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Ectopic Pregnancy-Risk Factors, Clinical Presentation and Management in a Tertiary Centre of Jharkhand

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Abstract

In spite of the tremendous advances in obstetric care and technology, ectopic pregnancy remains an enigma for a women full of dreams of blissful motherhood, as it may turn into a nightmare and a catastrophe. An ectopic pregnancy or eccyesis is a complication of pregnancy in which the embryo attaches outside the uterus1. An ectopic pregnancy is an obstetric emergency if not treated properly, it not only leads to fetal wastage, but also increases the incidence of maternal morbidity and mortality and may even lead to problems of future infertility.

Objective-1.To determine the various risk factors.2.To assess the varied clinical presentations.3.To assess the mode of treatment.4.To determine the associated maternal morbidity and mortality**.**

Place And Duration- The present study was conducted in RIMS, Ranchi from April 2016 – September 2017.Total 102 cases of ectopic pregnancy were admitted in this duration. This was a Prospective Observational type of study.

Material and methods-All cases coming to RIMS, Obstetrics & Gynaecology suspected clinically as ectopic pregnancy were admitted .The diagnosis was made on detailed history, clinical examination, routine & special investigations[UPT,USG(TAS+TVS)].The diagnosis was confirmed on operative findings. The surgical and medical treatment given was noted and the post-operative period was observed.Data was analyzed to determine the incidence, risk factors, varied clinical presentations, mode of treatment and the morbidity and mortality associated with ectopic pregnancy**.**

Patient's performa- A detailed clinical record sheet was prepared for all patients at the time of admission with particular reference to following points:Name,Age,Religion-Hindu/Muslim/Christian /Others,Tribe/Non-tribal,Address

History- I. Medical history

1.Complaints and their duration – They were noted in chronological order of their appearance.

2.Menstrual History-Age of menarche First day of last menstrual period Duration of menstruation Duration of cycle in days Amount of blood loss-average/heavy/ scanty Inter-menstrual bleeding or discharge

3.Obstetrical History-Each pregnancy was recorded in the following plan: Gravida ,Parity, Duration of pregnancy, Labour-normal / abnormal, Delivery-Home/Hospital, Pueperal period,Infant-Boy/Girl,

alive/dead and well being,Birth weight, Breast fed or not

Contraceptive History- Use of oral contraceptives, intrauterine contraceptive devices, history of ligation if present were recorded.

Any history of infertility and the treatment given was noted.

Past History- Previous history of illness such as tuberculosis, PID, appendicitis or any other gynaecological treatment including operative procedures.

Family History- Family history of tuberculosis, hypertension, diabetes was enquired.

Personal History-Vegetarian/non-vegetarian .Any addiction was noted.

II. Social history

Marital Status- Married with date of marriage, single, widow, Educational status

Occupation, Socioeconomic status-Monthly family income Based on Kuppuswamy's socioeconomic status scale 2007 the study group divided into

Poor,Lower middle class,Upper middle class,High class.

Physical Examination

General Examination,Level of consciousness,Height in cm,Weight in kgs,Height-weight relation-thin/average/overweight,Anaemia,Cyanosis,Jaundice,Oedema,Temperature,Blood pressure,CVS,Chest

Local Examination

Per Abdomen-Inspection

Palpation - to note tenderness, guarding, if any lump felt then its margins, consistency, surface, tenderness and mobility.

Percussion- to note any shifting dullness and fluid thrill Auscultation.

Pelvic Examination-Inspection of vulva, vagina and cervix,Bimanual examination

Results- There were 13,204 total obstetric admission in which 102 cases were ectopic pregnancies. It shows that the incidence of ectopic pregnancy in RIMS is 7.7 cases per 1000 pregnancies. . Youngest patient admitted with ectopic pregnancy was of 19 years and oldest was of 38 years.Maximum incidence seen among the age group of 26-30 years is 36.42. Majority of the patients (71.57%) belonged to the non- tribal group and maximum in hindu females(68.63%). The lower socioeconomic strata i.e. poor 33.33% and lower middle 50% constituted the major bulk of the cases i.e. together they constituted 83.33% cases. The maximum number of patients were nullipara. The next group that was affected was the para 1 and para 2 patients.

Conclusion- Incidence was high in the present series, mainly due to increased prevalence of PID and tuberculosis.

- Ectopic pregnancy was more prevalent in nulliparous women. Average age incidence was lower in the population studied. It shows that the predisposing factors sets in the affected women in early reproductive life and as no parity status or age was spared, it proved that the factors are found in all age groups throughout a women's reproductive life.

Key words- Ectopic pregnancy, obstetric emergency, fetal wastage, maternal morbidity and mortality, future infertility, nulliparity.

