A Retrospective Analysis on Ectopic Pregnancy: A One Year Study

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Abstract: Ectopic pregnancy means the presence of pregnancy outside the normal uterine cavity. Ectopic pregnancy is a common life threatening emergency in first trimester of pregnancy and it leads to serious maternal morbidity and also can cause mortality. Over the last few decades, the incidence of ectopic pregnancy has increased almost to the extent of an epidemic disease. Aim of study was to determine the incidence, clinical presentation, risk factors, treatment and morbidity and mortality associated with ectopic pregnancy. This is retrospective analysis conducted at Government medical college and hospital, Udaipur, Rajasthan from January 2015 to January 2016, in this duration there were a total 93 cases reported with ectopic pregnancy, were admitted at our hospital through emergency or outpatient department. All datas were collected from case record of patients. The incidence of ectopic pregnancy was 4.86 per thousand of deliveries. Maximum (64.51%) cases were in the age group of 21 to 30 years and most of cases (34.40%) were primigravidae. The commonest site of ectopic pregnancy was in ampullary region (52.68%). All patients underwent exploratory laparotomy. Majority 79 (84.94%) cases underwent total salpingectomy. Ectopic pregnancy causes significant morbidity to the mother and hence requires a high index of suspicion so that diagnosis can be made early and also to prevent complications and preserve the future reproductive function of the patient.

Keywords: Ectopic gestation, primigravida, previous LSCS, Exploratory laparotomy

INTRODUCTION

An ectopic pregnancy is one in which the fertilized ovum becomes implanted in a site other than the normal uterine cavity. It is the most important cause of maternal mortality and morbidity in the first trimester [1]. Worldwide, ectopic pregnancy complicates 0.25-2.0% of all pregnancies [2]. Its incidence is increasing and has been rise from 4.9/1000 pregnancies in 1970 to 9.6/1000 pregnancies in 1992 [3].

The rising incidence of ectopic pregnancy in the 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. Chlamydia trachomatis has been linked to 30-50% of all ectopic pregnancies [4, 5].

The most common site of ectopic implantation is the Fallopian tube. Other sites such as the abdomen, ovary, or cervix are far less common but are associated with higher mortality. 98% are in various part of the fallopian tube and out of these, 70% are in the ampullary region, 12% isthmic, 11.1% fimbrial, 3.2% ovarian, 2.4% interstitial, and 1.3% in the abdominal cavity [6].
Classic triad of pain abdomen, amenorrhea and vaginal bleeding are present in only 50% of the cases. 40-50% of the cases present with only vaginal bleeding. Diagnosis can be made by Ultrasonography, serum \( \beta \)hCG, although the ‘gold standard’ is laparoscopy. Management of the cases depends on the clinical presentation, site of the ectopic and need for future reproductive function. Management can be medical as well as surgical [7].

The present study analyses the incidence, clinical presentation, risk factors, diagnosis, management and maternal morbidity and mortality of ectopic pregnancy.

MATERIAL AND METHODS

This was a retrospective analysis conducted at Government medical college and hospital, Udaipur, Rajasthan from January 2015 to Jan 2016, in one year period, there were a total 93 cases reported with ectopic pregnancy ,were admitted at our hospital through emergency or outpatient department. All data were collected from case record of patients. Information regarding the total number of deliveries in the study period, details of demographic characteristics, clinical symptoms and signs, diagnostic tools used, treatment, risk factors for the ectopic pregnancy as well as associated morbidity and mortality were obtained. All the relevant information were entered in a proforma prepared by the author which in turn analysed after entering in the excel sheets using descriptive analysis.

RESULTS

We conducted the study over a period of one year. The total numbers of deliveries were 19127. The total number of ectopic pregnancies turned out to be 93. It gave an incidence of .486% or 4.86 per 1000 deliveries and 5.04 per 1000 live birth. In all cases urine pregnancy test done for provisional diagnosis. Ultrasonography helped in 82 cases in diagnosing ectopic pregnancies.

