

Original Research Article


Ectopic Pregnancy: A Single Tertiary Centre Experience

S. Savitri Somasekhar^{1*}, T. Siva Priyanka², G. Balajyothi³

¹Associate Professor, ^{2,3}Post Graduate student

Government Medical College, Anantapur, Andhra Pradesh, India

*Corresponding author email: drsavitrisomasekhar@gmail.com

	International Archives of Integrated Medicine, Vol. 9, Issue 8, August, 2022.	
	Available online at http://iaimjournal.com/	
	ISSN: 2394-0026 (P)	ISSN: 2394-0034 (O)
	Received on: 15-8-2022	Accepted on: 24-8-2022
	Source of support: Nil	Conflict of interest: None declared.
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How to cite this article: S. Savitri Somasekhar, T. Siva Priyanka, G. Balajyothi. Ectopic Pregnancy: A Single Tertiary Centre Experience. IAIM, 2022; 9(8): 31-38.		

Abstract

Background: EP is an unmitigated disaster of human reproduction, a major cause of reduced childbearing potential. EP can occur in Fallopian tubes, ovaries, cervix, abdominal cavity, cornua of uterus and c- section scar. But 95-98% of ectopic pregnancies are tubal.

Aim: To study incidence, risk factors, clinical presentation immediate morbidity and mortality associated with ectopic pregnancy.

Materials and methods: Patients diagnosed with ectopic pregnancy in reproductive age group (15-44 years) after clinical examination and investigations during one year period were included in the study. It was prospective study. Data was entered in MS excel spreadsheet and analyzed.

Results: A total of 70 cases of ectopic pregnancy were included. Incidence of ectopic pregnancy in the present study was 7.6 per 1000 deliveries. Mean age was found to be 28 years and majority of them were multi gravida (93.3%) with low socioeconomic background (92.9%). Most common clinical presentation was a combination of amenorrhea (95.7%) and pain abdomen (100%). Bleeding per vagina was also seen in 28.6% of cases Past history of tubectomy was present in 24.3% of cases. Clinical signs such as abdominal tenderness, distension and guarding were noted in 75%, 88%, 75% of tubal rupture as compared to 25.7%, 12% and 25% of unruptured ectopic pregnancy. Cases of ruptured ectopic pregnancy presented with severe pallor (81.8%) and shock (100%). Urine pregnancy test was positive in all cases. Ultrasonography was an accurate tool for diagnosis and differentiated ruptured (74.3%) from unruptured (25.7%) ectopic pregnancies. Emergency laparotomy and salpingectomy (91.4%) on affected side was the treatment in majority of cases.

Conclusion: Ectopic pregnancy is an important cause of maternal morbidity and mortality, high index of clinical suspicion, positive urine pregnancy test, ultrasonographic features point to early and accurate diagnosis of this entity. Treatment in time may save many lives and decrease associated morbidity.

Key words

Diagnosis, Ectopic pregnancy, Salpingectomy, Urine pregnancy test, Ultrasonography.

Introduction

Ectopic Pregnancy (EP) is implantation of a fertilized ovum outside the uterine cavity presents as an acute event [1, 2], a life-threatening emergency, accounts for 10% of maternal mortality [3].

Worldwide the estimated prevalence of ectopic pregnancy is 1 to 2% of all pregnancies [4]. In 21 century, the incidence of ectopic pregnancy has increased fourfold in affluent countries because of wider availability of sonography and hormonal studies.

EP is an unmitigated disaster of human reproduction, a major cause of reduced childbearing potential. 95-98% of ectopic pregnancies are tubal [5]. Varied spectrum of presentation may pose a diagnostic challenge in clinical practice. Spot urine pregnancy test and ultrasonography in the backdrop of high index of clinical suspicion will clinch the diagnosis. Risk of EP increases by seven-fold after an attack of Pelvic Inflammatory Disease [6]. Medical management with methotrexate is highly effective in selected cases. Surgical treatment continues to be the corner stone of management.