Introduction

Inspite of the tremendous advances in obstetric care and technology, ectopic pregnancy remains an enigma for a women full of dreams of blissfull motherhood, as it may turn into a nightmare and a catastrophe. An ectopic pregnancy or eccyesis is a complication of pregnancy in which the embryo attaches outside the uterus.i An

ectopic pregnancy is an obstetric emergency if not treated properly, it not only leads to fetal wastage, but also increases the incidence of maternal morbidity and mortality and may even lead to problems of future infertility. The prevalence of ectopic pregnancy among women who go to an emergency department with first trimester bleeding, pain or both ranges from 6-16%.The overall incidence of ectopic pregnancy increased during the mid-twentieth century, plateauing at approximately 20/1000 pregnancies in 1990's, the last time national data were reported by the Centre of Disease Control (CDC 1990-1992).The incidence of ectopic pregnancy is approx. 1-2% of all first trimester pregnancies (in US).This small proportion accounts for 6% of all pregnancy related deaths.ii It is the most common cause of death in first trimester above 10% of the total. iii The risk of death in developed world is 0 1-0.3% while in developing world it is between 1 and 3 %.iv The incidence of ectopic pregnancy is increasing and this has been attributed to the rising incidence of risk factors such as Pelvic inflammatory disease, uses of intrauterine contraceptive device, tubal surgeries, infertility, D&C, previous ectopic pregnancy, etc. Ectopic pregnancy can be classified into tubal, non-tubal, heterotopic pregnancy and persistent ectopic pregnancy.

1.Tubal pregnancy: - Nearly 95% of ectopic pregnancy occur in various segments of fallopian tube .Pregnancies can grow in the ampullary section, isthmus, fimbrial end and interstitial part of the tube. Ampulla is the most common site i.e. >80% of ectopic gestations occur in the ampullary part of the fallopian tube followed by the isthmusAbnormal fallopian tube anatomy underlies many cases of tubal ectopic pregnancy. There is history of previous tubal surgeries like sterilization, cases of tubal ectopic pregnancy. There is history of previous tubal surgeries like sterilization, fertility restoration, previous ectopic v and also prior history of pelvic inflammatory disease.

2.Non-tubal pregnancy: - Less than 5% ectopic pregnancies occur in ovary, cervix or intra abdominal. Ovarian pregnancy are most common type of non-tubal pregnancyvi. Abdominal pregnancies are of two types primary and secondary of which secondary pregnancies are common. Cervical pregnancies are less than 1% and very rarevii.

3. Heterotopic pregnancy:-In rare cases of ectopic pregnancy there may be two fertilized eggs, one inside the uterus i.e. intrauterine and one outside which is ectopic pregnancy. .This is called heterotopic pregnancy. Patients who underwent assisted reproduction have a much higher incidence of heterotopic pregnancyviii.

4. Persistent ectopic pregnancy :-It refers to the continuation of trophoblastic growth after a surgical intervention to remove an ectopic pregnancy (e.g. salpingostomy, fimbrial expression). The incidence of persistent ectopic pregnancy increased with the increased use of surgery that conserves the tubes.

The faulty implantation in ectopic pregnancy occurs because of defect in anatomy or normal function of uterus, in the fallopian tube (as can result from surgical or infectious scarring or hormonal imbalances), ovary (as can occur in women undergoing fertility treatment) or uterus (in cases of bicornuate uterus or caesarean delivery).The fertilized ovum burrows through the mucous membrane of the tube followed by minimal decidual change at the site of implantation. Muscles undergo limited hyperplasia and hypertrophy but more stretching. The tube at the implantation site is distended and wall thinned out. The decidua develops all the characteristics of intrauterine pregnancy except that it

contains no evidence of chorionic villi. In majority cases, tubal rupture occurs leading to massive intraperitoneal haemorrhage. In some cases, tubal abortion may occur with extrusion of gestational sac into the peritoneal cavity.

The classic clinical triad of ectopic pregnancy is amenorrhea, pain and vaginal bleeding. Unfortunately only about 50% of patients present with all 3 symptoms and is typical in patients with a ruptured ectopic pregnancy**.** ix Pain is the most persistent symptom. An ectopic pregnancy should be considered as one of the cause of abdominal pain or vaginal bleeding in every women who has positive pregnancy test**.**xEctopic pregnancy may have varied atypical presentation. No other gynaecological or obstetrical condition produces as atypical and variable picture as ectopic pregnancy. Upto 10% of women with ectopic pregnancy have no symptoms and one third have no medical signs gynaecological or obstetrical condition produces as atypical and variable picture as ectopic pregnancy. Upto 10% of women with ectopic pregnancy have no symptoms and one third have no medical signs.