In our study 82.79% cases presented with pain abdomen and 76.34% presented with amenorrhea. 55.91% of the cases presented with bleeding per vagina. A classical triad of ectopic pregnancy (pain, amenorrhea and bleeding per vagina) seen in 41(44.08%) cases. Abdominal tenderness observed in 24.73% of cases, cervical tenderness in 22.58%, fornical tenderness in 41.93% and adnexal mass in 33.33% cases while shock was observed in 18.27% of patients (table2).

### Table 1: Distribution of cases according to age and parity.

<table>
<thead>
<tr>
<th>Age group</th>
<th>No of cases</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤20</td>
<td>03</td>
<td>3.22%</td>
</tr>
<tr>
<td>21-25</td>
<td>22</td>
<td>23.65%</td>
</tr>
<tr>
<td>26-30</td>
<td>38</td>
<td>40.86%</td>
</tr>
<tr>
<td>31-35</td>
<td>20</td>
<td>21.50%</td>
</tr>
<tr>
<td>&gt;35</td>
<td>09</td>
<td>9.67%</td>
</tr>
</tbody>
</table>

A majority of patients (64.51%) belonged to the age group of 21-30yrs. 17.20% cases were nulliparous, 34.40% with parity one, 32.25% cases with parity two and 12.90% cases with parity three (table 1).

### Table 2: Distribution of cases according to clinical features.

<table>
<thead>
<tr>
<th>Clinical features</th>
<th>Number of cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amenorrhea</td>
<td>71</td>
<td>76.34%</td>
</tr>
<tr>
<td>Bleeding per vagina</td>
<td>52</td>
<td>55.91%</td>
</tr>
<tr>
<td>Pain abdomen</td>
<td>77</td>
<td>82.79%</td>
</tr>
<tr>
<td>Abdominal tenderness</td>
<td>23</td>
<td>24.73%</td>
</tr>
<tr>
<td>Cervical movement tenderness</td>
<td>21</td>
<td>22.58%</td>
</tr>
<tr>
<td>Fornical tenderness</td>
<td>39</td>
<td>41.93%</td>
</tr>
<tr>
<td>Adnexal mass</td>
<td>31</td>
<td>33.33%</td>
</tr>
<tr>
<td>Shock</td>
<td>17</td>
<td>18.27%</td>
</tr>
</tbody>
</table>


Table 3: Distribution of cases according to predisposing factor

<table>
<thead>
<tr>
<th>Predisposing factors</th>
<th>Number of cases</th>
<th>Percentage(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pelvic inflammatory disease</td>
<td>15</td>
<td>16.12%</td>
</tr>
<tr>
<td>Previous abortion</td>
<td>09</td>
<td>9.67%</td>
</tr>
<tr>
<td>Previous L.S.C.S.</td>
<td>09</td>
<td>9.67%</td>
</tr>
<tr>
<td>Tubal surgery</td>
<td>04</td>
<td>4.30%</td>
</tr>
<tr>
<td>Previous ectopic</td>
<td>04</td>
<td>4.30%</td>
</tr>
<tr>
<td>Infertility treatment</td>
<td>05</td>
<td>5.37%</td>
</tr>
<tr>
<td>IUCD insertion</td>
<td>01</td>
<td>1.07%</td>
</tr>
<tr>
<td>H/O T.B.</td>
<td>01</td>
<td>1.07%</td>
</tr>
</tbody>
</table>

On evaluation of risk factors, it was found that 48(51.61%) had predisposing factor which included history of pelvic inflammatory disease (PID) in 15 (16.12%), previous abortion in 9 (9.67%) cases, previous cesarean in 9(9.67%) cases, history of infertility treatment in 5 (5.37%) cases, previous ectopic in 4 (4.30%) cases, tubal surgery in 4 (4.30%), IUCD insertion in 1 case and history of tuberculosis in 1 case (table 3).

Table 4: Distribution of cases according to side and site of ectopic pregnancy.

