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Short Communication

Ectopic pregnancy: Review of 80 cases

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ABSTRACT

Background: Ectopic pregnancy or extrauterine pregnancy will invariably result in abortion or rupture. Though there are risk factors for ectopic pregnancy, but at times the condition can occur without any apparent predisposing factor. Cases admitted with provisional diagnosis of ectopic pregnancy were included in this prospective study.

Methods: Eighty suspected cases of ectopic pregnancy were incorporated in the study. The management was done based on standard practice. All the cases underwent urine pregnancy test, routine blood investigations including blood group, and transvaginal ultrasound. Serial β hCG was measured in cases where the diagnosis was not clear initially.

Results: Incidence of ectopic was 2.46 per 100 deliveries; there was no apparent risk factor in 28.7% and many cases had more than one risk factor. 'Triad' of ectopic was present in only 21 cases. Sixteen cases were asymptomatic and two were admitted as emergency. Ultrasound findings were inconsistent and wide ranging. In 37 doubtful cases, β hCG was measured serially.

There was one case of suspected interstitial pregnancy confirmed on laparoscopy. Twenty-seven cases were managed medically, and 9 were managed expectantly. Forty-six cases were managed surgically either by laparoscopy or by laparotomy. Salpingectomy was performed in 37 cases, and salpingostomy in 7 cases either laparoscopically or by laparotomy.

Conclusion: Ectopic pregnancy can be managed by laparotomy, operative laparoscopy, and medically and occasionally by observation alone. Management must be customized to the clinical condition and needs of future fertility of the patient.

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Introduction

Ectopic pregnancy or extrauterine pregnancy is defined as implantation and subsequent development of the zygote at a site other than normal intrauterine cavity.¹ Uterus alone is

designed to accommodate the fetus and its growth. When zygote is implanted in other places, it will not be able to grow normally and hence will always result in abortion or rupture. Very rarely the fetus can continue to grow in peritoneal cavity (abdominal pregnancy) even after tubal rupture resulting in a term fetus. The most common site of ectopic pregnancy is the

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fallopian tube, and the cause of zygote implanting into the tube is not always clear² though it is postulated to be functional or anatomical tubal damage in most of the cases. At times, the condition can occur without any apparent predisposing factor. Incidence of ectopic pregnancy has been increasing³ but mortality has been declining continuously as many cases are diagnosed early and before rupture. Early diagnosis is made on algorithms which are based on high resolution transvaginal ultrasound (TVS) and quantitative estimation of serum β hCG measured initially and sometimes serially. Changes in the levels of β hCG can be used to predict ectopic pregnancy.⁴ The rising incidence is attributed to early diagnosis, increased incidence of pelvic inflammatory diseases, and assisted reproductive techniques.

Material and methods

This prospective study was conducted at a tertiary care hospital over a period of 1 year and 2 months from November 2014 to December 2015. All cases admitted with diagnosis of ectopic pregnancy were incorporated in the study, and a total of 80 cases were included in the study, their data collected and compiled. End point of the case was when ectopic pregnancy had undergone definitive treatment, either medical or surgical, or when ectopic pregnancy was ruled out. All the cases underwent urine pregnancy test and routine blood investigations including blood group and TVS. Serial β hCG was measured in cases where the diagnosis was not clear initially. The management was done based on standard practice; cases on expectant management were in the study till the serum β hCG became undetectable. The findings and results are as under.

Results

There were 3214 deliveries during the period of study; during this period, there were 80 cases admitted with diagnosis of ectopic pregnancy thereby indicating the incidence of ectopic as 2.46 per 100 deliveries, being slightly higher as compared to 1 in 161 deliveries as reported by Arup et al.⁵ This increase in the incidence was probably due to the hospital being a referral center. Age distribution was uniform and unremarkable except that below 20 and above 40, the incidence was extremely low.

Ectopic pregnancy is likely to occur more commonly in women who have certain risk factors as listed in Table 1. There were 37 cases of infertility; of both primary and secondary; primary was more common. There was one case of tubal sterilization and tuboplasty each. Many times, there is no risk factor as it was noticed in this series; there was no risk factor in 23 cases (28.7%) and many cases had more than one risk factor. Only 21 cases had all the three symptoms of ectopic pregnancy, traditionally called 'Triad of Ectopic'. These days, many cases have atypical clinical presentation as suggested by many authors.⁶

Clinical presentation is shown in Table 2. Sixteen cases did not have any symptom but were picked up on routine first trimester scan or on follow-up of infertility cases undergoing

Table 1 – Risk factors detected.