Materials and methods

This Prospective Observational study was done in Department of Obstetrics and Gynecology at Government Medical College, Anantapur a referral Centre over a period of one year from January 2021 to December 2021 after obtaining clearance from institutional ethical committee. Detailed history and clinical evaluation was done using a preconceived format. 70 cases of EP were referred from hospital in and around Anantapur. Information regarding demographic characteristics, parity, obstetric history, clinical symptoms and signs at the time of presentation, any risk factors were collected. After clinical evaluation and relevant investigations, type of management was decided. Collection, tabulation

of data and analysis was carried out. Data was entered in MS excel spreadsheet and analyzed. Inclusion criteria includes all cases of ectopic pregnancy.

Results

During the study period of one year, there were a total of 9161 deliveries in our hospital with 70 cases of ectopic pregnancies giving the incidence of ectopic pregnancies of 7.6 /1000 deliveries (**Table - 1**).

Table - 1: Age- wise distribution.

Age (Years)	Number	Percentage (%)
15 — 20	11	15.7
21 — 25	18	25.7
26 — 30	33	47.1
31 — 35	7	10
36 and above	1	1.4
Total	70	100

Table - 2: Parity wise distribution.

Parity	No of patients	Percentage (%)
Nulliparous	12	17.1
1	4	5.7
2	21	30
3	23	32.9
4 and above	10	14.3
Total	70	100

Table - 3: Socio-economic status.

Socio-economic status	No of patients	Percentage (%)
Lower class	65	92.9
Middle class	5	7.1
Total	70	100

In the present study, 47.1% of the cases belonged in the age group of 26-30 years followed by 25.7% in the age group of 21-25 years, 15.7% in the age group of 15-20 years and 10% in the age group of 31-35 years. In the present study, 32.9% of the cases had parity of order 3 and 30% had

parity of order 2. 17.1%, 14.3% and 5.7% of the cases had order of parity Nulliparous, 4 and above and 1 respectively. Parity of order 3 and 2, together accounted for 62.9% and formed the majority (**Table - 2**). In the present study, 92.9% of the cases belonged to lower Socio-economic class and formed the majority, while 7.1% of cases belonged to middle class (**Table - 3**). Tubectomy was the most common risk factor seen in 24.3% of the cases followed by PID, D and C and IUCD in 8.6%, 5.7% and 5.7% of the cases respectively. Other less common risk factors were previous ectopic, Appendicectomy, infertility in 1.4%, 1.4% and 2.9% of cases respectively (**Table - 4**).

Table - 4: Risk factors associated with Ectopic pregnancy.

Risk factors	No of patients	%
Appendicectomy	1	1.4
D & C	4	5.7
Infertility	2	2.9
IUCD	4	5.7
PID	6	8.6
Previous Ectopic	1	1.4
Tubectomy	17	24.3
No apparent risk factor noted	35	50
Total	70	100

Table - 5: Presenting symptom and Ectopic pregnancy.

Mode of case presentation	No of patients	%
Amenorrhea	67	95.7
Pain Abdomen	70	100
Bleeding p/v	20	28.6
Others	5	7.1

All cases presented with pain abdomen, amenorrhea in 95.7% of the cases and bleeding in 28.6% of the cases. The typical triad of amenorrhea, pain abdomen and bleeding were observed in 25.7% of cases. Other associated symptoms such as giddiness, nausea, vomiting and syncopal attacks were seen in 7.1%.

Seventeen patients were brought in shock (24.2%). Tenderness on cervical movement was seen in 34 cases (48.5%). Forniceal tenderness was seen in 30% cases. Mass and tenderness of the fornix was observed in 1.4% cases (**Table - 5**). USG findings revealed Ruptured ectopic in 74.3% of the cases and Unruptured ectopic in 25.7% of the cases (**Table - 6**). Salpingectomy was the major procedure done in 91.4% of the cases followed by Salpingo oophorectomy in 7.1% of cases and Expectant management done in 1.4% of the cases. Hemoglobin of less than 10.5 gm% on admission was in 54.2% of the patients. Blood transfusion was needed in 98.6% of patients (**Table - 7**).

