

Clinicosociodemographic Profile of Ruptured Ectopic Pregnancies at a Tertiary Care Centre

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Abstract: ***Background:** Rupture of an ectopic pregnancy remains the most dreaded complication of a pregnancy related event and is the commonest cause of maternal mortality in the first trimester of pregnancy. In the developing countries, the maternal death rate among patients admitted with ectopic pregnancy was found to be as high as one in ten. In addition to high risk for mortality, rupture of an ectopic pregnancy could affect future fertility of a woman. The objectives of this study are to analyse the sociodemographic and clinical characteristics and find out the incidence rate and risk factors associated with ruptured ectopic pregnancies in a tertiary care institution. **Methods:** This is a retrospective study and was conducted over a period of 6 months from November 2015 to May 2016 in Department of Obstetrics and Gynecology at Nalanda Medical college and hospital, Patna, India. It is a tertiary care centre. During this time frame a total of 1232 deliveries have taken place and 28 cases of ectopic pregnancies were reported, out of which 24 cases presented with ruptured ectopic pregnancy. Data were collected in a preconceived format and the software SSPS 15 was used for analysis. **Results:** Total numbers of vaginal deliveries were 1232 during the study period. Out of which 28 (2.27%) were found to be ectopic pregnancies and 24(1.94%) were diagnosed as ruptured ectopic pregnancies. Maximum number of patients (71.4%) were between 21 and 30 years of age. As far as parity is concerned only 14.2 % of patients were primigravida where as 85.7% patients were multigravida. Previous history of pelvic inflammatory disease was associated among maximum number of cases i.e 53.5% of total number of cases. Among other risk factors, previous abortions, previous ectopic pregnancies and history of infertility treatment were the prime ones. Maximum numbers of patients were from lower and lower middle class socioeconomic status. Ampullary types of Tubal ectopic pregnancies were found to be the commonest ones Two cornual pregnancies and one ovarian pregnancy was also found in this study. In 85.71 % of patients the amount of hemoperitoneum was found to be more than 500 ml. **Conclusions:** There is high incidence rate of ectopic pregnancy and low rate of diagnosis before rupture occurs in developing nations as in our scenario. Pelvic inflammatory disease, maternal education, socioeconomic status, parity and history of subfertility are the risk factors associated with ruptured ectopic pregnancy. Effective efforts should be taken to encourage the level of education and improve the rate of diagnosis among health care providers before the occurrence of rupture.*

Keywords: Ectopic pregnancy, Fallopian tube, Maternal mortality

1. Introduction

Rupture of an ectopic pregnancy remains the most common cause of maternal mortality in the first trimester of pregnancy. 1,2 Fallopian tubes are the most common site for ectopic pregnancies. Cervix, ovaries, abdomen or the caesarean section scar could be other rare sites that are involved by an ectopic gestation and have an incidence of less than 10% of the patients. 3 Risk of rupture remains the most important concern among such patients and the management of which is the biggest challenge for obstetricians especially when patients with ruptured ectopic pregnancy with resulting hemoperitoneum and shock are found in the first instance while admission. In the developing countries the maternal death rate among patients admitted with ectopic pregnancy was found to be as high as one in ten. 4

As far as diagnosis of ruptured ectopic is concerned no particular investigation including serum or urinary beta human chorionic gonadotropin and transvaginal ultrasonography are conclusive and sometimes a surgical approach is required for the differential diagnosis. 5,6 In addition to high risk for mortality, rupture of an ectopic pregnancy could affect future fertility of a woman.

2. Objectives

The objectives of this study are to find out the following factors in a tertiary care institution.

- The incidence of ruptured ectopic pregnancy and its relation to various factors like age group and parity.
- The various risk factors associated with ruptured ectopic pregnancy.
- The various clinical presentation and its outcome in ruptured ectopic pregnancies

3. Methods

This is a retrospective study and was conducted over a period of 6 months from November 2015 to May 2016 in Department of Obstetrics and Gynecology at Nalanda Medical College and Hospital, Patna, India. It is a tertiary care centre getting referrals not only from nearby cities and hospitals but also from major cities of neighbour states. During this time frame a total of 1232 deliveries have taken place and 24 cases of ruptured ectopic pregnancies were reported.

