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# A Study of Incidence, Clinical Presentation, Risk Factors and Morbidity Associated with Ectopic Pregnancy in CKM- Government Maternity Hospital Matwada Warangal

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## Abstract

***Background:*** *In the past two decades, the incidence of ectopic pregnancy has been increasing dramatically, worldwide. One of the major triggering factors for this being the introduction of medically assisted procreation techniques. The present study of cases of ectopic pregnancy is to know our experience regarding the incidence, clinical presentation, risk factors, and associated maternal morbidity and mortality.* ***Methods:*** *All diagnosed cases of ectopic pregnancy admitted to CKM hospital during a period of 18 months. A detailed history and clinical evaluation were done abdominal examination was done for guarding, rigidity, tenderness, presence of masses presence free peritoneal fluid and presence of Cullen's sign. The Vaginal examination was done for the color of the cervix, tenderness, size of uterus its mobility and consistency and presence of masses of the fornix. The data was recorded and analyzed by SPSS version 17 on windows format.* ***Results:*** *A total of n=51 patients were admitted with a history suggestive of ectopic pregnancy from May 2018 to October 2019. The frequency of ectopic pregnancy was 1:259 of all pregnancies. Risk factors were found in 49.1% of cases and the major contributors were dilatation and curettage (2%), PID (5.9%), infertility (13.7%), Previous Tubal Surgery (13.7%) and previous abortions (9.8%). Out of the n=51 patients, surgical treatment was performed in n=48 patients and n=3 were medically managed. Blood transfusion was given in 72.5% patients. The postoperative period was uneventful in all of them.* ***Conclusion:*** *As the incidence of ectopic pregnancy has been on the rise, screening of high-risk cases, early diagnosis, and early intervention are required to enhance maternal survival and conservation of reproductive capacity.*

***Keywords****: Ectopic pregnancy, Salpingectomy*

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## Introduction

The term ectopic pregnancy has been obtained from Greek word Ekpos meaning out of place and here it refers to the implantation of the fertilized egg in a location outside the uterine cavity. Ectopic pregnancy is one of the commonest acute abdominal emergencies a gynecologist has to see in her/his day-to-day practice. It is also a matter of great concern that a woman might have to face any time during her childbearing period. It is a common life-threatening emergency and the frequency of ectopic pregnancy is high in the developing world. It not only threatens the life if not treated timely and effectively but also tells upon her fertility unavoidably by causing mutilation of an essential organ of reproduction, namely the fallopian tube with or without ovary and sometimes even the uterus. The incidence of ectopic pregnancy is on the rise during recent years across the world [1-3]. The fallopian tube is usually involved in 97% of cases of ectopic implantation. The tubal ampulla is the region for

80% of all ectopic pregnancies, isthmus is involved in 12%, fimbria in 5%, and 2% in the interstitial part (corneal pregnancy). Some of the important etiological factors are pelvic inflammatory diseases due to gonococcal or chlamydial infections and other risk factors include the use of IUCD, progesterone-only pills, previous tubal ectopic pregnancy, previous tubal surgeries, history of abortions and assisted reproductive techniques [4]. The patients of ectopic pregnancy usually present with pain and vaginal bleeding between 6 to 10 weeks of gestation [5]. The diagnosis of ectopic pregnancy has increased in recent times and the consequences of ectopic pregnancy like rupture have declined. Some of the interventional techniques for the diagnosis and management include quantitative HCG measurements, minimally invasive surgery and transvaginal ultrasonography [6]. On ultrasound examination ectopic pregnancy is presented with complex adnexal mass or a solid mass, however, it has to be differentiated from corpus luteum, endometrioma, hydrosalpinx, ovarian neoplasia (e.g., dermoid cyst), or a pedunculated myoma. Missing of intrauterine gestational sac 38 days or more after the last menstrual period or 24 days after conception is the evidence of ectopic pregnancy [7]. This study was conducted to determine the incidence of ectopic pregnancy, clinical presentation and risk factors associated with ectopic pregnancy.