Table - 6: Ultrasonography in ectopic pregnancy.

Ultrasonography	No of patients	%
Ruptured	52	74.3
Unruptured	18	25.7
Total	70	100

Table - 7: Treatment modalities.

Procedure done	No of patients	%
Salpingectomy	64	91.4
Salpingoophorectomy	5	7.1
Expectant management	1	1.4
Total	70	100

Discussion

Ectopic pregnancy refers to the implantation of the zygote outside the uterine cavity occurs in 2% of all pregnancies [1]. The fallopian tubes are the commonest (97.7%), other sites include the cervix, ovary, cornual region of the uterus, and abdominal cavity. Ectopic pregnancy is a life-threatening emergency. It is most common cause of maternal death in the first trimester [7]. It has become more common during the last few decades, has increased from 0.5% in 1970 to 2% this decade. Since, 1970, the Centers for Disease Control and Prevention (CDC) reported the increasing trend of ectopic pregnancy, however,

the case-fatality rate has gradually decreased from 35.5 deaths per 10,000 cases in 1970 to 2.6 per 10,000 cases in 1992.

In India, EP accounts for 3.5-7.1 percent of maternal mortality [8]. Indian council of medical research (ICMR 1990) task committee found that the incidence of EP was 3.12 per 1000 pregnancies or 3.86 per 1000 live births in hospital reported pregnancies [9]. Muffti, et al. [8] found 3.99:1000 deliveries, Shetty S, et al. [10] found 5.6:1000 deliveries, Mehta, et al. [11] found 30.2:1000 deliveries, Ranji, et al. [12] found 2.81:1000 deliveries, Andola, et al. [13] found 10.7:1000 deliveries, Bharti, et al. [14] found 6.1:1000 deliveries and. In the present study incidence of ectopic pregnancies was 7.9: 1000 deliveries.

The incidence of ectopic pregnancy has been increased during the last decades because of the increased rate of sexually transmitted infections, advent of antibiotics, increased awareness and usage of various contraceptive methods and assisted reproductive technologies. The main risk factors for ectopic pregnancy include tubal damage following infections or any surgical traumas, history of previous ectopic pregnancy, smoking, altered tubal motility, history of infertility, and high maternal age.

The highest incidence of ectopic pregnancy was found among women aged 26-30 years. This corresponds to the age of peak sexual activity and fertility. Pelvic inflammatory disease that may induce tubal damages and predispose women to ectopic pregnancy also are common in this age group. Most of the patients (47.1%) were in the age group of 26 to 30 years in our study. Similar results were found in Chandana, et al. [15] - 50%, Ranji, et al. [12] -54.6 % and Mehta, et al. [11] - 43.75%.

In the present study, most of the cases occurred between, parity 2 and 3 which accounted together for about 62.9%. Similar findings were observed by, K B Mehta, et al. [11] and Bharti, et al. [14], but Behera A, et al.

[16] and Maka SS, et al. [17] found nulliparity in common. Munro Kerr and Eastman et al¹⁸ found no relation between parity and ectopic pregnancy.

In our study, most were from lower socioeconomic class (92.9%) and middle socioeconomic class (7.1%). Bharti P, et al. [14] and Ilanjselvi M, et al. [19] reported 60% and 66.03% respectively belonging to lower class.

In the present study, risk factors seen were tubectomy (24.3%), Dilation and Curettage (5.7%), PID (8.6%), infertility (2.9%), previous ectopic (1.4%), IUCD (5.7%), tuberculosis (1.4%), appendicectomy (1.4%), and none in 42.9%.

According to Bharti, et al. [14], Andola, et al. [13], and Chandana, et al. [15], the incidence of PID as a risk factor is 43.33%, 29.6%, 11.90%, and 5%, respectively. Pelvic inflammatory disease (PID) was a risk factor in about 8.6 % cases in our study.