Data were collected in a preconceived format. The case sheets of patients with ectopic pregnancy were traced through labour ward registers and operation theatre registers. Information regarding total number of deliveries during study period, details of demographic characteristics,

presenting clinical symptoms and signs, parity, use of contraception, diagnostic tool used, detail obstetric history, risk factors for ectopic pregnancy, site of ectopic pregnancy, genital infections, line of management as well as morbidity and morbidity were obtained. Relevant investigations included complete blood picture, blood group, urine pregnancy test (UPT), and ultrasound. Based on thorough evaluation, type of management was decided.

Data were collected, tabulated and analyzed. Statistical analysis done by using the statistical software SPSS version 15.

4. Results

Total numbers of vaginal deliveries were 1232 during the study period. Out of which 28 were found to be ectopic pregnancies and 24 were diagnosed as ruptured ectopic pregnancies. This is shown in Table 1. In all cases, urine pregnancy was done for provisional diagnosis.

Table 1: Incidence of Ruptured ectopic Pregnancies

Total no. of deliveries	1232
Total no. of ectopic pregnancies	28 (2.27%)
Total no. of Ruptured ectopic pregnancies	24 (1.94%)

Table 2: Socio demographic parameters

Age (years)	No. of patients(N = 28)	Percent
<20	1	3.5%
21 - 30	20	71.4%
>31	7	25%
Parity		
Primi	4	14.2%
Multi	24	85.7%
Risk factor		
PID	15	53.5%
Abortion	4	14.28%
Previous Ectopic Pregnancy	4	14.28%
H/o infertility	3	10.71%
Socio economic Class		
Low middle class	8	28.5%
Lower class	20	71.4%

USG helped in diagnosing all the cases of ectopic pregnancy. Gestational age ranges between 4 and 14 weeks, and the most frequent gestational age was around 6-8 weeks. Right sided ectopic (16/28 patients) were more common than the left side. As shown in Table 2 maximum number of patients (71.4%) were between 21 and 30 years of age. As far as parity is concerned only 14.2 % of patients were primigravida where as 85.7% patients were multigravida. Previous history of pelvic inflammatory disease was associated among maximum number of cases i.e 53.5% of total number of cases. Among other risk factors, abortions, previous ectopic pregnancies and history of infertility treatment were associated with 14.28%, 14.28% and 10.71 % of total number of cases respectively. Maximum number of patients were from lower and lower middle class socioeconomic status.

Common clinical findings that were found in the subjects comprising this study are abdominal distension, abdominal tenderness, cervical motion tenderness, fainting attack, mass in fornices and shock as quoted in Table 3. That also shows various sites that are involved by the ectopic pregnancies in

the study group. Tubal ectopic pregnancies were found to be the commonest ones and as far as various sub sites on fallopian tube is concerned it is the ampulla (64.2%) followed by isthmus (25%) that were commonly involved. Two cornual pregnancies (7.1%) and one ovarian pregnancies were also found in this series. In 85.7 % of patients the amount of hemoperitoneum was found to be more than 500 ml.

Table 3: Clinical Parameters

Clinical Findings	Frequency	Percentage
Pain lower abdomen	20	71.4%
Bleeding p/v	16	57.1%
Cervical motion tenderness	19	67.8%
Abdominal distension	12	42.8%
Shock	6	21.4%
Mass in the fornix	15	53.5%
Site		
Ampulla	18	64.2%
Isthmus	7	25%
Cornual	2	7.1%
Ovarian	1	3.5%
Fimbria	None	
Amount of Haemoperitoneum		
<500 ml	4	14.28%
>500 ml	20	71.4%

5. Discussion

Young fertile women with low parity are generally affected by Ectopic pregnancies. In addition to preventing maternal mortality, immediate attention to these symptomatic high risk group and early diagnosis before rupture, could improve their future fertility.⁷ The incidence of ectopic pregnancy has been following a variable trend in different parts of world. Some showing an increasing trend while others showing a falling trend.⁸⁻¹⁰