<table>
<thead>
<tr>
<th>Side of ectopic</th>
<th>Number of cases</th>
<th>Percentage(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right</td>
<td>54</td>
<td>58.06%</td>
</tr>
<tr>
<td>Left</td>
<td>38</td>
<td>40.86%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Site of ectopic pregnancy</th>
<th>Number of cases</th>
<th>Percentage(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tubal</td>
<td>87</td>
<td>93.54%</td>
</tr>
<tr>
<td>Ampullary</td>
<td>49</td>
<td>52.68%</td>
</tr>
<tr>
<td>Isthmus</td>
<td>16</td>
<td>17.20%</td>
</tr>
<tr>
<td>Fimbrial</td>
<td>12</td>
<td>12.90%</td>
</tr>
<tr>
<td>Cornual</td>
<td>10</td>
<td>10.75%</td>
</tr>
<tr>
<td>Ovarian</td>
<td>4</td>
<td>4.30%</td>
</tr>
<tr>
<td>Rudimentary horn</td>
<td>1</td>
<td>1.07%</td>
</tr>
<tr>
<td>Abdominal pregnancy</td>
<td>1</td>
<td>1.07%</td>
</tr>
</tbody>
</table>

Right sided ectopic 54 (58.06%) were more common than left side 38 (40.86%), Table 4 depicts that incidence of tubal ectopic was maximum which was 87 (93.54%) cases out of 93 cases of ectopic pregnancy. Among tubal ectopic pregnancy the most common site was ampulla 49 (52.68%) cases followed by isthmus (17.20%), fimbrial (12.90%), cornual (10.75%). Six cases were at extra tubal site, i.e., 4 cases were ovarian ectopic, one case was in rudimentary horn and one case was abdominal pregnancy.

Table 5: Distribution according to operative findings on laparotomy.

<table>
<thead>
<tr>
<th>Operative finding</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unruptured</td>
<td>13</td>
<td>13.97%</td>
</tr>
<tr>
<td>Rupture</td>
<td>55</td>
<td>59.13%</td>
</tr>
<tr>
<td>Tubal abortion</td>
<td>11</td>
<td>11.82%</td>
</tr>
<tr>
<td>Chronic ectopic</td>
<td>13</td>
<td>13.97%</td>
</tr>
<tr>
<td>Abdominal pregnancy</td>
<td>1</td>
<td>1.07%</td>
</tr>
</tbody>
</table>

Table 5 shows the operative findings on laparotomy. There was ruptured ectopic in 55 (59.13%), chronic ectopic in 13 (13.97%), unrupture ectopic pregnancy in 13 (13.97%) cases and one case was abdominal pregnancy.
Table 6: Distribution of cases according to type of surgery done to the patient

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Number of cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unilateral Salpingectomy</td>
<td>79</td>
<td>84.94%</td>
</tr>
<tr>
<td>Salpingoophorectomy</td>
<td>08</td>
<td>8.60%</td>
</tr>
<tr>
<td>Oophorectomy</td>
<td>04</td>
<td>4.30%</td>
</tr>
<tr>
<td>Hysterectomy</td>
<td>01</td>
<td>1.07%</td>
</tr>
</tbody>
</table>

All patients underwent open exploratory laparotomy because of non availability of laparoscopy in our institute. In our study majority of cases underwent unilateral salpingectomy 79 (84.94%) cases followed by salpingoophorectomy done in 8 (8.60%) cases and oophorectomy done in 4 (4.30%) cases. In one case who had rupture cornual pregnancy, hysterectomy was performed. (table 6)

Table 7: Distribution of cases according to Hemoperitoneum

<table>
<thead>
<tr>
<th>Amount of hemoperitoneum</th>
<th>Number of cases</th>
<th>Percentage(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No hemoperitoneum</td>
<td>15</td>
<td>16.12%</td>
</tr>
<tr>
<td>&lt;500 ml</td>
<td>33</td>
<td>35.48%</td>
</tr>
<tr>
<td>500-1000 ml</td>
<td>32</td>
<td>34.40%</td>
</tr>
<tr>
<td>&gt;1000 ml</td>
<td>13</td>
<td>13.97%</td>
</tr>
</tbody>
</table>

Table 7 show that 33 (35.48%) cases in which amount of hemoperitoneum < 500ml and ≥500ml of hemoperitoneum in 45 (48.38%) cases.