The strong risk factors are tubectomy, tubal disease, pelvic inflammatory disease, history of abortion, history of dilatation and curettage, history of infertility, prior history of Copper-T insertion, previous ectopic pregnancies and previous LSCS [20].

PID increases the chance of ectopic pregnancy by 3.3- 6 times after gonococcal, chlamydial, and other bacterial infections. Most of the cases of chlamydia salpingitis are indolent, they may go unnoticed, resulting in tubal damage and tubal pregnancy. History of PID is very difficult to elicit since most of them have a subclinical infection and do not visit a health care Centre for treatment. PID is a significant factor that predisposes to the development of ectopic pregnancy [21].

History of abortion within the previous two years was found in 5.7 percent of the cases. Previous abortion was described as a risk factor in 18.91 percent and 15 percent of cases respectively by

Andola, et al. [13] and Chandana, et al. [15]. Tubal dysfunction or damage because of induced or spontaneous abortion appears to be a major cause in these cases. Previous ectopic gestation was found to be 1.4 % of cases in our study like Andola, et al. [13] and Bharti, et al. [14] who found it to be 2.38% percent and 2.38 % of repeat ectopic pregnancy respectively. Because tubal disease is almost always bilateral, ectopic pregnancy is more likely to occur on one side first and then on the other side later.

Previous abdominal operations like Tubectomy and Appendicectomy are associated with EP. In the present study, history of tubectomy was seen in 24.3% cases. Studies by Andola, et al. [13] and Chandana, et al. [15] respectively have documented 15% and 14.29% cases respectively. One case (1.4%) had previous history of appendicectomy in our study. Andola, et al. [13] and Chandana, et al. [15], reported history of appendicectomy in 2.38% and 5% of cases respectively.

In the present series IUCD was used by 4 patients (5.7%). An incidence of 14.7%, 12.81% and 10% ectopic pregnancy were quoted in relation to the use of intrauterine devices by Bharti, et al. [14], Andola, et al. [13] and Chandana, et al. [5] respectively. Although any form of contraception decreases the overall risk of pregnancy including ectopic pregnancy, when contraception failure occurs in women using an IUCD or following tubal sterilization, risk of ectopic pregnancy is elevated. Early diagnosis and adequate treatment of PID, performing dilatation and curettage under strict aseptic conditions, ensuring adequate hemostasis during surgeries, employing methods to reduce post op adhesions during surgery and adequate antibiotic cover may help in reducing the incidence of ectopic pregnancy.

The typical triad of amenorrhea, pain abdomen and bleeding were observed in 25.7% of cases. Other associated symptoms such as giddiness, nausea, vomiting and syncopal attacks were seen in 7.1%. Seventeen patients were brought in

shock (24.2%). Tenderness on cervical movement was seen in 34 cases (48.5%). Forniceal tenderness was seen in 30% cases. Mass and tenderness of the fornix was observed in 1.4% cases. 11. Urine pregnancy test was positive in all the cases.

The most common symptom with which most of them presented was abdominal pain seen in 100% of patients, amenorrhea in 95.7% of the patients followed by vaginal bleeding seen in 28.6% of cases. In Andola, et al. [13] study, amenorrhea (90%) was the most common complaint followed by pain abdomen (86.3%). Bleeding per vagina was seen in 50% of patients. In Mehta, et al. [11] study 81% of the patients had pain abdomen, 54% had amenorrhea, 42% had vaginal bleeding and in Ranji, et al. [12] study amenorrhea was seen in 95.8% of patients followed by pain abdomen (62.2%) and vaginal bleeding (42.2%). The clinical picture becomes more obvious when the disruption becomes more extensive and rapid. Undisturbed ectopic pregnancy is likely to be missed in the majority of cases.

In this study patient with ruptured Ectopic pregnancy had Pallor in 73.7% of cases and shock in 94.4% of cases whereas in unruptured ectopic pregnancy cases 26.3% had pallor and 5.6% had shock. In study conducted by Chandana, et al. [15] among ruptured ectopic cases 81.8% had pallor and all cases were in shock at the time of presentation, among unruptured ectopic 18.2% had pallor and no cases presented with shock.