The current study showed a high incidence rate of ectopic pregnancy i.e. 2.27 % and the incidence of ruptured ectopic pregnancy being 1.94 % in this region of India. Higher prevalence of infectious diseases particularly tuberculosis in this part of India, that could damage the uterine tubes might explain such higher incidence rate of ectopic pregnancy. The incidence rate found in our report is very close to rates reported in studies from other developing countries.^{7,11-14}

In developing countries like India there is very low rate of diagnosis of unruptured ectopic pregnancy. In our study only 0.32% of ectopic pregnancies were diagnosed before they ruptured. This finding is consistent with study reports from other developing countries.¹¹ This could be because of two reasons. First, large number of women in rural areas of India are reluctant to use a proper method of contraception. Second, lack of health education especially in rural areas of India. Therefore, reduction of the present high rates of ruptured ectopic pregnancy and early diagnosis before rupture may be achieved by encouragement of public health education.

Maximum cases of ruptured ectopic pregnancies were found in age group of 21- 30 years in our study report as well as in various other studies.^{16,17} This finding is in correspondence with the fact that this is the peak age of sexual activity.

studies from different centres are in the view of ampullary pregnancy being the most common type of ectopic pregnancy which is also a finding of our study. 18-20 As found in our study the preponderance of ectopic pregnancies on the right Fallopian tube is similar to trends all over the world.^{7, 21, 22} Nordenskjöld and Ahlgren attributed this right-sided preponderance to appendicitis.²²

For both developed and developing countries it's a common fact that pelvic inflammatory disease is a major risk factor for ectopic pregnancy.²³ Our study report shows 53.5 % of patients were associated with pelvic inflammatory disease. Other study reports are also having similar findings.^{12, 13, 24} Other factors like previous history of abortion and history of previous ectopic gestation were also predisposing factors for ectopic pregnancy. ^{14,25,26} Most common presenting symptom was pain in abdomen which was seen in 71.4% cases followed by history of amenorrhea (80.76%) were similar with Shetty and Shetty. ²⁷ Bleeding per vaginum found in 57.1% cases which is comparable with a study by Yakasai et al.²⁸

Classical triad found in 53.84% cases which is comparable to a study by Singh et al (60%). ²⁹ In present study, 6 out of 28 (21.4%) cases presented to the hospital in shock. On clinical examination, it is found that abdominal tenderness present in 85.96 % cases which is consistent with a study carried out by Gaddagi and Chandrashekhar. ³⁰ Abdominal distension found in 42.8% of patients. Cervical motion tenderness noticed in 78.94% cases which is comparable with Gaddagi and Chandrashekhar. ³⁰ Adnexal mass felt in 56.53% cases which is comparable with Gaddagi and Chandrashekhar. ³⁰

A ruptured ectopic pregnancy may manifest itself with abdominal pain, rebound tenderness, and hemorrhagic/hypovolemic shock.³¹ In our study we found 21.4% of cases of ruptured ectopic pregnancy were admitted with shock and 85.71% of cases were found to be with hemoperitoneum of more than 500ml of blood.

6. Limitations

The retrospective design and inability to compare the risk factors with normal pregnancies has rendered these factors into epidemiological samples in our study. The lack of classified treatment protocols for the medical and surgical procedures to be applied to the patients constitutes another limitation.

7. Conclusion

There is high incidence rate of ectopic pregnancies and the rate of diagnosis is very low before rupture in developing nations as in our scenario. Pelvic inflammatory disease, Poor maternal education, low socioeconomic status and history of subfertility are the risk factors associated with ruptured ectopic pregnancy. There should be more efforts to encourage the level of education not only among common people but also among primary health care provider to improve the rate of diagnosis before the occurrence of rupture. Public awareness programmes should be launched to educate reproductive age group women about the risk

factors through electronic media like TV, radio, or newspapers. All these patients should register themselves at a specialist hospital for care of their pregnancy where specialist gynecologists and facilities for diagnosis and treatment of Ectopic pregnancy are available. Finally, more prospective studies are needed in order to perform risk stratification and to define accurate diagnostic criteria for ectopic pregnancy and ruptured ectopic pregnancy.

8. Funding

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9. Conflict of interest

None declared

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