The early diagnosis of ectopic pregnancy is one of the greatest challenge and the importance of early diagnosis lies in the fact that the lady can be offered conservative management which can have beneficial effect on her reproductive life. The diagnosis of ectopic pregnancy is mostly a clinical diagnosis but relies on Ultrasound scanning (TAS +TVS), serial B-HCG levels, Laparoscopy or Laparotomy, Culdocentesis. Quantitative B-HCG is the diagnostic cornerstone of ectopic pregnancy. It is an accurate screening test for detection of ectopic pregnancy and assay is positive in virtually all the cases. The B-HCG doubling time can help to differentiate an ectopic pregnancy from an intrauterine pregnancy. Transvaginal USG is superior to transabdominal USG in evaluating intrapelvic structures. Intrauterine pregnancy can be diagnosed 1 week earlier in TVS than TAS. The closeness of vaginal probe to the pelvic organs allows the use of higher frequencies (5-7 mHz), which improves the resolution. Laparoscopy is the gold standard for the diagnosis of ectopic pregnancy. Culdocentesis was widely used as a diagnostic technique for ectopic pregnancy. With the use of HCG testing and TVS, culdocentesis is rarely indicated.

Ectopic pregnancy can be managed expectantly, medically and surgically. The treatment approach depends on the clinical circumstances, the site of ectopic pregnancy and the available resources. In expectant management only observation is done hoping for spontaneous resolution. Most women are followed up with serum hCG measurements and repeat TVS examinations. Number of chemotherapeutic agents have been used either systemic or direct local as medical management of ectopic pregnancy. The drug most frequently used for medical management of ectopic pregnancy is methotrexate and other drugs used are potassium chloride, prostaglandins (PGF2), hyperosmolar glucose, actinomycin and RU-486. Methotrexate is given in single dose and multidose regimen in haemodynamically stable patients. Laparoscopy has become the recommended surgical approach in most cases. Laparotomy is usually reserved for patients who are haemodynamically unstable. It is estimated that rate of pregnancy of unknown location that eventually undergo surgery is between 0.5 and 11 percent.x

Ectopic pregnancy is the most common life threatening emergency in early pregnancy. It is still a major health problem in women of child bearing age in our country and continues to be an important cause of morbidity and

mortality. As ectopic pregnancy has variable presentations from asymptomatic to life threatening condition, this study was conducted with the aim to determine the clinical profile of patients presenting with ectopic pregnancy and determine the various risk factors, so as to make recommendations on interventions to reduce the incidence of this condition

Methodology

The present study was conducted in RIMS, Ranchi from April 2016 - September 2017.Total 102 cases of ectopic pregnancy were admitted in this duration. This was a Prospective Observational type of study All cases coming to RIMS, Obstetrics & Gynaecology suspected clinically as ectopic pregnancy were admitted .The diagnosis was made on detailed history, clinical examination, routine & special investigations[UPT,USG(TAS+TVS)].The diagnosis was confirmed on operative findings. The surgical and medical treatment given was noted and the post-operative period was observed.Data of all the patients were collected from a specially designed performa pertaining to patients particulars'clinical examinations,investigations,diagnosis and surgical procedures,it is then subjected to statistical analysis.All the surgical procedures and medical management and investigations were conducted under direct guidance andv supervision of our guide.Before start of our study,informed consent was obtained from each patients.

Results

Table I- The Risk Factors for ectopic pregnancy(n=102)

Condition	No. of cases	Percentage
PID	31	30.04
TB	6	5.87
Appendicitis	2	1.94
MTP	24	23.02
Spontaneous abortion	18	17.60
Caesarean section	6	5.87
Ligation/IUCD	4	3.92
Laparotomy for previous ectopic	2	1.94
Treatment of infertility	10	9.80
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Among the predisposing factors causing ectopic pregnancies PID constituted31 (30.04%) cases had PID. History of MTP was found in 24 cases (23.02%) and spontaneous abortion in 18 cases. There was history of previous surgeries in 12 cases which included caesarean section in 6 cases, ligation in 4 cases and laparotomy for previous ectopic pregnancy in 2 cases.

Table – II Symptoms of ectopic pregnancy

Symptoms	No. of cases	Percentage
Pain abdomen	100	98.03
Amenorrhoea	89	87.26
Irregular vaginal	75	73.53
Syncope	25	24.51
Lump abdomen	9	8.82

Among the presenting symptoms pain abdomen was the commonest constituting 98.03%. The other symptoms in decreasing frequency were amenorrhoea (87.26%), irregular vaginal bleeding (73.53%), syncope (24.51%) and lump abdomen (8.82%).

TABLE-III Signs of suspected ectopic pregnancy

Physical findings	No. of cases	Percentage
General Examination		
• Tachycardia	92	90.20

■ Pallor	83	81.37
-Mild	12	11.76
-Moderate	39	38.23
-Severe	32	31.37
■ Shock	39	38.24
Abdominal Examination		
■ Tenderness	95	93.14
■ Fullness	80	78.43
■ Rigidity	23	22.55
■ Distension	33	32.35
Vaginal Examination		
■ Cervical motion tenderness	89	87.25
■ Fullness in fornices	77	75.49
■ Adnexal mass	25	24.50
■ Enlarged uterus	12	11.76

The signs that were present in almost all the patients with ectopic pregnancy were pallor (81.37%) and tachycardia in 90.20%. Abdominal tenderness was present in 93.14% cases and fullness in 78.43% cases. Cervical motion tenderness was elicited in 87.25% cases and the uterus was found to be of normal size in majority of cases.

