

Review Article

## Ectopic Pregnancy

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### Abstract:

Ectopic pregnancy remains a major gynecological emergency. Currently it remains a major problem in contemporary gynecological practice and continues to be an important cause of morbidity and mortality in women. Prevalence of ectopic pregnancy is 1-3% worldwide. The true current incidence of ectopic pregnancy is difficult to estimate because many patients are treated in an outpatient setting where events are not tracked and national surveillance data on ectopic pregnancy have not been update. Nearly all ectopic pregnancies are implanted within the fallopian. Ectopic implantation can also occur outside of the fallopian tube, within the cervix, ovary, abdomen, uterine cornua, and cesarean scars. The classic triad of symptoms, amenorrhea, abdominal pain, and abnormal bleeding varies greatly among individuals. Serial evaluation with transvaginal ultrasonography, or serum beta human chorionic gonadotrophin (hCG) level measurement or both often is required to confirm the diagnosis. The most common complication is rupture with internal bleeding which may lead to hypovolemic shock leads to death. So, a timely, early diagnosis can help patients obtain better pregnancy out-comes. The decision for surgical management or medical management of ectopic pregnancy should be guided by the initial clinical, laboratory and radiologic data as well as patient informed choice based on a discussion of the benefits and risks of each approach.

**Key words:** Ectopic pregnancy.

### Introduction

Ectopic pregnancy is a complication of pregnancy in which the embryo attaches outside the uterus.<sup>1</sup> Ectopic pregnancy is defined as any intra or extra uterine pregnancy in which the fertilized ovum implants at an aberrant site which is inconducive to its growth and development.<sup>2</sup> Ectopic pregnancy is a common diagnosis and implantation location varies. Although 97% of ectopics are implanted within the fallopian tube, associated with commonly recognized risk factors, ectopic implantation can occur in other pelvic and abdominal locations that may not have such predisposing risk factors. When ectopic pregnancy is diagnosed early, before rupture, regardless of location, conservative, fertility-sparing treatment options can be successful in terminating the pregnancy. Predisposing risk factors and treatment options can vary and can be ectopic-location specific.<sup>3,4</sup> The classic triad of symptoms, amenorrhea, abdominal pain, and abnormal bleeding varies greatly among individuals and ectopic pregnancies

frequently are confused with other conditions such as ovarian cyst, pelvic inflammatory disease and spontaneous abortion.<sup>5</sup> It is the major cause of

maternal mortality during the first trimester of pregnancy which accounts for 10-15% of all maternal deaths.<sup>6</sup>

### Incidence

Prevalence of ectopic pregnancy is 1-3% worldwide.<sup>7</sup> The incidence in the United States has increased greatly in the last few decades from 4.5 per 1000 pregnancies in 1970 to an estimated 10.7 per 1000 pregnancies in 1992.<sup>8-10</sup> In multicentric case control study in India, the incidence of ectopic pregnancy rate was 3.12 per 1000 pregnancies or 3.86 per 1000 live births.<sup>11</sup> reported an incidence of 2.46 per 1000 deliveries. It is also reported incidence of 16 per 1000 deliveries, found an incidence of 1:399 pregnancies in Mysore, India.<sup>12</sup> In developing countries, a majority of hospital based studies have reported ectopic pregnancy case fatality rate of around 1-3%, 10 times higher than those reported in developed countries.<sup>13</sup> In Bangladesh it was found Incidence of ectopic pregnancy in Bangladesh was 7.4/1000 deliveries.<sup>14</sup> However, the true current incidence of ectopic pregnancy is difficult to estimate because many patients are treated in an outpatient setting where events are not tracked and national surveillance data on ectopic pregnancy have not been update.

### Site of Ectopic Pregnancy

Nearly all ectopic pregnancies (97%) are implanted within the fallopian tube, and a common factor for the development of such ectopics is the presence of a pathologic fallopian tube. Causes of such pathology include genital tract infection caused by gonorrhea and chlamydia, tubal surgery including tubal sterilization, previous ectopic pregnancy, and in utero exposure to diethylstilbestrol.<sup>15,16</sup> Tubal ectopic pregnancy within the tubal ampulla, 70% of all ectopics, and fimbriae, 11% of all ectopics.<sup>17</sup> Ectopic implantation can also occur outside of the fallopian tube, within the cervix, ovary, abdomen, uterine cornua, and cesarean scars. These extra tubal implantations may not be associated with tubal pathology or the expected preexisting risk factors for tubal ectopic implantation. Regardless of location, however, when diagnosed early, before symptoms of rupture, many ectopic pregnancies can be successfully treated conservatively. Up to 12% of ectopics are implanted within the isthmic, or proximal portion of the fallopian tube.<sup>18</sup>

