Original Research Article

A study on risk factors and clinical presentation of ectopic pregnancy in women attending a tertiary care centre

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International Archives of Integrated Medicine, Vol. 3, Issue 1, January, 2016.

Available online at http://iaimjournal.com/
ISSN: 2394-0026 (P) **ISSN: 2394-0034 (O)**
Received on: 30-12-2015 **Accepted on:** 06-01-2016
Source of support: Nil **Conflict of interest:** None declared.
How to cite this article: Prasanna B, Jhansi CB, Swathi K, Shaik MV. A study on risk factors and clinical presentation of ectopic pregnancy in women attending a tertiary care centre. IAIM, 2016; 3(1): 90-96.

Abstract

Aim: The present study was designed to study the ectopic pregnancy risk factors and their clinical presentation in ectopic pregnancy attending to a tertiary care center.

Material and methods: It was a prospective study with 50 cases of ectopic pregnancy conducted in the Department of Obstetrics and Gynecology, Narayana Medical College and Hospital, Nellore for a period of 2 years were included. Detailed history suggestive of risk factors for ectopic pregnancy, menstrual and obstetric history was taken. General, systemic, abdominal and vaginal examination was done.

Results: A total of 2777 pregnancies were confirmed during the study period, of which 50 cases of ectopic pregnancies were diagnosed, giving an incidence of 1.8%. 74% were in the age group of 21-30 years. 84% of women were multigravidae and 16% were primigravidae. 80% of the patients had identifiable risk factors, of which past history of PID in 26%, history of previous abortion in 16%, infertility in 10%, uterine anomalies in 4%, history of previous ectopic pregnancy in 6%, usage of IUCD and OCP in 6% each and tubectomy in 6% were noted. 96% had amenorrhea, followed by pain abdomen in 90%, bleeding PV in 68%, fainting and syncopal attack in 16% of the patients. Pallor in 56% of the cases, 18% presented with shock was noted. Percentage of haemoglobin was <7gm% in 28% observed. Evidence of 41 patients with ruptured ectopic were recorded. 7 were unruptured ectopics and 3 were tubal abortions recorded.

Conclusion: Increasing awareness regarding safe sexual practices and contraception decrease abortions and reduces the risk of ectopic pregnancy. All high risk women should be screened at the earliest with serum β-hCG and TVS. The impact on future fertility can be improved by focusing on primary prevention and early diagnosis before rupture.

Key words

Ectopic pregnancy, Infertility, Contraception.

Introduction

Motherhood is a dream of every woman. This dream is not always pleasant but may have some nightmares through her journey. Ectopic pregnancy is one of the nightmare and a life threatening condition. The rising incidence of ectopic pregnancy in the past few years is due to a number of risk factors which include pelvic inflammatory disease and availability of better diagnostic techniques. There is increased frequency of ectopic after IVF and related techniques. Tubal pregnancy may be due to factors that retard the passage of fertilized ovum, conditions which increase tubal receptivity and factors intrinsic in the conceptus.

PID is the commonest cause of ectopic pregnancy. It may be due to STI, mainly chlamydia and gonorrhea and others being post-abortal, puerperal or secondary to an extra genital pelvic infection or surgery [1]. According to ACOG (1998), prior PID due to Chlamydia Trachomatis is the most common risk factor. It has been reported by Westrom that chances of ectopic after one episode of salpingitis is 12.8%, 30% after two episodes and nearly 75% after three episodes of salpingitis [2]. Salpingitis Isthmica Nodosa is a non-inflammatory pathologic condition of the tube. The tubal epithelium extends into the myosalpinx forming a true diverticulum. There will be abnormal myometrial electrical activity over the diverticula favours ectopic implantation. The risk of tubal pregnancy after any sterilization procedure is 5% to 16% [3].

Intrauterine Contraceptive Device (IUCD) prevent intrauterine pregnancy effectively, tubal implantation to a lesser extent and chances of ovarian pregnancy are more. Cu-T 380A and Levenorgestrel device have got the lowest rate of ectopic and progestasart has got the highest rate [4]. Progestational agents inhibit tubal motility and favors ectopic pregnancy.

Tubal diverticula, accessory ostia and atresia of the tube may distort the lumen. Congenital absence of the segments of fallopian tube with peritoneal fistulas can predispose to tubal pregnancy. Mullerian anomalies can increase the risk of ectopic pregnancy.