Table- IV Investigations for diagnosis of ectopic pregnancy (n=102)

Investigations	No. of cases
Urine pregnancy test	102
• Positive	98
• Negative	4
Ultrasonography(TAS+TVS)	102
• Positive findings	100
• Negative	2
Sr B-HCG1	5

1Sr B-HCG levels were done in patients with unruptured cases who were supposed to undergo medical management.

Pregnancy test was done in all the cases and it was positive in 98 cases and negative in 4 cases.

Table- V Ultrasonographic findings (n=102)

Findings	No. of cases	Percentage
TO mass with Gest. Sac	13	
• With Cardiac activity	2	1.96
• Without Cardiac activity	11	10.78
TOM Gest.sac	14	13.73
Collection in POD	38	37.25
Intra-peritoneal collection	45	44.12
Others*	2	1.96

In USG the most common finding was intra-peritoneal collection in 45 cases. Collection in Pouch of douglas was seen in 38 cases, TO mass with gestational sac in 13 cases and without gestational sac in 14 cases.*1 case of abdominal pregnancy was misdiagnosed as a case of Intrauterine foetal death and 1 case of pregnancy in rudimentary horn as abdominal pregnancy.

Table-VI Sites of ectopic pregnancy at laparotomy (n=102)

Site	No. of cases	Percentage
Tubal	93	91.18
Ovarian	4	3.92
Rudimentary horn	3	2.94
Abdominal	2	1.96

Tube was the most common site of ectopic pregnancy constituting 93 cases (91.18%). There were 4 cases of

ovarian pregnancy and 3 cases of rudimentary horn pregnancy and 2 cases of abdominal pregnancy.

Table-VII Management of cases

Method	No. of cases	Percentage
Medical management	5	4.90
Surgical-Laparotomy	97	95.10

5 cases were managed medically with injection methotrexate and the rest 97 were managed surgically by performing laparotomy

Table-VIII Operative procedures employed

Procedure	No. of cases	Percentage
.Salpingectomy/Seg.Resection*	80	82.47
Salpingostomy	2	2.06
Salpingo-oophorectomy	4	4.13
Oophorectomy	4	4.13
Excision of Sac in Abdominal pregnancy	2	2.06
Rudimentary horn resection	3	3.09
Fimbriectomy Salpingectomy was the most common surgical method employed in the Salpingectomy was the most common	2	2.06

Salpingectomy was the most common surgical method employed in the treatment of ruptured ectopic pregnancy constituting 80 cases (82.47%).* In few cases segmental resection of the tube was also done. Salpingo- oophorectomy was done in 4 cases, salpingostomy in 2 cases, oophorectomy in 4 cases, rudimentary horn resection in 3 cases and fimbriectomy in 2 cases. In 2 cases of abdominal pregnancy dead foetus was taken out with placenta as much as possible.

Table-IX Associated intra-operative findings at laparotomy

Findings	No. of cases	Percentage
Haemoperitoneum	89	87.25
Pelvic haematocoele	5	4.90
Gestational Sac with clots	10	9.80
Features suggestive of Koch's	15	14.71
Features suggestive of chronic inflammation	25	24.50

Haemoperitoneum was seen in almost all the cases i.e. 87.25% and in 15 cases there were features of Koch's abdomen like tubercles and chronic inflammation was present in 25 cases .

Table-X Maternal morbidity

	No. of cases	Percentage
Anaemia	83	81.37
Sepsis	1	0.98
Wound dehiscence	1	0.98
Burst abdomen	1	0.98
Reaction to blood transfusion*	13	16.67

Anaemia was seen in 72.54 % cases.* Blood transfusion was required in 78 cases of which 13 patients had transfusion reactions. Post-operative complications were very rarely seen. 1 case each of sepsis, wound dehiscence and burst abdomen were seen.

Table-XI Referral status

	No. of cases	Percentage
Referred	77	75.49
In-house	25	24.50

Most of the patients i.e. 75.49% came to the emergency obstetrics and gynaecology department in acute condition after being referred from the health centres. Only 24.50 % were in house patients.

Discussion

The first known description of ectopic pregnancy was by Al-Zahrawi in the 11th century.xiOvarian pregnancy was known since early 17th century. Mercerus reported

an authentic case in 1682 during an autopsy examination and in the same year St. Maurice met with a case during autopsy examination.xii

Table VII presents various predisposing factors. History of pelvic inflammatory disease was found in 31 (30.04%) patients. It is in accordance with the cohort study in Lund (Sweden) in which much higher incidence of ectopic pregnancy was found in laparoscopically proven cases of PID compared with controls (Westrom et al 1981xiii Myerscough (1982) also emphasized upon the role of pelvic infection in the causation of ectopic pregnancy.xivAccording to American College of Obstetrician and Gynaecologist (1998) PID is the most common factor for ectopic pregnancy. It gives an idea of the infective conditions present in the population studied. PID are responsible for causing peritubal adhesions, intra-tubal adhesions, diverticuli and cysts.