It was found more than 96 percent of ectopic pregnancy occur in the fallopian tubes. Only 4% cases were non tubal pregnancy and most of the patients presented with ruptured tubal pregnancy. Only in 19% of cases tubes were found unruptured and 14% of cases were diagnosed as to be tubal abortion. It was also observed that the commonest site of location of the ectopic pregnancy was in the ampulla of the fallopian tube which is in comparison with others.<sup>19</sup> The sites of ectopic pregnancy were ampullary 52%, isthmic 32%, interstitial 12%, rudimentary horn of a bicornute uterus 2%.<sup>20</sup>

### Risk factors

Ectopic pregnancy can occur at any time during the child bearing age of the woman. It was also found majority of cases were in 21-30 years age groups. The range varies between 16-38 years. Similar findings were found in India, Nigeria and Pakistan.<sup>20-23</sup> In different studies found that 45% of their patients were between 25-35 years.<sup>24-26</sup>

Ectopic pregnancy is closely related with low parity. Although about 11% of the patients were Nulli parous. The peak incidence was among the patients with para-1-2. The incidence is low among those who are para>4. Similar studies found 82.9% were multiparas and 17-20% were Primiparas. However, there was conflicting result from studies by others. It was also

showed there is increased risk of ectopic pregnancy in primigravida. Risk of ectopic pregnancy amongst single women and students than married women.<sup>27-30</sup>

Past history of menstrual regulation, infertility & past history of ectopic pregnancy constitutes the main bulk of the risk factors. Pelvic infection, history of abortion & history of IUCD cases had middle risk factor. IUCD prevents intrauterine pregnancy but not tubal or ovarian pregnancy. History of any operation also had some risks and abortion was the commonest risk factor.<sup>31,32</sup> Post abortal infection leads to tubal damage and thus increases the chances of ectopic pregnancies. Other risk factors included infertility, tubal surgery, previous D&C, previous ectopic pregnancy, appendectomy, previous ectopic and use of OCPs.<sup>33</sup>

### Clinical Presentation

The commonest presenting complaints of a ectopic were abdominal pain, amenorrhea and abnormal vaginal bleeding.<sup>34</sup> Clinical signs included abdominal tenderness, cervical excitation and adnexal tenderness.<sup>35</sup> The commonest presenting symptoms were abdominal pain which was presents in 100% cases, 76% with period of amenorrhoea and 50% with per-vaginal bleeding.<sup>36</sup> In 95% cases presented with abdominal pain, 65% with period of amenorrhoea and 07 % cases with irregular per-vaginal bleeding. In 90% of cases had history of amenorrhea, 87.5% reported pain abdomen, bleeding per vagina encountered in 67.5%.<sup>37</sup> The most frequent clinical presentation was amenorrhea, abdominal pain followed by vaginal bleeding and also shock (22%). It was found that 90% cases had history of abdominal pain, 72% had H/O amenorrhoea, 54% had vaginal bleeding, 34% had syncopal attack. The most common physical sign was abdominal tenderness present in 66% cases and cervical excitation test in 46% cases.<sup>38</sup>

### Diagnostic Evaluation

After taking a very careful history with particular screening of the menstrual, obstetric and contraceptive history, a thorough physical examination was performed and ectopic pregnancy was diagnosed clinically in a large number of cases. Currently, Doppler ultrasonography is not considered to significantly contribute to the diagnosis of ectopic pregnancy.<sup>33</sup> The minimum diagnostic evaluation of a suspected ectopic pregnancy is a transvaginal ultrasound evaluation and confirmation of pregnancy. Serial evaluation



with transvaginal ultrasonography, or serum beta human chorionic gonadotrophin (hCG) level measurement or both often is required to confirm the diagnosis.

#### **Fatal Complications**

The most common complication is rupture with internal bleeding which may lead to hypovolemic shock. Death from rupture is the leading cause of death in the first trimester of the pregnancy.<sup>34</sup> The incidence of pelvic inflammatory disease has increased among the young women. Infection following induced abortion is the major cause of Pelvic inflammatory disease and the risk of ectopic pregnancy 10 times higher in areas with a high incidence of illegal abortion.<sup>35</sup> Kumer et al<sup>36</sup> found risks for ectopic pregnancy are higher in women with damage to fallopian tubes because of pelvic infections, pelvic surgery or previous ectopic pregnancy and smokers. Fatalities due to ectopic pregnancies generally are associated with patient delay, failure to make an accurate diagnosis or delay or ineffective treatment.<sup>10</sup>

