

Sonological Evaluation of Ectopic Pregnancy-an Analysis of 50 Cases

Dipu Das^{*1}, Sandip Kanungo², Shahina Akhter³, Natia Rahnuma⁴

Abstract

Introduction: Ectopic pregnancy is the implantation of a fertilized egg in a location outside of the uterine cavity, including the fallopian tubes, cervix, ovary, cornual region of the uterus, and the abdominal cavity. **Objective:** To evaluate the sonological findings of ectopic pregnancy. **Materials and Methods:** A descriptive study was carried out at ultrasound unit in Lab-Aid diagnostic, Comfort Medical Services and Green View Diagnostic Complex in Sylhet city between January 2012 to January 2014. We included all cases with confirmed diagnosis of ectopic pregnancy, all antenatal mothers who are present in antenatal unit in a selected Hospital and excluded mothers with other associated medical condition. **Results:** Common clinical pattern were shock, marked pallor ness, abdominal pain, amenorrhea and irregular vaginal bleeding 52%, 66%, 62%, 54% and 38% respectively. Risk factor of ectopic pregnant in this study, 40% had history of infertility, 06% had Non tuberculous PID, 70% had no risk factor, 04% had tuberculous PID, 14% had previous abdominal pelvic surgery, 18% had previous ectopic and 10% had endometriosis. **Conclusion:** Common clinical pattern were shock, marked pallor ness, abdominal pain, amenorrhea and irregular vaginal bleeding. History of infertility, Non tuberculous PID, no risk factor, tuberculous PID, previous abdominal pelvic surgery, previous ectopic and endometriosis were risk factor of ectopic pregnant in this study.

Key words: Ectopic pregnancy, Sonological evaluation.

Number of Tables: 05; **Number of References:** 20; **Number of Correspondence:** 04.

*1. Corresponding Author: Dr. Dipu Das

Assistant Professor
Dept of Obs and Gynae
Jalalabad Ragib Rabeya Medical College Hospital, Sylhet.
Email: drsandip058@gmail.com
Mobile: 01711449703

2. Dr. Sandip Kanungo

Assistant Professor
Family Medicine
Bangladesh College of General Practitioner, Dhaka.

3. Dr. Shahina Akhter

Assistant Professor
Dept of Obs and Gynae
Jalalabad Ragib Rabeya Medical College Hospital, Sylhet.

4. Dr. Natia Rahnuma

Assistant Professor
Dept of Obs and Gynae
Jalalabad Ragib Rabeya Medical College Hospital, Sylhet.

Introduction:

Ectopic pregnancy is the implantation of a fertilized egg in a location outside of the uterine cavity, including the fallopian tubes, cervix, ovary, cornual region of the uterus, and the abdominal cavity. Ectopic pregnancy can lead to massive haemorrhage, infertility, or death¹. At first an ectopic pregnancy develops like a normal pregnancy and the same symptoms such as nausea and tender breasts will be present. However, some women do not have these symptoms and do not suspect that they might be pregnant. The vaginal bleeding can vary from being slight or brown vaginal discharge to being like a normal period². An ectopic pregnancy starts out in the unruptured state, which is when the mass is still small enough to fit in the fallopian tube. However, if left untreated

for too long, the mass will continue to grow until it eventually gets so large that it will rupture the tube. All these treatments are forms of abortion and woman's chances of survival if she does not abort are very less comparatively³. Ectopic pregnancy is a high-risk condition that occurs in 1.9 percent of reported pregnancies. The condition is the leading cause of pregnancy-related death in the first trimester. Pregnancies in the fallopian tube account for 97 percent of ectopic pregnancies: 55 percent in the ampulla; 25 percent in the isthmus; 17 percent in the fimbria; and 3 percent in the abdominal cavity, ovary, and cervix. Ruptured ectopic pregnancy accounts for 10 to 15 percent of all maternal deaths⁴. A study on woman with an ectopic pregnancy reported that increased knowledge and awareness among health-care providers as well as technologic advances have decreased the risk of death from ectopic pregnancies. More sensitive pregnancy tests and improved diagnostic procedures have contributed to earlier and more rapid diagnosis of ectopic pregnancy⁵. Chronic ectopic pregnancy is often an enigma and a correct diagnosis is frequently not made until exploratory laparotomy. Hemodynamic stability, chronicity of symptoms, and a high incidence of false-negative pregnancy tests and culdocentesis results are clinical characteristics distinguishing it from the more common acute ectopic pregnancy. Dense adhesions and occasional abscess formation are surgical features that characterize the chronic ectopic pregnancy⁶.