History of tuberculosis was present in 6 (5.87%) of cases. Halbreaut (1957) noted a high incidence in patients who became pregnant following treatment for endometrial tuberculosis**.**xv Jeffcoat (2001) found unrecognized tuberculous salpingitis as an important cause and also in the recognized disease, which had been treated by antibiotics.xvi This also indicates towards the prevalence of Koch's in the general population and its aetiological importance**.** xviiThe increased risk according to the Sherman and co-workers (1990) may be due to previous salpingitis which causes agglutination of the mucosal arborescent folds with luminal narrowing or formation of blind pockets

Cases of MTP were 24 (23.02%), spontaneous abortion were 18 and H/O previous abdominal surgeries i.e caesarean section was found in 6 (5.87%), laparotomy for previous ectopic was present in 2 (1.94%), history of ligation and IUCD was in 4 (3.92%). Disease and operation involving pelvic organs leads to narrowing, kinking or partial blockage of fallopian tubes and these factors may be directly responsible for causation of ectopic pregnancy. Patients with IUCD have more chances of having ectopic pregnancy than those not using any contraceptivesxviii.

Veshakari (1960), Jeffcoat (2001) emphasized on the aetiological influence of faulty tubes as shown by the fact that ectopic pregnancy is often preceded by several years of infertility**.[**xvi**,**xvii**]** After an ectopic pregnancy there is 7-15 fold increase in risk of ectopic pregnancy. The chance of intrauterine pregnancy is 50% to 80% and tubal pregnancy will be 10% to 35% and remaining will be infertile according to Diquelou in 1988

According to Ni HY et al (1990) the role of abdominal surgery is unclear. There appeared to be no increased risk for caesarean delivery**.**xix According to Whiteman H (2014), the women who had a caesarean section for their first live birth had an increased risk of 9% of ectopic pregnancy in their next pregnancyxx

The history of ligation in 4% is comparable to that reported by Chakraborty et al (1975), Chi IC et al (1986), and De Stefeno et al (1982) who reported previous tubal surgery as an important factor contributing to increased incidence of tubal pregnancy**.**xxi They included examples of failed sterilization, salpingostomy and tubal reanastomosis to reverse sterilization

Significant incidence of prolonged infertility preceding occurrence of ectopic pregnancy was found by Eastman (1956), Beacham et al (1956), Das (1970) and Pendse (1981). The tubal factor may be responsible for infertility as well as for ectopic pregnancy**. [**xxii**,**xxiii**,**xxiv**]** According to Jonathan et al (2002) additional risk for infertile women are associated with specific treatment including reversal of sterilization,

tuboplasty and ovulation induction and IVF. But in present series treatment of infertility was mostly concerned with treatment of pelvic inflammatory diseases and ovulation induction. According to Chow et al (1987), March Banks (1988) about 1.1% to 4.6% of conception associated with ovulation induction are ectopic pregnancies and in nulliparous women conception after at least one year of unprotected intercourse are 2.6 times more likely to be tubal. [xxv]

After a prolonged period of infertility if a women conceives one should always go for investigation to exclude ectopic pregnancy in order to avert a possible catastrophe. Same goes for the patients conceiving after treatment of PID and tuberculosis or having other predisposing factors Table VIII shows the various symptoms of ectopic pregnancy. Among the triad of symptoms, pain, amenorrhoea and bleeding per vaginum, pain is the main symptom which is present in almost all the cases. In this study pain abdomen was the commonest found in 100 (98%) patients. This was comparable to the findings of Schwartz (1980) who found abdominal pain to be present in 91% cases. Jabbar (1980) reported that abdominal pain and tenderness was present in 95% of cases.

Alsuleiman (1986) found it in 98.6% and Hasan (1986) in 96% cases. [ix,xxvi] Pendse reported it be present in 73.63% cases. [xxiv]

Death of the embryo causes decidual separation, which leads to vaginal bleeding in cases of ectopic pregnancy (Novak, 1979). Vaginal bleeding in the present series was present in 75 cases (73.53%). It is comparable to the findings shown by Eastman (1956) and Peel (1963) who found vaginal bleeding to be present in 75% of cases. [xxii] Webester et al (1965) found irregular vaginal bleeding to be present in 63.4%, Wagh and Patel (1966) in 63.2%, Mokadem and Kalappa (1968) in 69.8%. Vaginal bleeding was found in 50% cases by Jabbar (1980). [xxvii] Schwartz (1980) found it in 68%, Pendse (1981) in 64.5% cases by Alsleiman (1982) and 60% by Hasan (1983). [ix,xxiv,xxvii]