Ectopic pregnancy symptoms and signs can range from vague to unusual, depending on the clinical picture. The signs and symptoms of an unruptured tubal pregnancy are atypical. Correct diagnosis is rarely made. Almost majority of the symptoms and signs of tubal pregnancy are caused by the ultimate rupture of the tubal wall or abortion, which results in peritoneal bleeding. In this study, it was discovered that only a small percentage of tubal pregnancy patients had the classic symptoms of amenorrhea, vaginal

bleeding, fainting spells, stomach pain, soreness, and adnexal mass.

Urine pregnancy test was positive in all cases in this study. A negative urine pregnancy test does not exclude ectopic pregnancy, because the implantation in tubal location can be either nonviable or compromised and therefore not able to secrete enough hCG for a positive pregnancy test. Ultrasonography reported 74.3% of them as ruptured, 25.7% of them as unruptured in the current study. In the current study, ultrasound was able to diagnose all cases. Color-flow Doppler ultrasonography helps in better diagnosis of ectopic pregnancy by increasing the sensitivity and specificity which reported ruptured ectopic pregnancy in 61.3% cases, 22.5% cases of unruptured ectopic and tubal abortion in 12.9%. Rajendra Wakankar, et al. [22] found 44 (86.61%) cases were of ruptured ectopic pregnancies.

In present study, left sided tubal pregnancy (62.9%) was more common than right side (37.1%). Tahmina, et al. [23] reported 72.2% of tubal ectopic pregnancies on the left side. Most studies reported a higher incidence of EP in the right tube like Nitesh M, et al. [24] and Mooij, et al. [25].

In our study, Ampulla was the most common site of the ectopic pregnancy found in 60.9% of the patients. The site of ectopic pregnancy was Ampullary, Isthmus and others in 62.7%, 7.5% and 29.9% of the cases respectively Bharti, et al. [14] reported 79.16% of ectopic cases seen in ampulla, 6.67% ectopic cases seen in isthmus and 5% of them in ovary. In study by Chandana, et al. [15] 70% of ectopic pregnancies were seen in ampulla, 10% in isthmus and 10% in ovary.

The treatment modality for an ectopic pregnancy is determined by the site of the pregnancy, whether it is ruptured or not, the availability of laparoscopy, surgical expertise, the need to preserve fertility. In this study most of the cases were referred to our institute, tertiary care hospital and most of the cases were ruptured

ectopic, managed surgically. Expectant management was done for one unruptured ectopic pregnancy who had low and rapidly declining HCG levels. Rest 69 cases were managed surgically, open salpingectomy/ Salpingo oophorectomy was performed. In current study, 91.4% of cases underwent salpingectomy and 7.1% of them Salpingo oophorectomy. Behera A, et al. [16] study, salpingectomy was performed in 82.8% and 2.1% underwent Salpingo oophorectomy. In Nitesh M, et al. [24] study 55.76% underwent salpingectomy and 21.15% Salpingo oophorectomy

Hemoglobin of less than 10.5 gm% on admission was noted in 54.2% of our patients and blood transfusion was needed in 98.6% of patients. In study by Smita, et al. [25], Blood transfusion was needed in 82.35% of patients and study by Suseela, et al. [26] study, 98% of them needed blood transfusion. There was no maternal mortality in the current study. Shetty, et al. [10] and Tahmina, et al. [23] had nil maternal mortality in their study. Ectopic pregnancy outcomes are improved by early diagnosis, rapid and timely management, and the availability of appropriate blood and blood components.

Conclusion

Increase in the incidence of ectopic pregnancy during the past two decades is documented. Vigilant clinical care of women in reproductive age group presenting with the lower abdominal pain, with presence or absence of amenorrhea, even in tubectomised is need of the hour. Improvement in socioeconomic status, better patient education will contribute to reduction of morbidity and mortality.

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