The value of ultrasound in ectopic pregnancy diagnosis has been demonstrated^{7,8}. Ectopic pregnancy incidence has risen, and although only approximately 1% of gestations are extrauterine, these account for 4% of direct maternal deaths⁹. The combination of specific ultrasound findings with serum β -human chorionic gonadotropin measurements

can detect as many as 96% of ectopic pregnancies with a specificity of 100%. These same studies show a positive predictive value of 100% and a negative predictive value of 92% in women with a clinical suspicion of an ectopic pregnancy¹⁰. Given established risk factors or clinical suspicion, early ultrasound is recommended.

Materials and Methods:

A descriptive study was carried out at ultrasound unit in Lab-Aid diagnostic, Comfort Medical Services and Green View Diagnostic Complex in Sylhet city between January 2012 to January 2014. We included all cases with confirmed diagnosis of ectopic pregnancy, all antenatal mothers who are present in antenatal unit in a selected Hospital and excluded mothers with other associated medical condition. The diagnosis was primarily made clinically later on supplemented by sonological findings, HCG estimation, surgical findings and histopathological report. A proforma was used to collect the details regarding age, parity, risk factors, clinical pattern and management of the cases. Data were fed to SPSS program version 17 to analyse the results in terms of frequencies and percentages.

Results:

Total ultrasound was done in pregnant patients 3139 patients, out of them 56(1.78%) patients was suspected ectopic pregnancy, and finally included in this study 50 cases (Table-I).

Table-I: Prevalence of ectopic pregnancy of the study population.

	Number	Percentage
Total ultrasound in pregnant patients	3139	100%
Ectopic pregnant suspected	56	1.78%
Finally included	50	1.59%

Mean age was 24.59(±4.86) minimum age was 18 and 33 years, maximum age group was 26-30 years of age which was 42% (Table-II).

Table -II: Age group distribution of the study population.

Age group	Number	Percentage
≤ 20 years	09	18
21-25 years	13	26
26-30 years	21	42
>30 years	07	14
Total	50	100
Mean ±SD	24.59 (±4.86)	Range 18-33 years

Majority 46% was nuli para, 38% were primi para and 16% was multi para (Table-III).

Table-III: Distribution of parity.

Parity	Number	Percentage
Nuli para	23	46
Primi para	19	38
Multi para	08	16
Total	50	100

Common clinical pattern were shock, marked pallor ness, abdominal pain, amenorrhoea and irregular vaginal bleeding 52%, 66%, 62%, 54% and 38% respectively (Table-IV).

Table-IV: Clinical pattern of the study population.

Clinical pattern	Number of patients	Percentage
Shock	26	52
Marked pallor ness	33	66
Abdominal pain	31	62
Amenorrhoea	27	54
Irregular vaginal bleeding	19	38
Adnexal Mass	07	14
Syncopal attacks	04	08
Jaundice	01	02

Risk factor of ectopic pregnant in this study, 40% had history of infertility, 06% had Non tuberculous PID, 70% had no risk factor, 04% had tuberculous PID, 14% had previous abdominal pelvic surgery, 18% had previous ectopic and 10% had endometriosis (Table-V).

Table-V: Risk factors of the study population.

Risk factors	Number of patients	Percentage
History of infertility	20	40
Non tuberculous PID	03	06
No risk factor	35	70
Tuberculous PID	02	04
Previous abdominal pelvic surgery	07	14
Previous ectopic	09	18
Endometriosis	05	10

Discussion:

The current study found the incidence of ectopic pregnancy as 1.59% deliveries. Common clinical pattern were shock, marked pallor ness, abdominal pain, amenorrhoea and irregular vaginal bleeding were found as the main predisposing factors. Worldwide the incidence has been reported as between 1:84 to 1:2301¹¹. Our reported incidence is comparable with the reports from other developing countries^{12,13}. However it was found lower than that reported by industrialized countries¹¹.