History of syncopal attack was found in 25 (24.51%) of cases. It was close to that found by Pendse (1981) who found it in 25.4%. History of amenorrhoea in present series was found in 89 (87.25%) cases. [xxiv] This was in close approximation to the findings of Jabbar (1980) who found it to be present in 95% cases. This was not in accordance to the findings of Pendse (1981) who found it in 72.7% cases, Alsuleiman (1982) in 74.6% and Hasan (1983) in 69.3% cases. [ix,xxiv,xxvii] Table IX shows the signs of suspected ectopic pregnancy. On general examination, shock was found in 39 (38.24%) cases, pallor was present in 83 (81.37%) out of which 32 cases had severe pallor while tachycardia in 92 (90.20%) cases. Jeffcoat (1975) observed that examination of tubal pregnancy revealed obvious signs of shock and anaemia. [xxviii] Pendse(1981) found that in absence of shock, the most suggestive signs were fast and low volume pulse. In the present series pallor and tachycardia along with other clinical findings were highly suggestive of ectopic pregnancy.[xxiv]

On abdominal examination, lower abdominal tenderness was present in 95 (93.14%). This was comparable to that found by Jabbar (1980) who reported it in 95% cases. [xxvi] Pendse (1981) also found it in 89% cases. Abdominal mass was found in 15 (14.70%) cases. Fullness was present in 80 (78.43%) cases while rigidity and distension were found in 23 (22.55%) and 32 (32.35%) cases. Pendse found abdominal mass in 25.4%, fullness in 27.2%, distension in 16.3%, abdominal rigidity in 5.4%. [xxiv]

On vaginal examination, cervical motion tenderness was found 89(87.25%) cases. Thus it was a frequent

sign present in the patients. William (2001) observed that there is exquisite tenderness on abdominal and vaginal examination, especially on motion of the cervix and it is demonstrable in over 3/4th of cases with ruptured or rupturing tubal pregnancies. Such tenderness may be absent prior to rupture. The present finding is also close to that found by Pendse (1981) i.e. cervical motion tenderness to be present in over 86.3% of cases. This observation was contradictory to the finding of Jabbar (1980) who found vaginal examination of poor diagnostic value.

In the present series, fullness in fornices was present in 77(75.49%) cases,adnexal mass in and enlarged uterus found in 12(11.76%) cases. Enlarged uterus according to Stabile and Grudzinskas (1999) is because of placental hormones, in about 25% of cases**.[**xxix**]** The uterus grows during the first 3 months of a tubal gestation to nearly the same size as it would with a normal pregnancy. Schwartz (1980) found adnexal mass in 55% while Pendse (1981) found it in 54.5% cases. **[**xxiv**]**

These finding shows that no single sign or symptom was pathognomonic of ectopic pregnancy, but a combination of various symptoms and sign were highly suggestive

Table X and XI showed the investigations, which were employed to confirm and for further management of ectopic pregnancies. Pregnancy test in urine was done in all the cases and was positive in 98 (96.08%) cases. Ultrasonography was done in all cases and in 13.73% cases it showed TO mass without gestational sac, in 10.7% with gestational sac and cardiac activity, in 1.96% cases TO mass without cardiac activity. Collection in pouch of douglas was found in 38 (37.25%). In majority patients intra- peritoneal collection was seeni.e in 45(44.12%) cases.This is not enough to arrive at a conclusion, but Ganalez and Waxman (1981) found it to be an accurate diagnostic tool while Tuomivaara (1986) found 97% accuracy rateThe HCG enzyme immunoassay with a sensitivity of 10 - 20 mIU/ml being found to be an accurate screening test for detection or ectopic pregnancy and are positive in >99% cases according to Kalinski (2002). Majority of the patients report to the emergency with ruptured ectopic so quantitative measurement of serum B-HCG could not be done but urine pregnancy tests done in all the cases Quantitative measurement of serum B- HCG done in the 5 cases those who were unruptured and planned for medical management. Barnhart and colleagues (1994) reported that an empty uterus with a serum B-HCG level >1500 mIU/ml was 100 percent accurate in excluding a live uterine pregnancy The diagnostic value is low when USG is done transabdominally. According to Thorsen MK et al (1990), Bateman et al (1990), ectopic pregnancy is more reliably diagnosed by transvaginal ultrasonography Table XII showed the sites of ectopic pregnancy which was found during laparotomy. In 93 (91.18%) cases tubal pregnancy was seen, while 4 (3.92%) cases were ovarian, 2 (1.96%) cases were abdominal, 3 (2.94%) cases were in the rudimentary horn. Similar findings were by De Cherney et al (2003) who reported 95% tubal pregnancy and Vyas et al and Majhi AK et al**.[**xxx**,**xxxi] Table XVIII shows that abdominal pregnancy was found in 2 cases. Its incidence was thus 1 in 6602 obstetric admissions similar to study by Devi (1961) 1 in 4300 deliveries. The incidence reported by Beacham and Beacham (1956) was 1 in 2081 deliveries**. [**xxiii] Eastman Hellman (1961) gave incidence of 1 in 15000 deliveries. **[**xxii**]** Naidu et al (1960) reported an incidence of 1 in 13842 deliveries and Begum (1968) 1 in 16809

