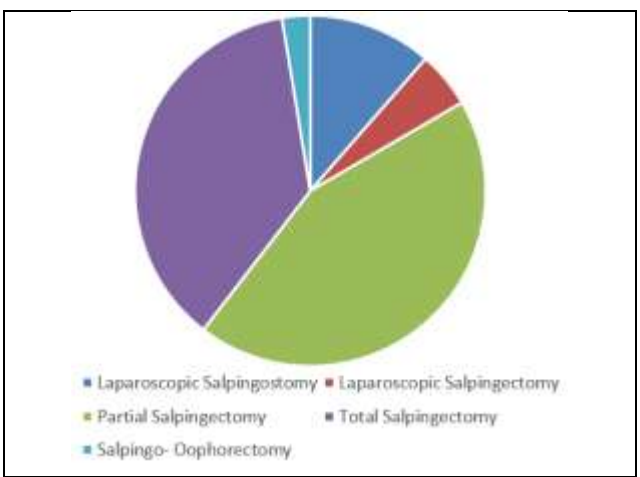

Figure 8. Surgical Intervention

In this study total 35.6% required two or more packed RBC transfusion and FFPs were transfused in 5.5% patients. Only 17% patients did not receive any transfusion. Total 2.5% patients required ICU care, in view of severe hypotension and sepsis. Due to severe surgical site infection and sepsis, 18% patients required prolonged postoperative stay.

DISCUSSION

Ectopic gestation can cause a major catastrophe in early pregnancy and hence it continues to contribute to maternal morbidity & mortality world over. It has been seen that the occurrence of ectopic pregnancy has steadily increased over

the past 20 years. The incidence in our hospital was noted to be 6.73 per 1000 live births (0.67%).

In our study it was noted that a majority of ectopic pregnancies were observed between the age group of 26-30 years. Yadav DP et al reported the highest incidence within 21 to 30 years (63.7%).[1] Sudha et al (3) had similar results whereas Patel UM et al found that the highest incidence was in the age group of 26 to 30 years (51.9%).[2] This demographic age related pattern could be understood by the fact that most marriages occur among women of the age group of 20 to 30 years. Hence probably due to the increased fecundity seen within this group, there is also a corresponding increase in the rate of ectopic pregnancy as well.

It was also noted to be more common among multigravidas (65.8%). Multigravidas were, hence noted to be prone to develop an ectopic gestation and this result is comparable with the study results obtained by Yadav DT et al, Sudha et al and Ayaz A et al.[4] Most women conceive the second child, following proper spacing, most commonly in the third decade of life. Hence in women over 30 years of age, there may have been a history of previous miscarriages. It may also be attributed to the increased incidence of pelvic inflammatory diseases in these women or the use of intra uterine devices for family planning.[5] Women who have secondary sub fertility have also been seen to have a higher risk for an ectopic pregnancy. Hence this maybe all attributable to the fact that in all these factors there may have been an element of tubal damage.[6]

The most common and hence characteristic complaints of pain abdomen missed period or amenorrhoea and vaginal bleeding may not be seen in all cases of ectopic pregnancy. This can be attributed to the fact that the clinical presentation is dependent on multiple factors, one of them being time taken for the ectopic gestation to increase in size, possibly leading to rupture and a hemodynamic instability to present as shock. Meanwhile, an ectopic pregnancy that manifests later on and is undisturbed is more likely to be missed or may later manifest as a chronic ectopic pregnancy unless diagnosed earlier on ultrasonography.[7]

Most common presenting complaints were looked into, and it was noted that the most common among these were having a missed period (62.1%), followed by bleeding per vagina (45.7%) and pain abdomen (30%). Similarly, in the study conducted by Sudha et al as well as Majhi et al, these were noted to be the most common complaints. Hence women who report with amenorrhoea or even regular cycles but with minimal bleeding the previous cycle should be offered urine pregnancy test and treated with the suspicion of a possible ectopic pregnancy especially if the also have concomitant symptoms such as pain abdomen and spotting or bleeding per vaginum.

The risk factors for an ectopic pregnancy were studied and it was noted that the most common factor was history of a previous abdominopelvic surgeries (26.1%). The cause for an ectopic pregnancy following abdominal surgery is due to be peritubal adhesions and scarring. This was followed by history or present pelvic inflammatory disease (17%) and infertility (13%).

PID was noted to be the most common cause in the study conducted by Sudha VS et al[3] This points out that women in the reproductive age period are more prone for an ectopic pregnancy, which may be due to high incidence of pelvic inflammatory disease (PID).[8]

An infection may also go unnoticed in many women such as that with Chlamydia trachomatis, which is generally asymptomatic in almost 80% of the infected women. It is also important to note that this is the most preventable cause of pelvic inflammatory disease in young women. Hence proper treatment offered to women with symptoms of PID may help greatly reduce the incidence of this common risk factor. A study conducted in Nigeria, has also shown that that patients with ectopic pregnancy are more likely than other women to demonstrate evidence of past infection with Chlamydia trachomatis.[9] In an acute attack of PID it has been seen that the risk increases sevenfold.