The reason can be related to the availability of advanced diagnostic aids for early asymptomatic ectopic pregnancies as well as more organized set up of health care system for registration in developed countries¹⁴. Majority of the patients were of low parity, younger age and had the history of infertility, non tuberculous PID, no risk factor, tuberculous PID, previous abdominal pelvic surgery, previous ectopic and endometriosis were the risk factors. Women often become victims of chronic pelvic inflammatory disease. Westrom and Pirii found pelvic inflammatory disease as the strongest risk factor for the pathogenesis of ectopic pregnancy¹⁵. Rose¹⁶ reported a 9 fold increased risk for ectopic pregnancy in patients with pelvic inflammatory disease and emphasized the importance of usage of condoms. The alarming rise of pelvic inflammatory disease need a preventive strategy with promotion of health education, in particular the safe sexual practice in our community. Emphasis should be towards treatment of both partners for complete cure. The classical pattern of period of amenorrhoea and abdominal pain was lacking in most of the patients, however a provisional diagnosis was made in the light of risk factors, clinical features and sonological findings. Nevertheless the diagnosis

was initially missed in three patients who were admitted at medical ward as suspected case of chronic liver disease due to the clinical presentation of anemia and jaundice. Later on these patients were identified as cases of ruptured ectopic with massive hemoperitoneum. Considering the variable presentation of ectopic pregnancy the diagnosis of ectopic requires a high index of suspicion regarding its possibility in reproductive age, particularly with pre-existing risk factors¹⁷.

Majhi AK et al study reported the peak age of incidence was 26-30 years; primi were the most sufferers. There were 65.0% patients was had identifiable risk factors. Tubectomy (14.4%), history of abortion (26.1%), infertility (12.2%), pelvic inflammatory diseases (12.8%) and history of previous surgery (11.1%) were the important risk factors. Amenorrhoea (76.1%), abdominal pain (86.1%) and vaginal bleeding (42.2%) were the frequent presenting complaints. There were 87.8% patients was had pallor, 9.4% were admitted with features of shock. Cervical motion tenderness (82.2%) was the most frequent sign. Urinary beta-hCG was positive in 96.1% cases. Ultrasonography revealed diagnosis in 2/3rds cases among 129 patients. Culdocentesis evoked the diagnosis in 73.3% cases out of 135 patients. In 95.0% cases it was of tubal variety, 70.2% ruptured, 19.9% tubal abortion and 9.9% unruptured. Surgery by open method in the form of salpingectomy (81.9%), salpingo-oophorectomy (9.3%) and salpingostomy (5.3%) were the mainstay of management. Expectant management and medical therapy can be offered only in 1.2% and 1.75% respectively. There was no case fatality. By reducing and identifying the risk factors and 'catching' the patients at the earliest it is possible to improve the prognosis so far as morbidity, mortality and fertility are concerned. Ectopic pregnancies are a common gynecologic emergency that typically are impacting otherwise healthy individuals and can have significant morbidity and mortality. Continued improvement in the ultrasonographic evaluation of these patients will aid in decreasing the mortality that continues to be associated with ruptured ectopic pregnancies¹⁸⁻²⁰.

Conclusion:

Common clinical pattern were shock, marked pallor, abdominal pain, amenorrhoea and irregular vaginal bleeding. History of infertility, non tuberculous PID, no risk factor, tuberculous PID, previous abdominal pelvic surgery, previous ectopic and endometriosis were risk factor of ectopic pregnant in this study.

Conflict of Interest: None.

Acknowledgement:

This is my great pleasure to express profound gratitude to Medicine Today.

References:

1. Sivalingam VN, Duncan WC, Kirk E, Lucy A Shephard, Andrew W Horne. Diagnosis and Management of Ectopic Pregnancy. *J Fam Plann Reprod Health Care*. 2011; 37(4):231-240.

<https://doi.org/10.1136/jfprhc-2011-0073>

PMid:21727242 PMID:PMC3213855

2. Chatterjee S. Ectopic Pregnancy in Previously Infertile Women Subsequent Pregnancy Outcome after Laparoscopic Management. *Al Ameen J Med Sci*. 2009;2(1):67-72.

3. www.womens-health.co.uk/ectopic.asp

4. Hoover, Karen W, Tao. Trends in the Diagnosis and Treatment of Ectopic Pregnancy in the United States. *Obstetrics & Gynaecology Journal*. 2010;115(3):495-502.

