

# CLINICAL PRESENTATIONS AND COMPLICATIONS ASSOCIATED WITH TUBAL RUPTURE IN PATIENTS WITH TUBAL ECTOPIC PREGNANCY

Qudsia Qazi, Zubaida Akhtar, Kamran Khan

Department of Obstetrics and Gynaecology,  
Khyber Teaching Hospital, Peshawar - Pakistan

## ABSTRACT

**Objectives:** The objectives of study was to describe the clinical presentation, frequency of tubal rupture and short term maternal morbidity and mortality in cases of tubal ectopic pregnancy presenting to a tertiary care teaching hospital.

**Methodology:** This was a descriptive study of 50 cases of tubal ectopic pregnancy; both ruptured and unruptured, presented at Khyber Teaching Hospital Peshawar from September 2002 to December 2003. Detailed history regarding age, parity, presenting features, past medical and surgical history and history regarding risk factors was taken. Operative findings regarding surgical procedures were noted. Data collected was analysed on SPSSv.10 and chi square test was used as a test of significance.

**Results:** The mean age of the sample was 29.50+10.50. Among the etiologic factors, PID was (14%), previous ectopic (4%), ovulation induction (4%) and IUCD insertion (2%). Common clinical features were abdominal pain (90%), amenorrhea (84%), vaginal bleeding (70%), shock (32%). Clinical signs raising suspicion of tubal rupture were shock (36.3%), anemia (86.3%) and irregular mass in pouch of douglas (88.6%). Diagnosis was made clinically (92% cases) and abdominal USG with positive findings (92.5% cases). Laparotomy showed ruptured tube in 88% cases, of which 88% had rupture of ampullary region. Surgical procedures done were salpingectomy for 97% and salpingoophrectomy for 7% of ruptured tubal ectopics. Short term morbidities were shock (32%), peritonitis (32%) and severe anemia (10%). No maternal mortality was recorded.

**Conclusion:** The most common risk factor was PID and the most common presenting complaint was abdominal pain and amenorrhea.

**Key words:** Tubal ectopic pregnancy, Tubal rupture, Pelvic Inflammatory Disease.

## INTRODUCTION

Abulcassis first described ectopic pregnancy as implantation of fertilized ovum outside the uterine cavity in 936 AD<sup>1</sup>. Ectopic pregnancy is a gynaecological emergency of paramount importance because of increasing incidence worldwide and as a major cause of maternal morbidity and mortality. It accounts for about 0.25-1.5% of all pregnancies, sizeable proportion of infertility and ectopic recurrence. It is second leading cause of maternal mortality in 1st trimester and responsible for 10-15% of all maternal deaths. The incidence in Pakistan is 5.7/1000 births and in UK 5.9/1000 births. If the

problem is diagnosed early then can be dealt with medical treatment and minimal access surgery. Due to improved diagnostic and treatment facilities the case fatality rate has reduced from 35.5 deaths/10,000cases in 1970 to 2.6/10,000 cases in 1992in developed world<sup>2</sup>. The patients having high risk for tubal rupture due to less suspicion of ectopic pregnancy in them are (a) women with no history of ectopic pregnancy (b) normal B HCG levels (c) never used contraception (d) ovulation induction<sup>3</sup>. PID is most important etiological factor as three episodes of PID increase the incidence of ectopic pregnancy to 79%<sup>4</sup>. Other known risk factors include age>40yrs, previous pelvic

surgery<sup>5</sup>, previous tubal pregnancy<sup>6</sup>, previous tubal surgery<sup>7</sup>, current or previous use of an IUCD (aside from risk of infection<sup>8</sup>, developmental abnormalities of tube<sup>9</sup>, greater than 3 spontaneous abortions, endocrine disorders and assisted reproduction<sup>10</sup> and smoking<sup>11</sup>). In assisted reproductive technology the incidence of ectopic pregnancy is approximately 3-5%. These pregnancies tend to be recognized at an earlier stage due to close monitoring in these patients.

Clinical presentation of ectopic pregnancy may be acute, subacute or chronic. Acute ectopic pregnancies do not pose diagnostic difficulty due to acute presentation. The classic triad of history of missed menses followed by irregular vaginal bleeding, abdominal or pelvic pain and a tender adnexal mass is present in < 50% of patients. Pain is seen in 95% of patients with rupturing ectopic pregnancy, usually in lower abdomen. Cervical motion tenderness is present in 75% of patients with ruptured ectopic. Vaginal spotting either intermittent or continuous is seen in 60-80% of cases. Physical examination exhibits abdominal and pelvic tenderness. Tenderness may be generalized (45%), located bilaterally in lower quadrants (25%) or located unilaterally in lower quadrant (30%). A palpable adnexal mass or mass in cul de sac is reported in 40% cases but absence of palpable mass does not rule out ectopic pregnancy.

