

## Diagnostic Modalities and Outcome of Ectopic Pregnancy: An Analysis

Dr Nalini Sharma<sup>1</sup>, Dr Jupirika E Pyrbot<sup>2</sup>

<sup>1</sup>Assistant Professor, Department of Obstetrics and Gynaecology, North Eastern Indira Gandhi Regional Institute of Health and Medical Sciences, India

<sup>2</sup>Senior Resident, Department of Obstetrics and Gynaecology, North Eastern Indira Gandhi Regional Institute of Health and Medical Sciences, India

### Original Research Article

\*Corresponding author

Dr Jupirika E Pyrbot

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**Abstract:** Ectopic pregnancy occurs when a blastocyst implants outside the uterine cavity. It is still the leading cause of first trimester related maternal death. The classical triad of amenorrhoea, abdominal pain, and vaginal bleeding is seen in only 50 % of patients with ectopic pregnancy. Hence a strong clinical suspicion along with ultrasonography can aid in the diagnosis and prompt management. It is a retrospective study conducted at North Eastern Indira Gandhi Regional Institute of Health and Medical Sciences, North-East India. All women diagnosed with ectopic pregnancy from May 2015 to July 2017 have been included in the study. All women who presented to our hospital with ectopic pregnancy were analysed from the available case sheets from the medical record department of our institute. The relevant data was collected. During the study period there were 66 cases of ectopic pregnancies. The incidence of ectopic pregnancy is 2.61%. The most common age group was 26-30 years (33.33%) and was multigravida 77.27%. The most common risk factors was pelvic inflammatory disease seen in 13(19.7%) and previous history of surgical abortion 13(19.7%). 21 (31.82%) of the cases were hemodynamically unstable. A total of 10 cases (15.15%) were managed conservatively, 6 (1.38%) were subjected to medical management and 50(75.76%) cases were managed surgically. Serum  $\beta$ -HCG estimation was performed on 43.93% of the cases. All cases were subjected to ultrasonography (combined transvaginal and transabdominal). Anaemia was seen in 66.67% patients of which 4.55% had a hemoglobin level <4 gms%. Intraoperatively the most common site was ampulla 62%. No patient developed post operative complications and there was no mortality in the study group. Ectopic pregnancy is an emergency scenario. Early diagnosis can reduce morbidity and mortality. Availability of ultrasonography and serum  $\beta$ -hcg can help to choose the method of management and avoid surgical intervention.

**Keywords:** Ectopic pregnancy, ultrasonography,  $\beta$ -HCG

### INTRODUCTION

Ectopic pregnancy occurs when a blastocyst implants outside the uterine cavity. The incidence varies from 1 in 300 to 1 in 150 deliveries [1]. Ectopic pregnancy is still the leading cause of first trimester related maternal death, though the rate has reduced by 90% [1, 2]. Women with or without amenorrhea with a positive pregnancy test may present with pain abdomen, vaginal bleeding, syncope, hypotension or Hemoperitoneum. The classical triad of amenorrhoea, abdominal pain, and vaginal bleeding is seen in only 50 % of patients with ectopic pregnancy.

Thus a strong suspicion should be made by clinician if any women come with any of the complaints in the first trimester. The high risk factors in women with ectopic pregnancy are damaged fallopian tubes, pelvic infection, and smoking; assisted reproductive techniques and many women can develop an ectopic without any of the risk factors [3]. The most common

location in the fallopian tube for ectopic pregnancies to occur is the ampulla (70.0%); other locations, such as the isthmus (12.0%), the fimbria (11.1%) and the cornua (2.4%), are less common [4]. The evaluation is done following a urine test for pregnancy or serum beta HCG along with a pelvic ultrasonography. An ectopic pregnancy can be managed conservatively or surgically.

Thus with early diagnosis and prompt treatment clinician have been able to reduce the mortality due to ectopic pregnancy and hence reduce the overall morbidity as well.

### METHODOLOGY

This is a retrospective study conducted at North Eastern Indira Gandhi Regional Institute of Health and Medical Sciences, Shillong, North-East India. All women diagnosed with ectopic pregnancy from May 2015 to July 2017 have been included in the study. All women who presented to our hospital with

ectopic pregnancy were analysed from the available case sheets from the medical record department of our institute. The following data has been recorded age, parity, complaints, period of amenorrhea, high risk factors, vitals(stable/unstable), serum  $\beta$ -HCG levels(if done), ultrasound findings, management, operative findings, outcome of patient. Patients suspected of having ectopic pregnancy but later diagnosed as failing intrauterine pregnancy abortion have been excluded from the study.