Increase in chromosomal abnormalities with advancing age and age-related changes in tubal function delays ovum transport there by resulting in tubal implantation [5].

Smoking causes ectopic by delayed ovulation, altered tubal and uterine motility and or altered immunity. DES exposure causes the tubal abnormalities like shortened and convoluted tubes, constricted fimbria, and paratubal cysts favours ectopic implantation. The risk of ectopic pregnancy increases in women who conceive via ART. The first IVF pregnancy, before the first IVF live birth, was a tubal ectopic pregnancy [6]. Higher volume of transfer media or deep catheter insertion may predispose to tubal transfer. Tubal reconstructive surgery increases the risk of ectopic.

The recent studies have focused on molecular level factors. Alterations in the molecular dialog between the blastocyst and the site of implantation may lead to ectopic pregnancy. Some possible factors are lectin, integrin, matrix-degrading cumulus and their inhibitors,

prostaglandins, host of growth factors, cytokines and their receptors and modulator proteins [7, 8].

Material and methods

Source of study

It was a prospective study conducted in the Department of Obstetrics and Gynecology, Narayana Medical College and Hospital, Nellore for a period of 2 years (October 2012 – September 2014). 50 cases of ectopic pregnancy were diagnosed and recruited for the study after taking their consent for participation.

Inclusion criteria

All the cases diagnosed as ectopic pregnancy admitted to Narayana Medical College and Hospital, Nellore during the study period of 2 years.

Exclusion criteria

All intrauterine pregnancies.

Methodology

- Detailed history including age, socioeconomic status, and history suggestive of risk factors for ectopic pregnancy, menstrual and obstetric history were taken.
- General, systemic, abdominal and vaginal examination was done.
- Informed consent was taken and data were recorded on the proforma.
- TVS / TAS were done.
- Apart from routine surgical profile, β-hCG assay, UPT, coagulation profile, Renal function tests, Liver function tests.

Statistical analysis

- Data was collected and tabulated as shown in results.
- Statistical analysis was done using Microsoft Excel.
- Frequency and percentage of each parameter was calculated and analyzed.

Results

A total of 50 cases of ectopic pregnancies were diagnosed during the study period of 2 years. The results were analyzed under the following headings.

Ectopic pregnancy – Incidence

A total of 2777 pregnancies were confirmed during the study period, of which 50 cases of ectopic pregnancies were diagnosed, giving an incidence of 1.8%.

Ectopic pregnancy – Age distribution

In the present study group, age distribution varied from 18 - 40 years. Majority of women (74%) were in the age group of 21-30 years. 6% and 20% of women were in the age group of <20 years and 31-40 years respectively.

Ectopic pregnancy – Socioeconomic status (SES)

In our study group, majority of women with ectopic pregnancy (74%) belonged to low socio economic status and 26% belonged to high socioeconomic status.

Ectopic pregnancy – Gravidity

In the present study group, 84% of women were multigravidae and 16% were primigravidae (**Table - 1**).

Table – 1: Ectopic pregnancy – Gravidity.

Gravidity	No/ Total	%
Primi	8/50	16
2nd	25/50	50
3rd	14/50	28
>3	3/50	6

Ectopic pregnancy – Risk factors

In our study group, 80% of the patients had identifiable risk factors, of which past history of PID was present in 26%, history of previous abortion/ dilatation and curettage (D & C) in 16%, infertility in 10%, uterine anomalies in 4%, history of previous ectopic pregnancy in 6%, usage of intrauterine contraceptive device (IUCD) and oral contraceptive pills (OCP) in 6% each and history of tubectomy in 6% were noted. Only 20% of the patients were without any prior risk factors (**Table – 2**, **Figure - 1**).

Table – 2: Ectopic pregnancy – Risk factors.

Risk factors	No/ Total	%
No risk factor	10/50	20
PID	13/50	26
History of Abortion	8/50	16
Uterine anomalies	2/50	4
Previous ectopic	3/50	6
IUD	3/50	6
OCP	3/50	6
Infertility	5/50	10
Tubectomy	3/50	6

Ectopic pregnancy – Clinical presentation

In the present study group, 96% of women had history of amenorrhea, followed by pain abdomen in 90%, history of bleeding per vagina (PV) in 68%, fainting and syncopal attack in 16% of the patients. 8% of the patients presented with other symptoms like nausea, vomiting, shoulder tip pain and dysperunia.

Ectopic presentation – General physical examination (GPE)

In our study group, pallor was present in 56% of the cases, 18% presented with shock and 44% of the patients were hemodynamically stable.