# Materials and Methods

This study was undertaken at CKM Government Maternity Hospital, Warangal. Institutional Ethical committee permission was obtained for the study. Written consent was obtained from all the participants of the study. The total numbers of deliveries during the study period from May 2018 to October 2019 were 13,200 and we had 51 cases of ectopic pregnancy giving an incidence of 1:259 pregnancies. All diagnosed cases of ectopic pregnancy were enrolled in the study. Information was collected in a pre-tested proforma. Inclusion Criteria all diagnosed cases of ectopic pregnancy admitted to CKM Government Maternity Hospital, Warangal during the study period. Exclusion criteria were all intrauterine pregnancies. A detailed history and clinical evaluation were done abdominal examination was done for guarding, rigidity, tenderness, presence of masses presence free peritoneal fluid and presence of Cullen's sign. The Vaginal examination was done for the color of the cervix, tenderness, size of uterus its mobility and consistency and presence of masses of the fornix. The per-rectal examination was done for confirmation of findings whenever necessary. Laboratory investigation was done for Hb%, Blood grouping, pregnancy test, and Rh typing. Ultrasonography was done for all the patients to the determination of complex adnexal mass or solid masses.

***Management***

In acute cases with the typical symptoms i.e., amenorrhoea, pain and bleeding there was no difficulty in diagnosis, which was confirmed by USG followed by laparotomy. On admission, after a detailed examination, a sample of blood was drawn for grouping and cross-matching to arrange blood transfusion. Patients in shock were treated and then taken for surgery. Blood transfusion was given preoperative, intraoperative or postoperative as per the requirement of individual cases. The plan of management was decided based on individual cases. In cases with atypical findings (history and examination) simulating other conditions like pelvic infection, twisted ovarian cyst or acute appendicitis were hospitalized for observation and taken for laparotomy subsequently. Surgical Procedure was performed under General Anesthesia. The abdomen was opened with a suitable incision. The site of ectopic gestation, the status of the fallopian tube, contralateral tube, ovaries, and uterus was noted. As the majority of the patients had ruptured tubal gestation, a decision for removal of the tube i.e., unilateral salpingectomy was made. Salpingectomy was combined with contralateral tubectomy in patients who did not wish to conceive. In cases with obvious pathological findings on the opposite side, the diseased adnexa were removed. Post-operative Care prophylactic antibiotics were given to all patients at the time of induction of anesthesia. Patients were followed up in the postoperative period with special attention to the development of fever abdominal pain, distension of the abdomen and wound sepsis. Patients were discharged with advice to come for follow up after a week.

# Results

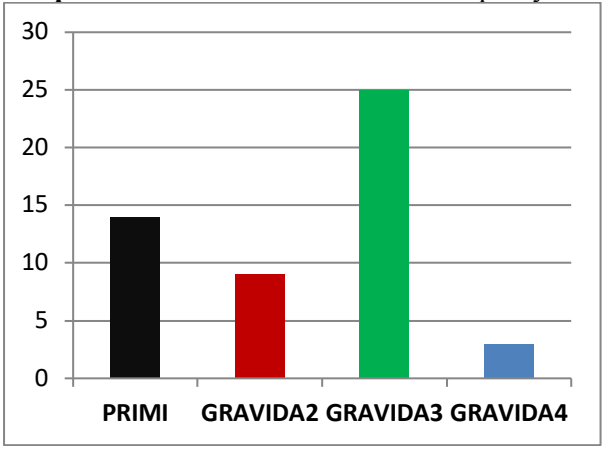
The maximum number of ectopic gestation in the present series occurred between the ages group 26 to 30 years. The youngest age was 16 years and the oldest was 40 years.

**Table 1:** Ectopic pregnancy concerning age

| Age groups (yrs) | No. of Cases | Percentage |
|---|---|---|
| 15-20 | 6 | 11.7 |
| 21-25 | 17 | 33.3 |
| 26-30 | 23 | 45.0 |
| 31-35 | 4 | 7.8 |
| 36-40 | 1 | 1.9 |
| Total | 51 | 100.0 |

When the review of previous reproductive performance was studied, it was found that the maximum incidence of ectopic gestation occurred among the nulliparous and in the second and the third gravidas. In n=14 out of n=51 patients, ectopic pregnancy was the first conception. As the p-value is significant there is increased incidence in multipara than in nulliparous women.

**Graph 1**: Distribution of cases based onparity




The majority of the cases belonged to the low socio-economic status and only 15.7% of the sample was from a medium socioeconomic status and none of them belonged to the high socioeconomic status.

**Table 2:** Socio-economic status

| SES categories | No. of cases | Percentage |
|---|---|---|
| Low | 43 | 84.3 |
| Medium | 08 | 15.7 |
| High | 00 | 00 |
| Total | 51 | 100.0 |

A significant association was observed between age and parity. The contingency coefficient of 0.553 was found to be higher insignificant (P<0.553). A clear trend seen from table 3 is that, as the age increased parity also increased linearly.