#### **Treatment Protocol**

Medical management with methotrexate can be considered for women with a confirmed or high clinical suspicion of ectopic pregnancy who are hemodynamically stable, who have an unruptured mass, and who do not have absolute contraindications to methotrexate administration<sup>37</sup> These patients generally also are candidates for surgical management. The decision for surgical management or medical management of ectopic pregnancy should be guided by the initial clinical, laboratory and radiologic data as well as patient informed choice based on a discussion of the benefits and risks of each approach. Khatun et al<sup>20</sup> showed in her study, the laparotomy was done all patients. The ectopic tubal pregnancy was ruptured or grossly damaged in most of the cases. Among them salpingectomy with or without contralateral tubectomy was (88%) done. Only in 5 cases salpingo-oophorectomy was performed. One case was done excision of the cornu of the uterus. Jesmin et al<sup>38</sup> found 93%, Kulsum et al<sup>22</sup> 91%, Perveen et al<sup>28</sup> 86%

J. Dhaka National Med. Coll. Hos. 2020; 26 (02): 36-40 patients undergone salpingectomy. The most common surgeries performed by Yeasmin et al<sup>16</sup> were partial/total salpingectomy, salpingo-oophorectomy and salpingostomy. Conservative surgery is superior to radical surgery at preserving fertility. Islam et al<sup>21</sup> done unilateral salpingectomy (58%), salpingectomy with contralateral tubectomy in 18% cases, salpingo-oophorectomy in 8% cases, resection of bicornuate uterus and total abdominal hysterectomy was done in 4% cases.

#### **Conclusion**

Abdominal pain and amenorrhea are the most consistent features of ectopic pregnancy. Rupture ectopic pregnancy is the most serious gynaecological emergency due to internal haemorrhage, shock and sepsis which leads to maternal morbidity and mortality. Emphasizes the early diagnosis by clinical suspicion, better investigation which also modify the mode of treatment. Prompt conservative surgical or medical management which will not only help in reducing maternal mortality and morbidity rates but which also helps to preservation the tube and future fertility.

#### **References**

1. Crochet JR, Bastian LA, Chireau MV. "Does this woman have an ectopic pregnancy?: the rational clinical examination systematic review". JAMA. 2013; 309 (16): 1722-9.
2. Howard W, John A, Rock, Ectopic pregnancy. Telinde's Operative Gynaecology. 11th ed. Philadelphia, Lippincott Williams and Wilkins; 2015:798.
3. Fylstra DL. Ectopic pregnancy not within the (distal) fallopian tube: etiology, diagnosis, and treatment. AJOG. 2012; 289-99.
4. MMWR. Ectopic pregnancy—United States, 1990-1992. Centers for Disease Control and Prevention (CDC). MMWR Morb Mortal Wkly Rep 1995; 44:46-8.
5. Nancy C, Osguthore. Ectopic pregnancy. Journal of Obstetric, Gynecology & Neonatal Nursing 1987; 16:36-41.