Table 8 gives an idea about the morbidity associated with ectopic pregnancy. Blood transfusion needed in 76 (81.72%) cases. Wound gaping present in 5 (5.37%) cases. 7 cases needed intensive care unit admission in post operative period. Mortality associated with ectopic pregnancy seen in 2 cases in which one case who had rupture cornual pregnancy and one case with abdominal pregnancy.

Table 8: Morbidity and mortality associated with ectopic pregnancy

<table>
<thead>
<tr>
<th></th>
<th>Number of cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood transfusion</td>
<td>76</td>
<td>81.72%</td>
</tr>
<tr>
<td>Wound complication</td>
<td>5</td>
<td>5.37%</td>
</tr>
<tr>
<td>Require ICU admission</td>
<td>7</td>
<td>7.52%</td>
</tr>
<tr>
<td>Mortality</td>
<td>2</td>
<td>2.15%</td>
</tr>
</tbody>
</table>

DISCUSSION

Ectopic pregnancy is a common obstetrical disorder in early pregnancy all over the world that remains an important cause of maternal mortality and morbidity. In India the incidence of ectopic pregnancy reported by the Indian council of medical research (ICMR 19990) task force in their multicentric case control study was 3.12 per 1000 pregnancies or 3.86 per 1000 live births in the hospital reported pregnancies [8]. In our study group the incidence of ectopic pregnancies was 4.86 per 1000 deliveries and 5.04 per 1000 live birth. In a study conducted by Shraddha shetty K, Anil shetty 5.6/1000 delivery [9]. In a study conducted by RashmiGaddagi and AP Chandrashekhar, the incidence was 1:399 pregnancies [10].

In our study 64.51% patients belonged to age group of 21 to 30 years. Similar results were found in Khaleeque et al study [11]. Majority of patients i.e. 34.40% patients in the present study were primigravida. Morice et al in their study found that in nulliparous women were 2.6 times more likely to have an ectopic pregnancy after one year of unprotected intercourse [12]. A Kolkata based study too revealed the primigravida to be most of the cases [13].

In present study pelvic inflammatory disease, previous abortion, previous LSCS, tubal surgery are strongest risk factors associated with the occurrence of ectopic pregnancy. In the present study group history of pelvic inflammatory disease was present in 16.12% of the cases with ectopic pregnancy. This is correlating with the study done by Bhavna, et al 22.7% of the cases with ectopic pregnancy [14]. In this study 9.67% patients had history of abortion. Ankum et al 1996 found that there is a slight increase of ectopic
conception in women with previous abortions [15].
9.67% cases in present study had history of LSCS. In a
similar retrospective study by Shetty et al, only 9%
patients with ectopic gestation had history of previous
LSCS [9]. In studies by Chi et al, Cheng et al found
that the risk of tubal pregnancy after sterilization is
between 5-16% where as in the present study the rate
was 4.30% [16]. In present study, previous ectopic
pregnancy found in 4.30% with comparable results in
study carried by Yakasai et al (4.95%). which is
consistent with the hypothesis that women with
previous ectopic pregnancy has greater proclivity
toward a subsequent ectopic pregnancy [17]. In our
study group, 5.37% of the women with ectopic
pregnancy were history of infertility treatment which is
correlating with the studies done by Panchal D, et al
(11.66%) [18]. History of tuberculosis found in only
case. One patient using IUCD as a method of
contraception. IUCD has no effect on ovulation, it
prevents intrauterine pregnancy but not tubal and
ovarian pregnancy [9]. The risk of tubal pregnancy is
more if a woman conceives with IUCD in situ.