**Table 3:** Correlation of the sample by age and parity

| Age | Parity | | | | | Total |
|---|---|---|---|---|---|---|
| | Primi | G 2 | G 3 | G 4 | G 5 | |
| 15-20 | 5(83.3) | 1(16.7) | - | - | - | 6 |
| 21-25 | 6(35.3) | 3(17.6) | 7(41.2) | 1(5.9) | - | 17 |
| 26-30 | 3(13.0) | 3(13.0) | 15(65.2) | 2(8.7) | - | 23 |
| 31-35 | - | 2(50) | 2(50.0) | - | - | 4 |
| 36-40 | - | - | 1(100) | - | - | 1 |
| Total | 14(27. | 9(17.6) | 25(49.01) | 3(5.9) | 0 | 51 |

There were no risk factors identified in 50.9% of the cases. Infertility of more than 4 years was seen in 7 out of 51 cases accounting for about 13.7% of cases 2% of the patients had undergone procedures such as dilatation and curettage previously. Three patients gave a history of pelvic inflammatory disease and they had undergone treatment with antibiotics. Ectopic pregnancy after recanalization was seen in one patient. Surgical procedures seen were recanalization in one patient, tubal ligation in seven patients and one patient had been found to have scar ectopic pregnancy that had n=2 previous cesarean sections.

**Table 4:** Table showing the Risk factors in ectopic pregnancy

| Risk factors | No. of cases | Percentage |
|---|---|---|
| None | 26 | 50.9 |
| Oral contraceptives | 0 | 0 |
| Tubectomy | 7 | 13.7 |
| Dilatation and curettage | 1 | 2 |
| IUCD | 0 | 0 |
| Previous abortions | 5 | 9.8 |
| Previous ectopic pregnancies | 0 | 0 |
| Infertility | 7 | 13.7 |
| Previous LSCS | 1 | 2 |
| Pelvic inflammatory disease | 3 | 5.9 |
| Recanalization | 1 | 2 |
| Total | 51 | 100.0 |

Abdominal pain and amenorrhoea were the most common symptoms in patients who had ampullary pregnancy. Bleeding per vaginum was a complaint in 72.7% of ampullary pregnancies. But in isthmal pregnancies, it was observed only in 33.3% of the cases. In the present study, none of the patients with interstitial pregnancy complained of bleeding per vaginum.

**Table 5:** Distribution of the sample by Site of ectopic pregnancy and the mode of presentation

| Mode of presentation | Site | | | P-value |
|---|---|---|---|---|
| | Ampullary | Isthmal | Interstitial | |
| Amenorrhea | 17 (77.3%) | 4 (66.7%) | 1 (100.0%) | 0.734 (NS) |
| Pain Abdomen | 18 (81.8%) | 6 (100.0%) | 1 (100.0%) | 0.478 (NS) |
| Bleeding | 16 (72.7%) | 2 (33.3%) | - | 0.091 (NS) |
| Others | 6 (27.3%) | 1 (16.7%) | - | 0.734 (NS) |

**Table 6:** Condition of the fallopian tube on laparotomy

| Condition of the tube | No. of cases | Percentage |
|---|---|---|
| Ruptured | 38 | 86.3 |
| Tubal abortion | 1 | 2.3 |
| Unruptured | 5 | 11.4 |
| Haematosalpinx | 0 | 0 |
| Normal | 0 | 0 |
| Total | 44 | 100.0 |

The majority of the cases had an ampullary pregnancy. Isthmal pregnancy was seen in two patients who had no significant risk factors. It was observed that patients who underwent procedures such as Diagnostic hysterolaproscopy and was on infertility treatment had an increased incidence of ampullary ectopic pregnancy. 78.5% of patients had bleeding per vaginum on speculum examination. Among these 20 patients, 45% had ruptured ectopic pregnancy and 40% had a tubal abortion. The fallopian tube was unruptured in n=5 cases. Therefore, the presence of bleeding on speculum examination would give a picture of a ruptured ectopic or tubalabortion.

On laparotomy, patients who had a ruptured fallopian tube had amenorrhoea and acute pain abdomen as their major symptoms on admission. Whereas, 40% of the patients who had a tubal abortion, presented with bleeding per vaginum. Patients with unruptured tubal pregnancies also had similar symptoms but only in smaller proportions. Most of our patients were referred from outside with the diagnosis of ruptured ectopic pregnancy. So our treatment modality was mainly surgical significantly more cases had unilateral salpingectomy (45.9%) followed by salpingectomy with contralateral tubectomy (41.7%).