**RESULTS**

During the study period there were 66 cases of ectopic pregnancies. The total deliveries during this period were 2531, thus giving an incidence of 2.61%. There were 5 cases admitted as ectopic pregnancies but later diagnosed as intrauterine pregnancy during follow up. These cases were excluded.

In our study the most common age group was 26-30 years (33.33%) followed by women between 31-35years (30.3%). There were 24.24% women between 20-25 years and 12.12% belonged to women above 35 years, no women <20 years were seen. Most of them were multigravida 77.27%.

On analysis of the risk factors it was observed that the most common risk factors was pelvic inflammatory disease seen in 13(19.7%) and previous history of surgical abortion 13(19.7%). Other risk factors were history of infertility treatment 8(12.12%), tubal surgeries (including tubal ligation) 7 (10.6%) and previous history of ectopic pregnancy 3(4.55%). Whereas 22 (33.33%) of the cases had no identifiable risk factors; Table-1.

**Table-1: Risk factors associated with ectopic pregnancy.**

Risk factors	Total	Percentage
PID	13	19.7 %
Previous abortion	13	19.7 %
Infertility treatment	8	12.12 %
Tubal surgeries	7	10.6 %
Previous ectopic	3	4.55 %
No risk factors	22	33.33 %

Among the cases studied it was seen that 90.9% of the cases gave a history of amenorrhea. There were 56.06% of cases had a period of amenorrhea < 8 weeks, 30.03% were > 8 weeks and the rest were unsure about the period of amenorrhea. All the cases had chief complaints of pain abdomen and bleeding per vaginum. 21 (31.82%) of the cases attending the emergency were hemodynamically unstable. Of all the ectopic cases studied pallor was seen in 33.3%, abdominal distension /tenderness in 84.8%, tachycardia in 54.5% and cervical motion tenderness in 92.4% of the cases. All the cases were subjected to urine pregnancy test and were found to be positive in 100% cases.

A total of 10 cases (15.15%) were managed conservatively, 6 (1.38%) were subjected to medical

management and 50(75.76%) cases were managed surgically. Of which 48.48% cases of ectopic pregnancy were ruptured, 36.36% were unruptured, 9.09% were chronic ectopic pregnancy and 6.06% were tubal abortion. Serum  $\beta$ -HCG estimation was performed on 43.93% of the cases. 10(15.15%) had  $\beta$ -HCG levels below 1500 mIU/ml of which 9 cases were subjected to expectant management and 1 case had undergone surgery. 10 (15.15%) had serum  $\beta$ -HCG level between 1500-5000 mIU/ml of which 5 cases were subjected to medical management of which one case had failure and surgical approach was made, table-3. In cases with >5000 mIU/ml level of  $\beta$ -HCG one case was offered medical management but there was spontaneous rupture during treatment and had to be managed surgically.

**Table-2:  $\beta$ -HCG levels and management based on the levels**

B-hcg	Total	Percentage	Expectant Total (%)	Medical Total (%)	Surgical Total (%)
<1500	10	15.15%	9(90%)	0	1(10%)
1500-5000	10	15.15%	1(10%)	5(50%)	4(50%)
>5000	9	13.64%	Nil	1(11.11%)	8(88.89%)
Not done	37	56.06%	-	-	37(100%)
			10	6	50

All cases were subjected to ultrasonography (combined transvaginal and transabdominal), of which complex adnexal mass was seen in 77.27% cases, in

15.15% cases gestational sac/ fetal pole with cardiac activity was seen and hem peritoneum was seen in 54.54%. All cases with hem peritoneum were managed

surgically. 90% cases with gestational sac/ fetal pole with cardiac activity were subjected to surgical

management; Table-3.