Most common presenting symptom was pain
in abdomen which was seen in 82.79% cases followed
by history of amenorrhea (76.34%), bleeding per
vagina(55.91%) were similar with Shetty and
Shetty(pain = 80.6%, amenorrhea = 77.4%) [9].
Bleeding per vaginum found in 55.91% cases which is
comparable with a study by Yakasai et al (64.36%)
[17]. Classical triad found in 44.08% cases which is
comparable to Singh et al [19]. On clinical
examination, it found that abdominal tenderness present
in 24.73%, cervical movement tenderness in 33.33%,
foveal tenderness in 41.93%. In present study
18.27% of patients presented with features of shock
which is almost similar to the study by Panchal D et al
[18].

Right sided tubal pregnancy was present in
54(58.06%) cases and left tubal involvement in
38(40.86%) cases, consistent with other studies [5]. In
the present study, tubal pregnancy found in 93.54%
cases which is comparable to studies carried out by
Yakasai et al (89.11%) [17]. Most of the patients had
ampullary ectopic (52.68%) pregnancy which is
consistent with studies from Khaleeque et al (58.9%) [11]. The incidence of isthmic pregnancy was 17.20%.
Priti S Vyas et al also found 42.5% ectopic pregnancies
in ampullary portion and 22.4% in isthmic [8]. Fimbria
(12.90%) found the third most common site of tubal
pregnancy with a similar result of Khaleeque et al
(15.4%) [11]. Incidence of cornual pregnancy
was(10.75%) comparable to Khaleeque et al (10.3%)
[11]. Incidence of ovarian ectopic pregnancy was
4.30% comparable to Singh et al (4%) [19]. Our study
also had one case of rudimentary horn pregnancy and
one case of abdominal pregnancy.

Ruptured ectopic pregnancy was present in
59.13% cases, 13.97% had unruptured ectopic and tubal
abortion in 11.82% cases. In Latchaw G et al study,
tubal rupture was present in 59% cases and 41% had
unruptured ectopic pregnancies [20]. Chronic ectopic
pregnancy was found in 13.97% cases.

Since most of our patients were referred with
established signs of ruptured tubal pregnancy, and
hemodynamic compromise, they needed emergency
laparotomy. Moreover, laparotomy is even opted for
patients presenting to our hospital in early weeks of
gestation as well as in a stable state. This is because
follow-up after medically managing the patients are
problematic and many patients are thus lost or return to
the hospital with shock. All patients underwent open
exploratory laparotomy because of non availability of
laparoscopy in our institute. The most frequent
procedure in cases is unilateral total salpingectomy
(84.94%), salpingooophorectomy in 8.60% of cases, the
same finding described by Chinurgia in current trends
[21]. Oophorectomy was done in 4.30% cases and
Hysterectomy was done in one case with rupture
cornual pregnancy.

Mortality associated with ectopic pregnancy
seen in 2 cases in which one case who had rupture
cornual pregnancy and one case with abdominal
pregnancy in our study. Cornual area is well supplied
by the Sampson artery which is connected to both
the uterine and the ovarian arteries. The risk of maternal
mortality is more with cornual pregnancy. Moreover,
the diagnosis of cornual pregnancy is difficult as they
are diagnosed relatively late around 7-12 weeks as
myometrium at this region can undergo distension
allowing the pregnancy to grow; and if at all cornual
rupture occurs it leads to hypovolemia and shock due to
profuse haemorrhage [22].

The mortality risk from abdominal pregnancy
is 7.7 fold that of tubal pregnancy. Maternal morbidity
may be due to bleeding, infection, toxemia, anemia,
disseminated intravascular coagulation, or the formation
of a fistula between the amniotic sac and intestine
caused by penetration of fetal bone [23].
CONCLUSION
Ectopic pregnancy causes significant morbidity to the mother and hence requires a high index of suspicion so that diagnosis can be made early. In the present study due to prompt diagnosis and management, maternal mortality was avoided in most of the cases. So by reducing and identifying the risk factors and early detection of ectopic pregnancy by ultrasonography to improve the prognosis so far as the morbidity and mortality and fertility are concerned. In a center where laparoscopic facilities are not available, Laparotomy proceeded with salpingectomy can be a life saving procedure even in the present day scenario.

REFERENCES