Ectopic pregnancy – Clinical findings

On abdominal examination, the common presentation was tenderness in 44 (88%) patients, followed by distension in 11 (22%) and guarding in 7 (14%) patients. No clinical abnormality was found in 3 (6%) cases.

Ectopic pregnancy – Hemoglobin %

In the present study group, Hb% was <7 gm% in 28% of the patients and 72% had >7 gm% of hemoglobin.

Ectopic pregnancy – Urine pregnancy test (UPT)

In our study group, among 50 patients, UPT was positive in 47 cases (94%) and negative in only 3 cases (6%).

Ectopic pregnancy – Ultrasonography (USG)

In the present study group, USG showed evidence of rupture in 41 patients and 9 were diagnosed as unruptured ectopic. In the present study group, out of 50 patients, 7 were unruptured ectopics, 3 were tubal abortions and 40 were ruptured ectopic pregnancies. On USG, 1 tubal abortion was given as ruptured ectopic and 2 were diagnosed as unruptured ectopic due to minimal free fluid in pouch of Douglas (POD).

Discussion

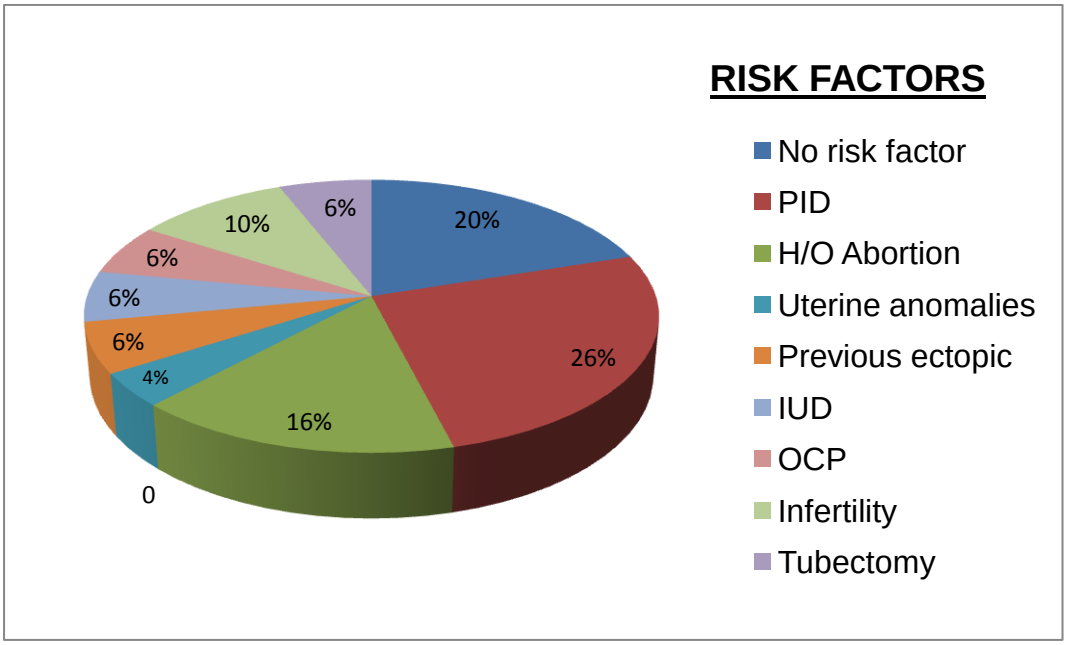
A total of 50 cases of ectopic pregnancies were recruited in the study group. A total of 2777 pregnancies were confirmed during the study period, out of which 50 cases were diagnosed as ectopic pregnancies giving an incidence of 1.8%. The present study is correlating with the study done by Musa, et al. [9] (1.74%). Rising incidence of Sexually Transmitted Infections, induced abortions, social and life style changes, late child bearing in career women, Assisted Reproductive Technologies and advances in diagnostic techniques are the contributing factors for rising incidence of ectopic pregnancy globally.

Majority of women (74%) in our study group belonged to the age group of 21-30 years, which is close to the studies done by Samiya Mufti, et al. [10] (75.4%), Panchal D, et al. [11] (71.66%) and Rashmi A Gaddagi, et al. [12] (70.2%). Most of the women in India marry at an early age and completes their family at an early age. This age corresponds to the age of peak sexual activity and reproduction.