**Table 7**: Surgical procedures done in the patients

| Procedure | No. of cases | Percentage |
|---|---|---|
| Unilateral salpingectomy | 22 | 45.9 |
| Salpingectomy with contralateral tubectomy | 20 | 41.7 |
| Bilateral salpingectomy with unilateral oophorectomy | 3 | 6.4 |
| Scar excision with bilateral tubectomy | 1 | 2.0 |
| Milking | 1 | 2.0 |
| Unilateral salpingectomy with ovarian cyst wall excision | 1 | 2.0 |
| Total | 48 | 100.0 |

## Discussion

The incidence of ectopic pregnancy has increased over the past two decades. This may be due to several factors such as increased frequency of tubal infections, an increase in the number of tubal operations and better facilities for diagnosis and treatment and a rise in the trend of assisted reproductive techniques. There is a wide variation in the incidence of ectopic pregnancy reported by Western as well as Indian authors. This is because incidence varies from place to place and also because the incidence is calculated concerning such variables as total admissions, deliveries, live births, intrauterine pregnancies, etc M Shrivastava et al; [8] have reported the incidence of 1:96. In this study we found the incidence to be 1:259 our results were consistent with ICMR 1990 [9] findings with reported ectopic pregnancies to be about 1:250. In the present study, the maximum incidence of ectopic

occurred in primigravida. Rose et al; [10] have shown that as parity increases there is a decrease in the incidence of ectopic pregnancy. According to the ICMR Multicentric Case-Control Study (1990) [9] of ectopic pregnancy, the majority of women were young and had low parity and the mean age 28.01 ± 4.9 years.

In the present study, the period of infertility varied from 4 to 6 years giving an incidence of 13.7% for infertility. It is stated that ectopic pregnancy follows a period of infertility. A significant incidence of prolonged infertility and its causal relationship to ectopic pregnancy has been observed by other authors [10, 11]. Similar studies of this field have also reported primary infertility as a significant risk factor for ectopic pregnancy [8, 12]. In this study, three patients have a history of PID which is 5.9%. Other similar studies have shown the incidence of PID to be ranging from 4 to 34.4% [10, 12]. Brunham et al; [13] has brought forth a strong association between Chlamydia infection and tubal pregnancy with serologic tests for chlamydia. All these points bring forth the same fact into light that the recent change in sex life can cause pelvic inflammation and tubal damage in younger age groups causing more incidence of ectopic pregnancy in young, Nulli or low parity women. History of abortion within the past two years was obtained in 5.9% of the patients. Rose et al; [10] reported previous abortion as a risk factor in 25.8%. In the present series, IUCD was used by no one and OCP was also used by none. Throughout literature, reports are linking the use of various types of IUDs with the occurrence of ectopic pregnancy. March Banks et al; [11] 1.6% incidence of ectopic pregnancy in patients who were on progestin-only contraceptive. Manifestations of an unruptured tubal pregnancy are not characteristic. In the present study, it was found that only a certain proportion of cases of tubal pregnancy presented a textbook picture of amenorrhoea, bleeding per vaginum, fainting attacks, abdominal pain, tenderness, and an adnexal mass. In this study, Amenorrhoea was present in 51 cases (100%) the incidence is comparable to Rose et al; [10] and Pendse V [14]. Vaginal bleeding of the variable pattern was present in 78.4% of cases. The amount of bleeding was scanty to moderate in most of the cases. Other authors elicited similar findings. On general examination, pallor was seen commonly in 70.6% of cases echoing with similar findings in other studies. 13.7% of cases presented in a state of shock. Tenderness over the lower abdomen and in the fornices was the common signs in the majority of patients (74.5%). The classical sign of cervical excitation was present in 60.8% of patients. Ultrasonography reported 82.3% of them as ruptured, 17.7% of them as unruptured and presence of an adnexal mass, most likely an ectopic pregnancy, was found in 66.6% in a study done by Rose Jophy et al; [10] Most of our patients were referred from outside with diagnosis of ruptured ectopic pregnancy. So our treatment modality was mainly surgical.

## Conclusion

The incidence of ectopic pregnancy in the present study was within the trends found in our country. Early diagnosis is the key to management. In this study, many patients were referred form other places with an established diagnosis which had to be managed surgically. It is therefore important that all the physicians should be sensitive to the fact that in the reproductive age group any women presenting with pain in the lower abdomen, ectopic pregnancy should be high on differential diagnosis irrespective of the presence or absence of amenorrhoea, whether or not she has undergone sterilization.

***Conflict of Interest:*** *None declared*
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