Infections caused by Gonococcus, which were more common in the 1960s and early 1970s, are at present extremely rare. It is also seen that women belonging to a lower socioeconomic status and who have a poor personal hygiene with diminished immunity, are more predisposed to developing pelvic inflammatory diseases including tuberculosis.

The increased incidence of abortions that are induced, social and lifestyle changes, rising trend of sexually transmitted diseases, later and delayed child bearing and the advent of assisted reproductive technologies can be hailed as the risk factors that are on the rise and hence leading to the rising trend in ectopic pregnancies world over.

Following sterilization operations, it may be seen that it could fail leading most commonly to an ectopic pregnancy. This may be due to an inappropriate surgical technique and formation of a peritubal fistula. It is also seen especially in the postpartum period, wherein the tubes are oedematous, congested and friable, increasing the chance of an incomplete tubal occlusion and ectopic gestation.

In Majhi et al study previous abortion (26.1%) was the main risk factor followed by PID (12.8%) and infertility (12.2%). It is often seen that a large number of spontaneous abortions that are early and even subclinical ectopic pregnancies, do not cause any symptoms and hence most patient do not end up visiting their obstetricians or including it in their obstetric profile.

In this study, the most common site for an ectopic gestation was noted to be the fallopian tube (96.4%).In this; highest rate was seen in the ampullary region (84.4%). The second most common part was the isthmic region (8.5%). Location of ectopic gestation and its incidence was noted to be similar in other studies too.[4,10,11]

Most of the patients in this study, that is around 134(64.8%) presented with ruptured ectopic pregnancy at the time of diagnosis whereas about 35.2% had an unruptured ectopic pregnancy intraoperatively. In the study conducted by Sudha et al, it was found that 66.6% had

ruptured ectopic, similar to the incidence in our study. Yadav DP et al also had similar findings in his study.

In our study, about 64 patients were transfused with one unit of packed red blood cells, and 62 patients received two or more transfusions. In Yadav et al study also it was noted that blood was transfused, especially for those cases in which there was a ruptured ectopic.

Morbidity with ectopic pregnancy was noted to be significant as per this study. Majority cases were of ruptured ectopic pregnancies, presenting with massive hemoperitoneum, where repair of tube was not possible, hence salpingectomy was the most common lifesaving surgical method adopted. Similarly, various studies also reported that salpingectomy was the commonest operative procedure.

Conservative surgery was performed in 22 patients (11%). Salpingostomy was done to conserve the fallopian tube as many were keen for a future pregnancy.

In Sudha et al study 66.6% had ruptured ectopic and Yadav DP et al, Islam A et al,[12] Majhi AK et al[13] also had similar reports. There was significant morbidity with ectopic pregnancy in our study with 64.8% presenting with a ruptured ectopic. Majority of cases of ruptured ectopic pregnancies had massive hemoperitoneum, which required one or more units of packed red blood cells or FFP. A pre-existing chronic anaemia with the ongoing acute blood loss may help to understand the higher incidence of pallor and shock in ruptured ectopic pregnancy.

In certain cases, repair of the affected tube was not possible, or they had completed their families, and hence salpingectomy (82.8%) was done. Majhi et al also had 81.1% salpingectomy rate in their analysis of 180 cases of ectopic pregnancy.

Only 7 patients (3.5%) were treated medically with methotrexate as it needed close observation and hospitalization. No mortality was noted in this study which was comparable to other studies.

Study Limitations

The types of different ectopic and management based on the specific type was not dealt with. Study period was of two years with a sample size of 199, hence a larger sample size may be needed to further extrapolate these conclusions to the general population, as well as further mode of management. The number of ectopic pregnancies that were medically managed were few, hence their outcomes and further results may not be applicable to another setting.

CONCLUSIONS

Ectopic pregnancy needs to be diagnosed promptly by using a strong clinical suspicion as well as further investigations. Any woman in the reproductive age group presenting with missed menstrual cycle, or bleeding per vagina or abdominal pain should be suspected and further investigated along the lines of being a possible ectopic pregnancy. If any associated history of abdominal surgery, previous abortion or pelvic inflammatory disease is there, they are most likely to be having an ectopic pregnancy. Incidence of ectopic pregnancy was collectively noted to be around 1 to 2% as per other studies and it was noted to be high in multipara. Good clinical assessment and ultrasonography can detect the ectopic pregnancy early. Immediate surgical intervention has reduced the mortality. Fortunately, there was no mortality in our study.

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