In our study group, most of the women belonged to low socioeconomic status (74%) which is close to the study done by Poonam, et al. [13] (69.3%). Women belonging to low socioeconomic status will have poor personal hygiene and lack of immunity, predisposing them to pelvic inflammatory diseases including tuberculosis. In the present study group, majority of women with ectopic pregnancy were multigravidae (84%). This correlates with the

studies done by Shraddha Shetty K, et al. [14] (83.9%), Panchal D, et al. [11] (81.66%) and Poonam, et al. [13] (83.6%). The higher incidence in multigravidae is probably due to previous miscarriages and infections resulting in tubal damage.

Figure – 1: Ectopic pregnancy and Risk factors.



In the present study group, HISTORY OF PID was present in 26% of the cases with ectopic pregnancy. This is correlating with the study done by Bhavna, et al. [15] 22.7%of the cases with ectopic pregnancy.

Endosalpingitis damages the mucosa and may entrap the migrating embryo, leading to ectopic implantation. Exosalpingitis give rise to peritubal adhesions, impairing peristaltic movements, giving rise to inadequate transportation.

In the present study group, 16% of patients had history of previous abortion which is close to the study done by Khaleeque F, et al. [16] (12.9%). The relationship between prior abortions and ectopic pregnancy is explained by the post-abortal infections leading to tubal damage. In the past, these post-abortal infections were due to illegal abortions which were not done under aseptic precautions and lack of proper antibiotic coverage.

In our study group, 10% of the women with ectopic pregnancy were infertile which is correlating with the studies done by Panchal D, et al. [11] (11.66%) and Samiya Mufti, et al. [10] (8.77%). The association between infertility, previous pelvic infection and tubal pathology is the possible explanation.

In our study group, 6% of the women had history of previous ectopic pregnancy which is correlating with the studies done by Dr. Samiya Mufti, et al. [10] (5.26%) and Uzma Shabab, et al. [17] (5%). There is increased risk of ectopic with previous ectopic pregnancy because it reflects the underlying tubal pathology which is almost always bilateral.

In our study group, 6% of the women with ectopic pregnancy had tubal sterilization which correlates with the studies done by Uzma Shabab, et al. [17] (5%) and Shrestha, et al. [18] (5%). Improper surgical technique and formation of peritubal fistulas may result in ectopic pregnancy. In postpartum period, edematous,

congested and friable tube increases the chance of incomplete tubal occlusion resulting in ectopic implantation. 6% of women with IUCD had ectopic pregnancy which correlates with the studies done by Shraddha Shetty K, et al. [14] (6.4%), Shrestha, et al. [18] (5%) and W.M. Fageeh [19] (5.8%). IUCD has no effect on ovulation; it prevents intrauterine pregnancy but not tubal and ovarian pregnancy. The risk of tubal pregnancy is more if a woman conceives with IUCD in situ.

In the present study group, 96% of the patients had history of amenorrhea, 90% had history of pain abdomen and 68% had bleeding PV. This is correlating with the study done by Gupta R, et al. [20] in which amenorrhea was present in 90%, pain abdomen in 87.5% and bleeding PV in 67.5% of the patients.

In our study group, pallor was present in 56% of the cases which is close to the study done by Uzma Shabab, et al. [17] (52.5%). According to the National Family health survey III (2005-2006), the prevalence of anemia in India is 57.9%. Preexisting anemia with superimposed acute blood loss explains the higher incidence of pallor in ruptured ectopic pregnancy. 18% of the cases presented in shock which is correlating with the study done by Panchal D, et al. [11] (18.33%). These patients presented late with signs of rupture and hypovolemia. Decompensation with shock is a sign of significant intraperitoneal hemorrhage.

Urine pregnancy test was positive in 94% of the cases which correlated with the study done by Rashmi A Gaddagi, et al. [12] (97.3%) and W.M. Fageeh [19] (96%). The availability of more sensitive (5 mIU/mL) urine pregnancy kits makes the test positive and in making an early diagnosis.

Conclusion

The rise in the incidence of ectopic pregnancy is going in parallel with the rise in the incidence of risk factors like Sexually Transmitted Infections, increased tubal sterilization and reversal, delayed child bearing, Assisted Reproductive Technology, increased awareness and improvements in diagnostic techniques available. Despite many advances in the diagnostic techniques, ectopic pregnancy is still a diagnostic dilemma because of its varied clinical presentation.