The titre of BHCG climbs in a linear fashion from 2-4 weeks after ovulation in normal pregnancy, doubling every 48-72 hrs until it reaches 10,000 mIU. Level of BHCG are more likely to plateau (<15% change) with ectopic pregnancy than with spontaneous abortion. 17% of patients with ectopic pregnancy will have normal BHCG doubling times (>66% rise in 48hrs)<sup>12</sup>. A BHCG level of <15,000 IU/ml accompanied by pain and vaginal bleeding increases likelihood of ectopic pregnancy by 2.5 times. The use of strict diagnostic algorithm including sensitive urine pregnancy test, quantitative BHCG level, abdominopelvic and transvaginal scan along with knowledge and awareness of both patients and clinician help in early and accurate diagnosis of ectopic pregnancy reduced tubal rupture rate.

Surgical treatment has evolved from salpingectomy to surgical and medical procedures that favor tubal conservation. Management depends on size of embryo and whether tube has ruptured or not. Surgical options through laparoscopy or laparotomy are

- 1) Salpingectomy
- 2) Salpingotomy
- 3) Fimbrial evacuation

4) Segmental resection

5) Salpingoophrectomy and Sterilization

Salpingectomy is considered i) in patients with large ectopic > 2-3 cm in diameter ii) haemoperitonium with shock iii) ruptured tube iv) tubal pregnancy already treated conservatively.

A women with ectopic pregnancy has only 40-60% chance of subsequently conceiving after surgery but 10% chance of ectopic<sup>13</sup>. Recurrence rate of ectopic is dependent on treatment modality, status of contralateral tube, other associated infertility factors and underlying aetiology of ectopic itself.

Thus, this study was planned with the objectives to describe the clinical presentation, frequency of tubal rupture and short term maternal morbidity and mortality in cases of tubal ectopic pregnancy presenting to a tertiary care teaching hospital.

## METHODOLOGY

This descriptive study was conducted from September 2002 to December 2003 at Gynae "B" unit of Khyber Teaching Hospital Peshawar in 50 women of reproductive age group admitted both via OPD and casualty, patients were selected by convenient sampling. Data was retrieved from charts of all patients diagnosed with ectopic pregnancy through structured proforma. The variables studied included age, parity, symptoms and signs, risk factors, past medical and surgical history, menstrual and obstetrical history, treatment, frequency of tubal rupture and associated maternal morbidity and mortality. A thorough local, general and systemic examination was recorded. Haemodynamically unstable patients were given treatment for shock. Laparotomy was performed for all cases. Operative findings and notes were analysed to find out i) Tubal rupture ii) amount of blood loss in peritoneal cavity and pouch of douglas iii) type of various surgical procedures as salpingectomy, salpingotomy and milking.

All patients with tubal ectopic pregnancy were included in the study while ectopic pregnancy other than tubal as cervical and abdominal pregnancy or Heterotopic pregnancies were excluded from the study.

For test of significance Chi square test was used. The level of significance was chosen as 0.05. P value was calculated and results interpreted. Outcome in form of severe anaemia, severe haemorrhage during surgery, heavy bleeding p/v on 1st postoperative day and maternal mortality were recorded.

Maternal morbidity was recorded as severe anemia, severe hemorrhage during surgery, heavy bleeding p/v on 1<sup>st</sup> postoperative day. Maternal mortality was also recorded.

## RESULTS

A total of 50 patients of tubal ectopic pregnancy undergoing laparotomy were included in study group. The mean age of the sample was 29.50±10.50 with majority of patients in age group 25-30(36%) followed by 31-35 years (20%) (Table 1). Most of patients were nulliparous 13(26%) or para 5-7(18%). Out of 50 patients, all (100%) with parity of 5-7 had ruptured ectopic pregnancy (Table 1). In 30% cases etiology was unexplained. The possible etiological factors evaluated from past history were dilatation and curettage both for induced and incomplete abortion(28%), history of PID(16%), infertility [primary infertility of 2 years in 4%, secondary infertility of 6-8 years in 6%, previous ectopic and conservative surgery for it in 4%, ovulation induction in 4% and previous tubal surgery in 2% cases (Table 1).