<https://doi.org/10.1097/AOG.0b013e3181d0c328>

PMid:20177279

5. A Shephard, Andrew W Horne. Diagnosis and Management of Ectopic Pregnancy. *J Fam Plann Reprod Health Care*. 2011; 37(4):231-240.

<https://doi.org/10.1136/jfprhc-2011-0073>

PMid:21727242 PMID:PMC3213855

6. Anderson, Frank W. J, Hogan, Joanne G, Ansbacher, Rudi. Sudden Death: Ectopic Pregnancy Mortality. *Obstetrics & Gynecology*. 2004;103(6):1218-1223.

<https://doi.org/10.1097/01.AOG.0000127595.54974.0c>

PMid:15172855

7. Fleischer AC, Pennel RG, McKee MS, Worrell JA, Keefe B, Herbert CM, et al. Ectopic pregnancy: features at transvaginal sonography. *Radiol*. 1990; 174:375-8.

<https://doi.org/10.1148/radiology.174.2.1688662>

PMid:1688662

8. Dashefsky SM, Lyons EA, Levi CS, Lindsay DJ. Suspected ectopic pregnancy: endovaginal and transvaginal ultrasound. *Radiol*. 1988; 169:181-4.

<https://doi.org/10.1148/radiology.169.1.3047783>

PMid:3047783

9. Turner LA, Cyr M, Kinch RAH, Liston R, Kramer MS, Fair M, et al. Under-reporting of maternal mortality: a question of definition for the Maternal Mortality and Morbidity Study Group of the Canadian Perinatal Surveillance System. *Chronic Diseases in Canada*. 2002;23(1).

10. Fleischer AC, Pennell RG, McKee MS, Worrell JA, Keefe B, Herbert CM, et al. Ectopic pregnancy: features at transvaginal sonography. *Radiology*. 1998; 197:375-8.

<https://doi.org/10.1148/radiology.174.2.1688662>

PMid:1688662

11. Bangash N, Ahmed H. Study of 65 cases of ectopic pregnancy during one year period in military hospital. *Pak Armed Forces Med J*. 2004; 54 (2): 205-8.

12. Vyas PS, Vaidya P. Epidemiology, diagnosis and management of ectopic pregnancy: an analysis of 196 cases. *Bombay Hosp J*. 2000; 42(3): 458-65.

13. Tabussum R, Saeed MA, Ahmed M, Naureen S, Khan HN. Risk factors for tubal ectopic pregnancy. *J Surg Pak*. 2005; 10(4):22-5.

14. Wagh KV, Patel S. Ectopic pregnancy 125 cases. *J Obstet Gynecol India*. 1968;18(3):370-4.

15. Westrom L, Bengtsson LPH, Mardha PA. Incidence, trends and risks of ectopic pregnancy in a population of women. *Br Med J.* 1981; 282:15-8.
<https://doi.org/10.1136/bmj.282.6257.15>
PMid:6778549 PMCID:PMC1503785
16. Rose IA, Ayodeji O, Olantunji OA, Sylvia A. Risk factors for ectopic pregnancy in Lagos, Nigeria. *Acta Obstetrica et Gynaecol Scand.* 2005; 84 (2):184-8.
<https://doi.org/10.1111/j.0001-6349.2005.00684.x>
PMid:15683381
17. Latchaw G, Tackacs P, Gaitan L, Gren S, Burzawa J. Risk factors associated with rupture of tubal ectopic pregnancy. *Gynecol Obstet Invest.* 2005; 60:177-180.
<https://doi.org/10.1159/000088032>
PMid:16141721
18. Beals T, Naraghi L, Grossestreuer A, Schafer J, Balk D, Hoffmann B. Point of care ultrasound is associated with decreased ED length of stay for symptomatic early pregnancy. *Am J Emerg Med.* 2019 Jun;37(6):1165-1168.
<https://doi.org/10.1016/j.ajem.2019.03.025>
PMid:30948256
19. Wang PS, Rodgers SK, Horrow MM. Ultrasound of the First Trimester. *Radiol Clin North Am.* 2019 May;57(3):617-633.
<https://doi.org/10.1016/j.rcl.2019.01.006>
PMid:30928081
20. Mukherjee R, Samanta S. Surgical emergencies in pregnancy in the era of modern diagnostics and treatment. *Taiwan J Obstet Gynecol.* 2019 Mar;58(2):177-182.
<https://doi.org/10.1016/j.tjog.2019.01.001>
PMid:30910134