

## Risk factor leading to ectopic pregnancy

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### Abstract

**Introduction:** Ectopic pregnancy is the most life threatening emergency leading to maternal death in which the gestational sac is outside the uterus. Several risk factors for ectopic pregnancy has been identified including genital infection, previous ectopic pregnancy, history of tubal surgery and use of IUCD. Such abnormalities of the tubes prevent normal transport of the fertilized egg to the uterus. Ectopic pregnancy occur at a rate of about 1 to 2 % of pregnancies can occur in any sexually active woman of reproductive age. The incidence has been increasing for years and currently two to three times higher than it was 20 or 30 years ago. Diagnosis of ectopic pregnancy may be missed due to non-specific or atypical clinical features particularly where there was no history of missed period.

**Objective:** To determine the frequency of factors leading to ectopic pregnancy in woman attending to a tertiary care center.

**Design:** Cross Sectional Study.

**Setting & Duration:** This study was conducted in the department of Obstetrics & Gynecology Unit 1 Civil Hospital Karachi, Pakistan from Nov 2011 to May 2012.

**Methodology:** The study was carried out on 117 women who presented to emergency room with amenorrhea, lower abdominal pain & vaginal bleeding, diagnose as ectopic pregnancy. Detailed history and general physical, abdominal and vaginal examination was done. Predisposing factors with ectopic pregnancy were investigated.

**Result:** The result were analyzed by using SPSS software version 16.0. The commonest risk factor for ectopic pregnancy was the use of contraception (30.0%) followed by history of genital tract infection (22.2%), previous ectopic pregnancy (12%) & previous tubal surgery (5.1%) were also found to be important risk factors.

**Conclusion:** The study shows that the ectopic pregnancy is highly associated with multiparty & previous ectopic pregnancy & in patient's who previously had genital tract infections.

**Keywords:** Ectopic pregnancy, genital infection, IUCD, previous tubal surgery, use of contraception, tubal pregnancy.

### Introduction:

Ectopic pregnancy is a complication of first trimester of pregnancy that carries major morbidity & mortality. It accounts for 6% of pregnancy associated mortality.<sup>1,2</sup> Ectopic pregnancy is a life & fertility threatening condition leading to maternal death in which implantation of gestational sac occur outside the uterus.<sup>3</sup> Ectopic implantation occur in 1 to 2% of pregnancies & can occur in any sexually active women of reproductive age & it is responsible for 10% of all pregnancy related death.<sup>4</sup> Incidents in Pakistan is quoted

5.7/1,000 birth by Qureshi S, et al.<sup>5</sup> 97% of ectopic pregnancy occurs in the fallopian tube, 80% in ampullary region of tube, 10% in isthmus & 5% in infundibulum region, rarely occur in the ovary, cervix & in the abdomen. Ectopic pregnancy presents with sub-acute features in 75% of cases, presentation may be varied & atypical.<sup>5</sup> Most common symptoms of presentation are abdominal pain in 90-100% of women, 75 -90% of women present with amenorrhea of 6-8 weeks & bleeding per vaginum in 50-80%. Most common sign is abdominal and pelvic pain, rebound

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Table 1: Descriptive statistics of age of women

Statistics	Age (Years)
Mean $\pm$ SD	27.82 $\pm$ 3.92
95% confidence interval	27.10 to 28.54
Median (IQR)	28(5)
Maximum Age	35
Minimum Age	18

Table 2: Descriptive statistics of age of women

Factors leading to ectopic Pregnancy	<21	21 to 30	31 to 35	P- Values
	N=7	N=94	N=16	
Previous pregnancy	0	13	1	0.42
Use of contraception	0	29	7	0.11
History of tubal surgery	0	6	0	0.46
History of genital infection	0	22	4	0.34

Table 3: Factor leading to ectopic pregnancy with respect to parity

Factors leading to ectopic Pregnancy	Nullipara N=33	Primipara N=36	Multipara N=44	Grand para N=4	P values
Previous pregnancy	0(0%)	9(25%)	5(11.4%)	0(0%)	0.013
Use of contraception	1(3%)	5(13.9%)	26(59.1%)	4(100%)	0.005*
History of tubal surgery	0(0%)	4(11.1%)	2(4.5%)	0(0%)	0.19
History of genital infection	7(21.2%)	14(38.9%)	3(6.8%)	2(50%)	0.003

tenderness 72.2%, cervical excitation 63.6% and adnexal mass 9.1%.<sup>6</sup> Risk factors of ectopic pregnancy is pelvic inflammatory disease 2.5 - 3.7%, intrauterine contraception device 4.2-45%, previous ectopic pregnancy & tubal surgery.<sup>5</sup> The common reason to missed the diagnosis of ectopic pregnancy is failure to identify the risk factors, the diagnosis may also be missed due to non-specific and atypical clinical features, particularly where there is no history of missed periods.<sup>7</sup>

#### Material and method:

This study includes analysis of 117 cases of ectopic pregnancy admitted through emergency in obstetric & gynecological department of civil hospital Karachi over a period of 6 months from Nov 2011 to May 2012. The study was approved by hospital ethical committee. Informed consent was obtained from woman who met the inclusion criteria. The detailed history regarding Previous tubal surgery, previous ectopic pregnancy, use of IUCD and pelvic infection and

clinical feature like amenorrhea, abdominal and pelvic pain, vaginal bleeding was taken. Investigations & ultrasound done and all the details were recorded in proforma. The data were fed in computer and analyzed in SPSS ver.16 mean and standard deviation were computed for continuous variables like age and frequency and percentage were computed for categorical variables. Effect modifiers were controlled through stratification of age and parity by chi-square test. P-value less than 0.05 was consider as significant.