S. no.	Risk factor	n (%)
1	Primary infertility	24 (30.0)
2	Secondary infertility	18 (22.5)
3	Ovulation induction	06 (7.5)
4	IUI	11 (11.7)
5	IVF-ET	12 (15.0)
6	CS	06 (7.5)
7	Tubectomy	01 (1.25)
8	Past ectopic	02 (2.5)
9	History of abortion	11 (11.7)
10	History of PID	09 (11.2)
11	Myomectomy	01 (1.2)
12	Tuboplasty	01 (1.2)
13	Appendectomy	02 (2.5)

Table 2 – Clinical presentation.

S. no.	Finding	n (%)
1	Amenorrhoea	68 (85)
2	Bleeding PV	57 (71)
3	Pain abdomen	42 (58)
4	Vomiting	09 (11)
5	Loose motions	01 (0.01)
6	Fainting attacks	04 (0.05)
7	Shoulder tip pain	02 (0.02)
8	Hypotension	3 (0.03)
9	Palpable adnexal Mass	27 (33)
10	Cervical motion tenderness	31 (38)
11	Asymptomatic	16 (20)

treatment including in vitro fertilization and embryo transfer (IVF-ET). Two cases were admitted as emergency with pain abdomen and hypovolumic shock. Urine pregnancy test was positive in 61 cases, negative in 13, and weakly positive in 6 cases as shown in Table 3. Urine pregnancy test does not always diagnose or exclude ectopic pregnancy. Ectopic pregnancy still can be there even when urine pregnancy test is negative. Sonography findings in a suspected or confirmed ectopic pregnancy are inconsistent and wide ranging (Table 4). It may vary from being absolutely normal to clear-cut evidence

Table 3 – Urine pregnancy test.

S. no.	Result	n (%)
1	Positive	61
2	Negative	13
3	Weakly positive	06

Table 4 – Transvaginal ultrasound findings.

S. no.	Finding	n (%)
1	Empty uterine cavity	77 (1.2)
2	Intrauterine pregnancy	02 (23.7)
3	Pseudosac	03 (26.2)
4	Live extrauterine fetus	03 (28.7)
5	Isolated POD fluid	45 (18.7)
6	Intra abdominal fluid	02 (1.2)
7	Simple ov cyst	03 (3.7)
8	Complex adnexal mass	42 (52)
9	Fibroid	04 (5.0)

Table 5 – Treatment modality.

Modality	n
Medical treatment	27
Single dose	24
Multiple dose	03
Failure of medical treatment	02
Expectant treatment	09
Surgical	46
Laparotomy	16
Salpingectomy	11
Salpingectomy with tubectomy	03
Salpingostomy	02
Salpingo-oophorectomy	01
Milking of the tube	00
Laparoscopy	28
Diagnostic laparoscopy	02
Salpingectomy	21
Salpingectomy with tubectomy	02
Salpingostomy	05

of massive intraperitoneal blood collection, complex adnexal masses, and blood in Pouch of Douglas (POD) or fetal cardiac activity outside the uterine cavity. Sonography was repeated as and when required. Intrauterine pregnancy was picked up on repeat ultrasound in 2 cases. Pseudosac was visible in 3 cases; pseudosac is differentiated from intrauterine pregnancy by its central location as pointed out by Perriera and Reeves.⁷

β hCG was measured in 37 cases where the patient was stable and diagnosis was not clear either on clinical examination or on ultrasonography, and repeat estimation was done after 48 h to know the change in the level and the percentage of change. The purpose of estimation was to confirm the diagnosis⁴ and to decide the method of management. In three cases, there was no ultrasound evidence of intrauterine or extrauterine pregnancy even when the β hCG level was higher than discriminatory zone (1500 for TVS), thereby suggesting pregnancy of unknown location and was treated as ectopic pregnancy. Serum progesterone concentration can help in diagnosing a failing pregnancy⁸; this was measured in two cases only. Endometrial curettage was performed in two cases, one showed evidence of chorionic tissue while the other case did not show any villi; hence, she was treated as a case of ectopic pregnancy. Culdocentesis or paracentesis, which used to be resorted earlier, was not performed in any of the cases in this series.

Fig. 1 – Interstitial pregnancy.