6. Mahboob U, Mazhar SB. Management of ectopic pregnancy : a two-year study. Ayub Med Coll Abbottabad. 2006; 18:37-7.
7. Shetty SK, Shetty AK. A clinical study of ectopic pregnancies in a tertiary care hospital of Mangalore, India. Innovative journal of Medical and Health Science 2014; 4 (1):305-30.
8. Goldner TE, Lawson HW, Xia Z, Atrash HK. Surveillance for ectopic pregnancy - United States, 1970-1989. MMWR CDC Surveillance Summaries. 1993; 42:73-85.
9. Current trends ectopic pregnancy-United states, 1990-1992. MMWR Morb Mortal Wkly Rep 1995; 44:46-8.
10. MMWR-CDC Surveillance Summaries. Ectopic pregnancy in the US, 1979-1980. 1984; 33:155-75.
11. ICMR Task Force Project: multicentre case control study of ectopic pregnancy in India. J Obstet Gynaecol India; 40; 425-30.
12. Guta R, porwal S, Swarnkar M, Sharma N, Maheshwari P. Incidence, trends and risk factors for Ectopic pregnancies in a tertiary care hospital of Rajasthan. JPBMS. 2012; 16 (07): 1-3.
13. Raina A, Bajpal M. Experience with ectopic pregnancy in a hospital in India. Indian journal of Applied Research. 2015; 5 (4):535-37.
14. Gaddagi RA, Chandrashekhar AP. A Clinical Study of Ectopic Pregnancy. Journal of Clinical and Diagnostic Research. 2012; 6(5):867-69.
15. Kumar P, Malhotra N. Ectopic Pregnancy. Jefeotat's principles of Gynaecology. 8th ed. 2008; 142-159.
16. Yeasmin MS, Uddin MJ, Hasan E. A Clinical Study of Ectopic pregnancy in a Tertiary care Hospital of Chittagong, Bangladesh. Chattagram Maa- O-Shishu Hospital Medical College journal. 2014; 1-4.
17. Ankum WM, Mol BWJ, Van der Veen F, Bod- duy PM. Risk factors for ectopic pregnancy: a meta-analysis. Fertil Steril 1996; 65:1093-99.
18. Peterson HB, Xia Z, Hughes JM, Wilcox LS, Tylor LR, Trussell J. The risk of ectopic pregnancy after tubal sterilization: US Collaborative Review of Sterilization Working Group. N Engl J Med 1997; 336:762-70.
19. Bouyer J, Coste J, Fernandez H, Pouly JL, Job-Spira N. Site of ectopic pregnancy: a 10 year population-based study of 1800 cases. Hum Reprod 2002; 17:3224-30.
20. Khatun MHA, Anwar-ul-Azim AKM, Haque E. An analysis of 50 cases of Ectopic pregnancy in Dhaka National Medical Institute Hospital. Bangladesh. Private Medical Practitioners Journal 2006; 12(2):61- 65.
21. Islam N. Diagnostic clues and management of ectopic pregnancy in sir salimullah medical college and Mitford, Dhaka. Bangladesh J Obstet Gynaecol. 2018; 33:49-53.
22. Kulsum SU. Study of ectopic pregnancy: a prospective study of 100 cases. Bangladesh College of Physicians and Surgons. 2003; 47:59.
23. Shah N, Khan NH. Ectopic pregnancy: pregnancy and risk factor. JCPSP 2005; 15:535-35.
24. Majhi AK, Roy N, Karmakar KS, Banerjee PK. Ectopic pregnancy- an analysis of 180 cases. Indian Med Assoc. 2007; 105:308-312.
25. Shaikh NB, Shaikh S, Shaikh F. A Clinical study of Ectopic pregnancy. J Ayub Med Coll Abbottabd. 2014; 26:178-81.
26. Etuknnwa BT, Azuonyemaechiokpara P, Imo PA. Ectopic pregnancy: A Nigeria Urban Experience. Korean Obstet Gynecol. 2012; 55:309-14.
27. Siddiqua S, Alam MM, Khan TMA. Ectopic pregnancy-Adiagnostic dilemma. Bangladesh J Obstet Gynaecol. 2004; 119:7-10.
28. Parveen U. Varied clinical presentation of ectopic pregnancy in tertiary care hospital. Bangladesh College of physicians and Surgons. 2006; 52:67.
29. Majhi AK, Roy N, Karmakar KS, Banerjee PK. Ectopic pregnancy- an analysis of 180 cases. Indian Med Assoc. 2007; 105:308-312.
30. Islam A, Fawad A, Shah AA, Jadoon H, Sarwar I, Abbasi. Analysis of Two Years Cases of Ectopic Pregnancy. J Ayub Med Coll Abbottabad 2017; 29: 65-67.
31. Etuknnwa BT, Azuonyemaechiokpara P, Imo PA. Ectopic pregnancy: A Nigeria Urban Experience. Korean Obstet Gynecol. 2012; 55:309-14.

32. Sindhura M, Sailatha R, Famida A. Trends in ectopic pregnancy: a retrospective clinical study of 79 cases. *Int J Reprod Contracept, Obstet Gynecol.* 2017;6:3009-3013.
33. Kirk E, Bottomley C, Bourne T. Diagnosing ectopic pregnancy and current concepts in the management of pregnancy of unknown location. *Human reproduction update.* 2014; 250-61.
34. Ectopic pregnancy ([http:// nhp. gov. in/ disease/ gynaecology - and- obstetrics/ectopic-pregnancy](http://nhp.gov.in/disease/gynaecology-and-obstetrics/ectopic-pregnancy)). Retrieved 4 December 2018.
35. Breen JL. A 21 year surgery of 654 ectopic pregnancies. *Am J Obstet Gynaecol.* 1970; 106: 1007.
36. Kumer V. Tubal ectopic pregnancy. *BMJ Clin Evid.* 2015; 2015: 1406
37. Medical treatment of ectopic pregnancy: a committee opinion. Practice committee of American Society for Reproductive Medicine. *Fertil Steril.* 2013; 100:638-44.
38. Jesmin S. An analysis of 60 cases of tubal ectopic pregnancy in RMCH. *Bangladesh College of Physicians and Surgeons.* 2003; 55:62.