**Table-3: Ultra sonographic findings and the management**

Ultrasound findings	Total	Expectant	Medical	Surgical
Complex adnexal mass	51(77.27%)	10(19.61%)	5(9.8%)	36(70.59%)
GS/fetus	10(15.15%)	-	1(10%)	9(90%)
Hem peritoneum	36(54.55%)	-	-	36(100%)

Anemia was seen in 66.67% patients of which 4.55% had a hemoglobin level <4 gms%. 24 patients (36.36%) received transfusion of blood and blood products. Among the cases that were managed surgically; laparoscopic approach was done in 4 cases

and the rest had undergone laparotomy. Intraoperatively the most common site was ampulla 62%, Table 4. No patient developed post-operative complications and there was no mortality in the study group.

**Table-4: Intraoperative findings and treatment modalities**

Site of ectopic	Total	Percentage
Ampulla	31	62%
Isthmus	11	22%
Infundibulum	4	8%
Cornual	1	2%
Ovarian	4	8%
Treatment		
Salpingectomy	32	64%
Salpingoophorectomy	10	20%
Salpingectomy	4	8%
Milking	4	8%

**DISCUSSION**

Worldwide, ectopic pregnancy complicates 0.25-2.0% of all pregnancies [5]. In our study the incidence of ectopic pregnancy is 2.61%. This is slightly higher as compared to other studies [4] probably owing to the fact that our institute is the only tertiary centre in the region. There is an increase in incidence of ectopic pregnancy which is associated with rise in the incidence of sexually transmitted infections (STIs) and Salpingitis, advances in assisted reproductive technology, tubal surgeries, female contraception and earlier diagnosis with more sensitive methods [6].

The most common age group in our study is 26-30years which is similar to a study by Mahji AK [7]. Ectopic pregnancies are associated with risk factors. The most common risk factor in our study was pelvic inflammatory disease and previous history of surgical abortion. Salpingitis and PID increases the risk of ectopic pregnancy by 6-10 fold [8] also previous induced abortion increases the risk of ectopic pregnancy [8, 9]. Our findings are similar to that of Tuli AG *et al.* [10]. It was seen that most of the cases of ectopic pregnancy came as emergency cases to our hospital. Of which 48.48% of the cases were ruptured ectopic pregnancy and 21 cases were hemodynamically unstable requiring immediate surgical intervention. In other studies ruptured ectopic pregnancy was seen in

70-80% of the cases [7, 10, 11]. This could be due to early referral and timely intervention of our cases. 75.76% of the cases were managed surgically. Intraoperatively ampulla was the most common site which was also seen in similar studies [7, 9, 10,11]. Other sites were Isthmus 22%, infundibulum 8%, cornual 2% and ovarian 8%. Salpingectomy was the most common operation carried out 64%. This has also been carried by Swende TZ *et al.* [12].

Among the cases 50 were subjected to surgical intervention , 10 (15.15%) cases were managed expectantly and 6 cases were given medical management of which one case there was failure and had to be taken up for surgery and one case had spontaneous rupture during the course of medical management. A similar finding was observed by Tuli AG *et al.* [10] where there was a failure of medical management in one case. Similarly it has been observed that almost 30% of the cases of ectopic pregnancy can be managed expectantly [13].

In our study serum  $\beta$ -HCG was performed in 43.93% of the cases. This was useful for managing stable cases of ectopic pregnancy. 90% of the cases with  $\beta$ -HCG < 1500 mIU/ml were managed expectantly which was according to the RCOG guidelines [14]. 15.15% of the cases having a  $\beta$ -HCG between 1500-

5000 mIU/ml were subjected to medical management after fulfilling the criteria [14].

All the cases were subjected to ultrasonography among which complex adnexal mass was seen in 77.27% cases which was similar to a study by Shetty *et al.* [1] and Adhikari S [15]. Hemoperitoneum $\beta$  was seen in 54.55% cases and all were managed surgically. Ectopic pregnancy still accounts for 4% - 10% of pregnancy related deaths. But there is no maternal mortality in our study similarly to other studies conducted [1,10,11].

### CONCLUSION

Ectopic pregnancy is one of the causes of maternal morbidity and mortality. Early diagnosis and prompt management can reduce the morbidity and mortality. Strong clinical suspicion with the aid of sonography can diagnose ectopic pregnancy. With the availability of serum  $\beta$ -HCG management of ectopic pregnancy is simpler in cases not requiring surgical intervention. Hence clinical suspicion and timely referral to a centre having facility for sonography and serum  $\beta$ -HCG can reduce morbidity of patients with ectopic pregnancy and an optimal choice of management can be provided and avoid unnecessary surgical intervention.

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