Increasing awareness among sexually active women and men regarding safe sexual practices and contraception decrease abortions and reduces the risk of ectopic pregnancy. All high risk women should be screened at the earliest with serum β-hCG and TVS. The impact on future fertility can be improved by focussing on primary prevention and early diagnosis before rupture.

References

1. Diquelou JY, Pia P, Tesquier L, Henry-Suchet J, Gicquel J M, Boyer S. The role of Chlamydia trachomatis in the infectious etiology of extra-uterine pregnancy. J Gynecol Obstet Biol Reprod (Paris), 1988; 17: 325-332.
2. Westrom L, Joesoef R, Reynolds G, Hagdu A, Thompson SE. Pelvic inflammatory disease and fertility. Sex Trans Dis., 1992; 19: 185.
3. Chi IC, Potts M, Wilkens L. Rare events associated with tubal sterilizations: an international experience. Obstet Gynecol Surv., 1986; 41: 7-19.
4. Dutta D.C. Textbook of Obstetrics. 7th edition. Jaypee Medical Publishers; 2013. Chapter 15, Hemorrhage in early pregnancy; p. 177-189
5. Bouyer J, Coste J, Shojaei T, Pouly JL, Fernandez H, Gerbaud L, Job-Spira N. Risk factors for ectopic pregnancy: a comprehensive analysis based on a large case control, population-based study in France. Am J Epidemiol., 2003; 157: 185–194.

6. Steptoe PC, Edwards RG. Reimplantation of a human embryo with subsequent tubal pregnancy. Lancet, 1976; 1: 880–882.
7. Attar E. Endocrinology of ectopic pregnancy. Obstet Gynecol Clin N Am., 2004; 31: 779–794.
8. Bai SX, Wang YL, Qin L, Xiao ZJ, Herva R, Piao YS. Dynamic expression of matrix metalloproteinases (MMP-2, -9 and -14) and the tissue inhibitors of MMPs (TIMP-1, -2 and -3) at the implantation site during tubal pregnancy. Reproduction, 2005; 129: 103–113.
9. Musa J, Daru PH, Mutihir JT, Ujah IA. Ectopic pregnancy in Jos Northern Nigeria: prevalence and impact on subsequent fertility. Niger J Med., 2009; 18: 35-38.
10. Samiya M, Shagufta R, Samina M, Reyaz A R, Wasiqa K. Ectopic pregnancy: An analysis of 114 cases. JK-Practitioner, 2012; 17(4): 20-23.
11. Panchal D, Vaishnav G, Solanki K. Study of Management in Patient with Ectopic Pregnancy. National Journal of Integrated Research in Medicine, 2011; 2(3): 91-94.
12. Rashmi A Gaddagi, AP Chandrashekhar. A Clinical Study of Ectopic Pregnancy. Journal of Clinical and Diagnostic Research, 2012; 6: 867-869.
13. Poonam Y, Uprety D, Banerjee B. Ectopic Pregnancy - two years review from BPKIHS, Nepal. Kathmandu Uni Med J., 2005; 3: 365-9
14. Shetty S, Shetty A. A clinical Study of Ectopic Pregnancies in a Tertiary care hospital of Mangalore, India. Innovative Journal of Medical and Health Science, 2014; 4(1): 305-309.
15. Bhavna, Gupta K.B, Pathania K, Jindal M, Vohra R, Ahmed M. Risk Factors For Ectopic Pregnancy: A Case Control Study In Tertiary Care Centre. Journal of Dental and Medical Sciences, 2014; 13(3): 23-27.
16. Khaleeque F, Siddiqui RI, Jafarey SN. Ectopic pregnancies: A Three year study. J Pak Med Assoc., 2001; 51: 240–243.
17. Shabab U, Hashmi HA. Different pattern of presentation of ectopic pregnancy and its management. Journal of Surgery Pakistan (International), 2013; 18: 1.
18. Shrestha J, Saha R. Comparison of laparoscopy and laparotomy in the surgical management of ectopic pregnancy. J Coll Physicians Surg Pak., 2012; 22: 760–764.
19. Fageeh W M. Diagnosis and Management of Ectopic Pregnancyin King Abdulaziz University Hospital: A Four Year Experience. Medical Science, 2008; 15(2).
20. Gupta R, Porwal S, Swarnkar M, Sharma N, Maheshwari P. Incidence, trends and risk factors for Ectopic Pregnancies in a tertiary care hospital of Rajasthan. J Pharm Biomed Sci., 2012; 16(07): 1-3.