deliveries. It shows variable incidences but it shows its rarity. One of the 2 cases encountered in present series presented as a case of intrauterine death. Failure of expulsion of foetus despite all induction measures clinched the diagnosis, which was confirmed during laparotomy. In both the cases of abdominal pregnancy, both the tubes and ovaries were normal, no sign of uteroperitoneal fistula and fetus of about 20 weeks and 12 weeks was lying in the abdominal cavity which confirmed the diagnosis according to Studdiford's criteria. The placenta was adhered to the gut and the surrounding structuresThere were 4 cases of ovarian pregnancy in which were diagnosed after inspecting both the tubes and the contralateral ovary which were normal, the gestational sac was present at the site of ovary which was connected to the uterus by ovarian ligament as these fulfilled the Spiegelberg's criteria Pregnancy occurring in the rudimentary horn of uterus were seen in 3 cases. All the cases reported in ruptured state and the rudimentary horn was noncommunicating with the uterine cavity Table XV showes sites of tube involved and ampulla was found to be involved in 71 (76.34%) cases, isthmus was found to be involved in 19 (20.43%), fimbria was involved in 2 cases (2.15%) and interstitial pregnancy was found in 1 (1.08%) cases. It closely resembles to the involvement recorded by Soren M et al (2017) of ampullary 70.83%, isthmic in 20.83% and interstitial in 2.78%. **[**xxxii] Table XVII shows the management protocol used. It shows that medical management was done in 5 (4.90%) of cases while in majority 97 (95.10%) cases had to be operated upon. According to Novak (2002) operative management is the most widely used treatment for ectopic pregnancy although Pisarska and colleagues (1998) observed that ectopic pregnancy is fast evolving into a medical disorder. **[**xxxiii**]**In present series most patients came with acute presentation and it was essential to operate in order to save the patient's life. This stresses on the need of early diagnosis and awareness, which could have prevented surgery and medical management could have been used towards a conservative approach. Patients with ectopic pregnancy with no signs of rupture, haemodynamically stable, gestational sac of <3.5cm and without cardiac activity were treated medically with methotrexate injections. Mol and associates (1998) evaluated 100 women in a randomized study to compare salpingostomy with methotrexate therapy**.[**xxxiv**]** They reported that medical therapy costs were lower if confirmatory laparoscopy was not performed. According to Bag TS et al (2011) laparotomy is still the major modality of treatment. Medical management possible in only 3.1% of casesOperative procedures employed in 97 cases who were operated is shown in Table XVIII. Salpingectomy was done in 80 (82.47%) cases, salpingoophorectomy was done in 4 (4.13%), oophorectomy in 4 (4.13%). Salpingostomy was done in 2 (2.06%) cases where the other tube was congested. Salpingectomy was done in most cases, where repair of the tube was not possible. This was in accordance to the observation of Douglas (1963) and Hawkins (1976), who presented clear evidences in favour of conserving ovary. **[**xxxv**]** The only indication for the removal of ipsilateral ovary along with the tube is when it is diseased or involved in the ectopic complex. In cases of pregnancy in rudimentary horn that was found in 3 cases rudimentary horn resection was done. Oophorectomy was done in 4 cases of ovarian pregnancy either partially or completely depending upon the condition. In secondary abdominal pregnancy, removal of foetus along with gestation sac and placenta as much as possible was done. Ory SJ et al (1993) studied patients treated with

either salpingectomy or salpingostomy followed for a period of 3 years to about 12.5 years, there was no difference in pregnancy. [xxxvi] In present series the procedure was decided upon by the condition of the involved structure and parity of the patients As shown in Table XIX, sign of chronic inflammation like dense adhesions, congestion in the pelvic organs was found in 25 (24.50%) cases. Intra-operative diagnosis of Koch's was made in 15 (30%) cases by the presence of tubercles on the tubes, surface of uterus and surrounding structures. Haemoperitoneum was found in 89 cases with <500 cc in 41 cases, 500-1000cc in 28 cases, >1000-1500cc in 10 cases and >1500cc in 10 cases. These findings are similar to those of Jophy et al and Vyas and Vaidya. [xxxvii,xxx]

Coming to Table XX, 1(0.98%) patients had sepsis, wound gaping and burst abdomen each. Antibiotics were given and secondary suturing done in these cases. Anaemia (in 81.37%), which the commonest complication, was due to excessive blood loss from rupture site, necessitating blood transfusion. It was required in 78 patients of which 13 patients had blood transfusion reactions. According to Dawn(1982) who reported that mortality from ectopic gestation has recently being brought down to 0.5%.

Table XXI shows that 75.49% cases were referred from the health care centres in acute condition. Although 24.50% cases reported to this tertiary care hospital at first point only 4.90% could be managed with medical treatment.

In our study there was no case mortality and there was significant degree of morbidity associated with ectopic pregnancy in this study, as shown by the results.