Statistically significant difference (p value < 0.05) was found with respect to clinical features in ruptured and unruptured cases as shock was seen in 36.3% of ruptured cases, not seen in unruptured cases, anaemia was seen in 86.3% of

ruptured cases, 33.3% of unruptured cases and on bimanual examination irregular mass in pouch of Douglas was found in 88.6% of ruptured cases and 6.6% of unruptured cases. No statistically significant difference seen for amenorrhoea, abdominal pain, vaginal bleeding and adnexal tenderness (Table 2). Most of patients with ruptured tube had haemoglobin between 5-9 gm/dL (about 68%).Urine pregnancy test was positive in 57.5%. B HCG was done in 12% cases, 66.9% of which had level > 2000 mIU/L with ruptured tube. Sixty eight percent of patients had abdominopelvic scan, 64.5% of which had findings of empty uterus, free fluid in cul de sac and adnexal mass. TVS was performed in 24% cases 50% of which had chronic ectopic pregnancy (Table 3). In 92% of cases clinical assessment helped us in diagnosis as compared to other diagnostic modalities on laparotomy.

A statistically significant difference was found between early and late presented cases of tubal ectopic with respect to tubal rupture as 97.7% of late presented cases had ruptured tube (Table 4). About 70% of patients underwent salpingectomy. Short term morbidity was higher in ruptured cases as shock in 32%, severe anaemia in 10% cases (Table 5). No maternal mortality was found.

**Table 1: Demographic Features of the sample (n=50)**

Age	No. of cases	No. of ruptured cases	Percentage
15 – 20	08	-	16%
21 – 25	08	-	16%
26 – 30	18	-	36%
31 – 35	10	-	20%
36 – 40	06	-	12%
<b>Parity</b>			
Nulliparous	13	12	92.3%
Para – 1	07	06	85.7%
Para – 2	02	01	50.0%
Para – 3	08	06	75.0%
Para – 4	08	07	87.5%
Para – 5 – 7	09	09	100.0%
Para – 8 & More	03	03	100.0%
<b>Predisposing Factors</b>			
Unexplained (No factor detected)	15	-	30%
D and C following spontaneous / induced abortions	14	-	28%
History of pelvis infection	07	-	14%
Previous tubal surgery	01	-	02%
Previous history of infertility	05	-	10%
Previous conservative surgery for ectopic	02	-	04%
Previous ectopic	02	-	04%
Ovulation induction	02	-	04%
IUCD	01	-	02%
Tubal sterilization	00	-	00%

**Table 2: Efficacy of clinical features to predict tubal rupture (n=50)  
[Ruptured = 44, Unruptured=6]**

S. No	Clinical Features	Ruptured No. of cases	Cases %age	Unruptured No. of cases	Cases %age	p value
1.	Amenorrhoea	38	80.4%	04	66.6%	0.53
2.	Abdominal pain	40	90.9%	05	83.3%	0.88
3.	Vaginal bleeding	32	72.2%	03	50.0%	0.50
4.	Shock	16	36.3%	00	00.0%	0.02*
5.	Anaemia	38	86.3%	02	33.3%	0.02*
6.	Abdominal tenderness	36	81.8	04	66.6%	0.74
	<b>Bimanual examination</b>					
a.	Adnexal tenderness	29	65.9%	03	50.0%	0.75
b.	Irregular mass in pouch of Douglas	39	88.6%	01	06.6%	0.00*
c.	Globular mass in adnexae.	01	02.3%	04	66.6%	0.74

\* Significant

**Table 3: Investigations in study group (n=50)**

S. No	Investigation	Ruptured No of case	%age	Unruptured No of case	%age	P Value
<b>I Haemoglobin (n=50)</b>						
a.	Between 5 – 9.9 gm%	30	60%	04	8%	0.941
b.	Between 10 – 14 gm%	14	28%	02	4%	
<b>II Urine for pregnancy test (latex agglutination inhibition test) (n=50)</b>						
a.	Positive	23	57.5%	5	12.5%	0.297
b.	Negative	11	30.0%	1	2.5%	
c.	Not performed	10	20.0%	0	0%	
<b>III BHCG (n=6)</b>						
a.	≤2000 miU/lit	1	16.6%	0	0%	0.624
b.	>2000miU/lit	4	66.6%	1	16.6%	
<b>IV Abdominopelvic Ultrasonography (n=34)</b>						
a.	No mass +empty uterus	0	00%	2	6.45%	
b.	Empty uterus and adnexal mass	6	19.3%	1	3.22%	
c.	Empty uterus + free fluid in cul-de-sac	4	12.9%	1	3.22%	0.000*
d.	Empty uterus + free fluid in cul-de-sac + adnexal mass	20	64.5%	0	0%	