The summary of treatment is mentioned in Table 5. Two cases were in hypovolumic shock and were diagnosed as ruptured ectopic pregnancy with shock and were taken up for emergency laparotomy along with resuscitation. There was one case of suspected interstitial pregnancy which was confirmed on diagnostic laparoscopy (Fig. 1). She was managed with multiple doses of methotrexate under close observation. Twenty-seven cases were managed medically, 24 with single dose methotrexate and three with multidose.⁹ Case of cornual pregnancy required maximum number of injections and took 6 weeks for β hCG to become undetectable. Two patients did not respond to medical treatment and had to undergo laparotomy due to rupture of the tubal pregnancy. Nine cases who were stable and their β hCG was less than 1000 units were managed expectantly. None of these nine cases required any surgical intervention.

β hCG was measured serially (every week) till undetectable in cases who were managed medically or expectantly. Patients on medical or expectant management were kept in the hospital as outpatient treatment could have been risky and hence was not resorted to. Forty-six cases were managed surgically either by laparoscopy or by laparotomy. Patients who were stable underwent laparoscopy. Hemoperitoneum with hemodynamically stable patients too were managed laparoscopically as shown in Fig. 2. The type of surgery was decided by the

Fig. 2 – Hemoperitoneum on laparoscopy.

Fig. 3 – Unruptured tubal pregnancy and salpingostomy being performed.

condition of tube whether ruptured or unruptured (Fig. 3). Laparotomy was performed in only 16 cases. Salpingectomy was performed in 37 cases either laparoscopically or by laparotomy. Five cases of salpingectomy underwent sterilization as they had completed their family. Salpingostomy (Fig. 3) was performed in seven cases. β hCG was measured serially after salpingostomy till undetectable. Salpingo-oophorectomy was done in one case of ovarian pregnancy. Only three cases were transfused blood indicating that the diagnosis was made early in most of the cases. There was one case of Rh negative pregnancy who was administered anti D.

Discussion

Ectopic pregnancy is the commonest cause of maternal morbidity and mortality in the first trimester of pregnancy.¹⁰ Ectopic pregnancy used to be a common emergency in obstetrics and gynecology, but over the years more and more cases are being diagnosed early and many are picked up on follow-up after IVF or routine first trimester scan. In this study, there were only two cases who were admitted as an emergency and underwent immediate laparotomy along with resuscitation. If ectopic is diagnosed early, then the risk of tubal rupture is reduced and the patient can be managed by medical or conservative surgical procedures.¹¹

Surgical treatment was considered to be the primary mode of management of ectopic pregnancy but now medical treatment with methotrexate in selected cases is the accepted mode of management. 33.7% (27/80) of cases in this series were managed medically. Those on medical management need close observation as rupture can still occur as happened in two cases in this series; they should be monitored by weekly β hCG assessment till undetectable to ensure complete resolution of ectopic gestation. Success of medical treatment and subsequent repeat injections or surgical intervention can be predicted by initial β hCG level as reported by Yildirim et al.¹² Local injection of methotrexate¹³ with potassium chloride either under ultrasound guidance or directly under laparoscopic vision too has been tried but in this series only intramuscular route was used.

Type of treatment of ectopic pregnancy depends on clinical condition of the patient and desire for future fertility. Patients with ruptured ectopic and hypovolumic shock require immediate surgery preferably by laparotomy, but those in stable clinical condition can undergo laparoscopic

management. Laparoscopic procedures have many advantages but at times very early tubal ectopic pregnancies may be missed on laparoscopy.⁸ The decision to perform a salpingostomy or salpingectomy is often made at the time of surgery based on the extent of damage to the affected tube and condition of the other tube but it is also dependent on other factors like wish for future fertility, etc. Laparoscopic surgery is equipment-based and depends on the skills of operating surgeon.¹¹ Operative laparoscopic equipment may not be available in many smaller hospitals.

Treatment of ectopic pregnancy depends on many factors; hence, each case has to be managed on its own merits and individualized. Medical therapy of ectopic pregnancy is appealing over surgical options for a number of reasons like low morbidity as compared with surgery and risks of general anesthesia. Medical management causes less tubal damage. Ectopic pregnancy continues to be a diagnostic riddle and a therapeutic dilemma. Women may die from ectopic pregnancy, but those who survive their future fertility prognosis is jeopardized.¹⁴ Two issues of future concern are chances of repeat ectopic pregnancy and future intrauterine pregnancy. The aim of treatment should be to reduce the probability of repeat ectopic pregnancy and improve the chances of normal intrauterine pregnancy.

Conflicts of interest

The authors have none to declare.

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