In the present work 102 patients of ectopic pregnancies coming to the Department of Obstetrics and Gynaecology, R.I.M.S, Ranchi were studied. The incidence was 1 ectopic pregnancy in every 130 pregnancies. Average age involved was 28 years while no age group was spared.

When incidence according to race was compared the ratio for tribals and non-tribals was 1:3. It was consistent with the composition of general population of Jharkhand and Ranchi who report in Obstetrics and Gynaecology Department of R.I.M.S.

Poor patients were affected in 33.33% cases, lower middle class in 51%, upper middle class in 13.73% cases while high class was found in 2.94% cases.

Although nullipara patients were more in numbers i.e. 31.37%, other parity status were equally involved. 26.47% were para 1, 20.59% were para 2, 11.77% were para 3, while grand multipara were 9.80%.

Among predisposing factors PID constituted 30.04% cases, 5.87% had past history of tuberculosis. 23.02% cases had undergone MTP, 17.60% had spontaneous abortion.

5.87% cases had previous caesarean section and 1.94% had undergone laparotomy for previous ectopic pregnancy. 3.92% had undergone ligation. 9.80% patients had to undergo treatment for infertility before conceiving.

Patients presented with varied symptoms. Pain abdomen with 98% was the commonest symptoms. 73.53% patients gave history of irregular vaginal bleeding. 87.25% gave history of amenorrhoea.

Among all, 38.24% patients were in shock at the time of presentation while 81.37% had pallor, 90.20% cases had tachycardia, 93.14% cases had tender abdomen, 78.43% had fullness, 22.55% had abdominal rigidity while 32.35% had distension. Painful cervical movement was present in 87.25% cases, fullness in fornices seen in 75.49%, adnexal mass was in 24.50%, uterus was enlarged in 11.76% cases.

Pregnancy tests in urine gave 96.08% true positive finding with 3.92% false negative results. Ultrasonography showed 13.73% cases to be TO mass without gestational sac, 12.66% cases with gestational sac, intra-peritoneal collection in maximum 44.12% and collection in pouch of douglas in 37.25% of cases.

Medical management with injection methotrexate was employed in 4.90% cases while 95.10% had to undergo laparotomy. 91.18% cases had tubal involvement, 3.92% were ovarian, 1.96% abdominal and 2.94% cases of rudimentary horn pregnancy. Ampullary region was involved in 76.34%, isthmus in 20.43%, fimbria in 2.15% cases and 1.08% had interstial pregnancy. Right side of the tube involved slightly more in 53.61% cases than left side in 46.39%.

At the time of presentation 87.25% cases were ruptured while 12.75% had it at unruptured stage. Among unruptured cases 7.69% had abdominal pregnancy and 92.31% had unruptured tubal pregnancies.

Salpingectomy was performed in majority 82.47%, salpingo-oophorectomy was done in 4.13%, oophorectomy was done in 4.13% and salpingostomy was done in 2.06%. Removal of foetus with placenta was done in abdominal pregnancy and rudimentary horn resection in 3 cases.

There was no case fatality but significant degree of morbidity was associated with ectopic pregnancy which may be attributed to the delay in diagnosis and seeking treatment.

Conclusion

The glaring features of ectopic pregnancy in the present study can be concluded as follows:- Incidence was high in the present series, mainly due to increased prevalence of PID and tuberculosis.

Ectopic pregnancy was more prevalent in nulliparous women. Average age incidence was lower in the population studied. It shows that the predisposing factors sets in the affected women in early reproductive life and as no parity status or age was spared, it proved that the factors are found in all age groups throughout a women's reproductive life.

Although women with ectopic pregnancy frequently have no identifiable risk factor, increased awareness of risk factors(PID, previous tubal surgery, H/O tuberculosis) help in identifying women at higher risk in order to facilitate early diagnosis.

Early diagnosis is crucial for preservation of future fertility, thus, should be the aim preferably aided by transvaginal ultrasonography and quantitative assay of serum B HCG and laparoscopy.

Treatment should be decided upon by assessing the individual cases. Salpingostomy and closure by secondary intention offers better result in preserving future pregnancy rate. Salpingectomy is most efficient treatment if patient does not require future fertility.

It is quite evident that, there is basic need to educate people and make them understand the need and importance of early booking, registration and proper antenatal follow up so that she could properly be investigated keeping in mind the risk of ectopic pregnancy in high risk patients.

Health professionals at all levels should be taught to identify the warning signs and symptoms and be trained to deal with the cases if the patients conceive in the presence of the predisposing factors.

There should be proper transportation facilities for timely referral of the patients. PHC and CHC should be strengthened with manpower and blood transfusion facilities. As the incidence of ectopic pregnancy increases, ways and means have to be found to reduce the associated morbidity and mortality and to preserve future fertility. With the emphasis shifting from radical

to conservative therapy; prevention of risk factors and early diagnosis has become very important.

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