\* Significant

**Table 4: Relationship of tubal rupture to time of presentation (n=50)**

S.No	Description	Early (cases presented at ≤6 weeks)		Late (cases presented at >6 weeks)		p-value
		No of cases	% age	No of cases	% age	
1.	Ruptured cases (n=44)	01	02.2%	43	97.7%	0.00 *
2.	Unruptured cases (n=6)	05	83.3%	01	16.6%	0.00 *

\* Significant

**Table 5: Morbidity associated with tubal rupture (n=50)**

S. No	Short term morbidity	No. of cases	%age	
1.	Shock	16	32%	
2.	Severe anemia (Hb 5 – 9.9 gm%)	05	10%	
3.	No. of transfusions required	≥ 4	05	10%
		< 4	29	58%
4.	Peritonitis	16	32%	
5.	Severe hemorrhage during surgery	01	02%	
6.	Heavy bleeding p/v on first post operative day (expulsion of decidual cast)	02	04%	
7.	Concurrent hetrotopic pregnancy	01	02%	

## DISCUSSION

Ruptured tubal pregnancy has been known as life threatening condition posing diagnostic challenge. Morbidity and mortality associated with it are related to length of time between onset of symptoms and treatment instituted. The mean age of patients in our study was consistent with the results of study conducted by Afridi B et al and Pal A et al<sup>14, 15</sup>. These studies show that tubal pregnancy rate increases steeply after age of 30 yrs. The nulliparous and multiparous women had increased frequency of rupture because of less suspicion of ectopic in them, most of them were illiterate or did not have any access to hospital or family planning centre, consistent with results of another study<sup>16</sup>.

In our set up PID is common cause in our setup because majority of women conduct deliveries at home due to low paying capacity or go for an induced abortion of unwanted pregnancy to dai ending up in chronic pelvic infection. Other risk factors include history of infertility, previous pelvic surgery, history of ectopic pregnancy and ovulation induction. Data from cooperative statistical program of population council estimated that an in situ device reduced uterine implantation by 99.5%, tubal implantation by 95%<sup>17</sup>. The clinical presentation may be very misleading varying from mild shoulder pain, vaginal spotting, shock, intra-abdominal bleeding, adnexal tenderness and mass, acute retention of urine and dyspareunia, consistent with another study<sup>5</sup>. In a study carried out by Naila B et al showed that commonest presenting symptom was abdominal pain (100%) and adnexal tenderness(95.3%)<sup>18</sup>. The sensitivity of diagnosing ectopic pregnancy using clinical suspicion, B HCG and sonographic detection of an adnexal mass can be as high as 96% while specificity can be 100%, consistent with studies by Naila B et al and Ali R et al<sup>16,18</sup>.

In our study clinical features as shock (36.6% of cases with tubal rupture), anemia and

irregular mass in pouch of Douglas show significant difference between early and late presented cases of tubal ectopic. These features are more marked in patients with ruptured tubes indicating that presence of these features can predict tubal rupture.

Salpingectomy was performed in 75% of cases. The primary role of surgery was to arrest haemorrhage but improving subsequent live birth rate and reducing recurrent ectopic rate. The rate of tubal rupture was higher in late presented cases. Most patients presented late due to negligence of family and patient, lack of access to health centre or inability to afford treatment. In a comparative study, live birth rate after salpingotomy was 39.6% and salpingectomy was 42%, recurrent ectopic rate was 18.75% and 12% respectively. The average duration of hospital stay was 7-10 days. It shows that screening of high risk cases, early diagnosis and early intervention would reduce the morbidity in ectopic pregnancy. No maternal death was recorded, quite consistent with the fact that incidence of ectopic pregnancy is increasing but fatality rate is decreasing which is true for most developed countries.

## CONCLUSION

Tubal rupture was most common and presented late in this sample. PID, abortions, previous ectopic and pelvic surgery, IUCD and assisted reproduction are important risk factors.

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**Address for Correspondence:****Dr. Qudsia Qazi**

Department of Obstetrics and Gynaecology,  
Khyber Teaching Hospital,  
Peshawar - Pakistan