#### Results:

A total of 117 pregnant woman with ectopic pregnancy were included in this study. Most of the woman were from 21 to 30 years of age ,the average age of the patient was 27.82  $\pm$  3.92 years (95% : 27.10 to 28.54) (Table 1). Regarding parity of woman 44(37.6%) woman were multiparous (parity 2-4), 4(3.4%) woman were multiparous (parity above 4), 36(30.8%) were primiparous (Table 3). Use of contraception was the commonest factor associated with ectopic pregnancy that was observed in 30.3% cases, followed by history of genital infection 22.2%, previous ectopic pregnancy 12% and history of tubal surgery 5.1% (Table 3). There was no significant effect of age group on these factors (Table 2). Similarly factor like previous ectopic pregnancy and history of genital infection were significantly high in primiparous woman while use of contraception was high in woman who had multiparty ( Table 3).

#### Discussion:

Ectopic pregnancy is a common obstetrical disorder in early pregnancy all over the world that remains an important cause of maternal morbidity and mortality. Ectopic pregnancy in which the fertilized ovum implants in any location other than the endometrial lining of uterus.<sup>8</sup> 97% of ectopic pregnancy occurs in the fallopian tube<sup>9</sup> followed by ovary, cervix, cornue of uterus and abdominal cavity, caesarean scar is recently identified as a nidus for ectopic pregnancy.<sup>10</sup> Worldwide ectopic pregnancy contributed to maternal death is around 10 to 15%.<sup>9</sup> Currently fourfold increase in incidence of ectopic pregnancy in the

industrialized countries due to advanced techniques for diagnosing early ectopic pregnancy and increased prevalence of pelvic inflammatory disease.<sup>11</sup> The reported incidence in Pakistan has been cited as 1:112 to 1:130<sup>12</sup> but the real figures could be higher due to under diagnosis and poor statistical record. In our study use of contraception was the commonest factor of ectopic pregnancy that was observed in 30.3% cases, followed by history of genital infection 22.2%, previous ectopic pregnancy 12% and history of tubal surgery 5.1%. Regarding the age group maximum number of cases occurred in the age group 21-30 years which is quite consistent with result of a study conducted by Pal A, et al<sup>13</sup> in India with maximum incidence in age group of 21 to 35 years.<sup>13</sup> In study conducted by Westrom L, et al<sup>14</sup> pelvic inflammatory disease was a strongest risk factor for ectopic pregnancy. Rose IA et al<sup>15</sup> also reported pelvic inflammatory disease, 9 fold increase risk of ectopic pregnancy. In our study similarly factor like previous ectopic pregnancy and history of genital infection were significantly high in primiparous woman while use of contraception was high in multiparous woman. A Kolkata based study by Majhi AK, et al<sup>16</sup> too revealed the primigravida to be most of the cases. Vyas PS<sup>17</sup> also found 42.5% ectopic pregnancies in ampullary portion and 22.4% in isthmic portion of the tubes. Both right and left side of tubes involved with equal frequency. In 7.5% cases tubes were conserved which coincides with the study from Pakistan by Jabbar FA, et al<sup>18</sup> & Ehsan N, et al.<sup>19</sup> The most frequent procedure in cases is total salpingectomy (45%), salpingo-oophorectomy in 32.5% of cases, the same finding described by Chinurgia in current trends.<sup>20</sup> In the ectopic pregnancy laparoscopic and medical therapy have widely used therapeutic modalities with great success in terms of reduced morbidity, shorter hospital stay and conservation of fertility.<sup>10</sup> However choice depends upon early identification of ectopic pregnancy and stable condition of patient.<sup>21</sup> Mehboob U and Mazhar SB<sup>12</sup> also reported that institutional setting ectopic pregnancy accounted for 1% of total deliveries, more than half of all woman with ectopic pregnancy presented with acute

abdomen and required emergency laparotomy. About 40% woman could be managed with non-surgical modalities with 80% success for methotrexate injection and 71% for conservative treatment in this present study. Although any form of contraception decrease the overall risk of pregnancy including ectopic pregnancy when contraception failure occur in woman using an IUCD or tubal sterilization, risk of ectopic pregnancy is elevated with copper -T approximately 6% failure represent ectopic implantation.<sup>22,23</sup> In another study 97% of ectopic pregnancies are usually found in fallopian tube while 3% may be found in ovary, cervix, broad ligament, uterine cornue and abdominal cavity. Ampullary ectopic presents 70% of all tubal pregnancies.<sup>15</sup> In our study 96% pregnancies were tubal and out of these 78.5% are ampullary while there was only one case of ovarian and other case of abdominal pregnancy.

The tubes serve as complex function in the process of fertilization and transport of the oocytes. At ovulation the fimbriated end of the fallopian tube pick up the expelled oocytes, conduction of egg towards the uterus is thought to be effected primarily by the negative tubal intraluminal pressure generated by muscular contractions, with a secondary contribution from ciliary beating. Impaired muscular contraction as a peri menopausal woman, loss of ciliary action (prior infection, surgery, previous ectopic pregnancy) or physical blocked (tuba ligation) can therefore subsequently increase one's risk of future ectopic pregnancy.<sup>24</sup>

#### **Conclusion:**

Ectopic pregnancy is one of the commonest gynecological emergencies with significant maternal morbidity and mortality. Pelvic inflammatory disease (PID) by far the most common & most preventable etiological factor, efforts for early symptoms recognition & prompt treatment must be developed. The frequency can be reduced by awareness of reproductive health care, Liberal contraceptive utilization, acceptable adequate family planning. Early diagnosis and timely referral may be helpful in treating the patients prior to tubal rupture with decrease

morbidity and mortality.

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**Role and contribution of authors:**

Dr Reeta Chander Parkash, conceived the idea, collected the data references and wrote the initial writeup

Dr Arshia Javed, critically review the article and made the final changes.

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