



## A Cross-Sectional Study on Ectopic Pregnancy in Sterilized Women

### KEYWORDS

Ectopic pregnancy, Laparotomy, Concurrent and puerperal sterilization, Maternal morbidity.

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### ABSTRACT

Ectopic pregnancy is an emergency situation in which timely intervention will reduce the maternal mortality & morbidity. For early diagnosis a clinician should well aware about the various presentations of ectopic pregnancy. A detailed study on ectopic pregnancy over a particular time period in order to determine the age group, parity, sterilization status with respect to ectopic pregnancy, with a view to join the global trend of early diagnosis and conservative management. The study was carried out in ectopic pregnancy cases who attended Obstetrics and Gynecology department for a period of two years from July 2012 to June 2014. Face to face interviews were conducted using data collection tool. All data were collected on a structural data form and analyzed. total of 138 patients were recruited, of which 124 patients who underwent laparotomy were found to be having ectopic pregnancy. Majority of the patients (63.8%) were in the age group of 21 to 30 years and multigravida (75.4%) were found to be more prone to have an ectopic pregnancy. 25 (18.1%) cases were post sterilization ectopic pregnancies. Concurrent and puerperal sterilization were found to be associated with higher number of ectopic pregnancies which most commonly occurred 3 to 10 years after the sterilization surgery. Ectopic pregnancy has diverse clinical presentations. Sterilization could not rule out the possibility of an ectopic pregnancy. Hence strong suspicion is required for its early diagnosis and referral in view of reducing the maternal morbidity.

### Introduction

Ectopic Pregnancy is originated from 'Ektopos', a Greek word. In ectopic pregnancy the fertilized ovum implants outside the endometrial cavity of the uterus [1]. The most common extra uterine pregnancy is the tubal pregnancy in which a fertilized ovum implants in the fallopian tubes. Tubal pregnancies account for 98% of all ectopic gestations. Other sites like ovary, cervix, horn of the uterus, caesarean scar and abdominal cavity are rare [2].

Incidence of ectopic pregnancy varies among different countries and also within the same country from place to place. The incidence is around 0.3 - 0.5% of deliveries in the U.S. and U.K, 4% of deliveries in Ghana and 2.1% of deliveries in Nigeria. [3-5]. In Shraddha Shetty K et al Study in India, the incidence was 5.6/1000 deliveries [6]. In current century, the developed countries are facing with fourfold rise in the occurrence of ectopic pregnancy (from 0.3 to 1.2%) [7,8]. This rise is mainly because of advanced techniques for diagnosing the ectopic pregnancy in earlier stage and increased prevalence of ART & PID [9,10].

Ectopic pregnancy is a gynecological emergency. In developing countries like India, late presentations with tubal rupture and hemodynamic instability are seen in most of the cases. In developing countries, ectopic pregnancy remains an important cause of first trimester maternal morbidity and mortality [11]. Fetal wastage, recurrence and impairment of subsequent fertility are the most important concerns [12].

The management of ectopic pregnancies has been revolutionized in developed countries, because of the availability of laparoscopic techniques, medical therapy, uterine artery

ligation and more advanced diagnostic modalities which help in early diagnosis, better conservation of future fertility [13], shorter hospital stay & reduced surgical morbidity.

Due to several factors like delay in seeking health care, absence of investigations (like HCG, progesterone assays, transvaginal sonography) and lack of suspicion in the diagnosis of ectopic of pregnancy by most of the inexperienced clinicians, early diagnosis is almost impossible in most developing countries [14].

Although no risk factors have been identified in most of the cases with ectopic gestation, studies have highlighted that the awareness of risk factors associated with ectopic gestation helps in identifying the cases early [16]. Main risk factor is the prior tubal damage due to any cause [16]. Chlamydial infection was found to be the risk factor for 30 - 50% of all ectopic gestation [17].

When tubal sterilization fails, the ectopic pregnancy is likely. The incidence of ectopic pregnancy after tubal sterilization failure varies between 5-90% [18]. Tubal ligation with resultant tubal damage carries odds ratio of 9.3 for ectopic pregnancy in comparison with pregnant controls [19]. Tubal sterilization is widely regarded as a highly effective method of contraception. In a large multicentre study, the risk of ectopic gestation among women who have undergone common methods of tubal sterilization was found to be 7.3/1000 procedures.

The risk of ectopic pregnancy depends on the method used for tubal sterilization. All methods of tubal occlusion require correct application to maximize the effectiveness. The higher rate of failures are seen with spring clip appli-

cation and bipolar coagulation that highlight the requirement of proper techniques in the use of these methods as demonstrated by Hulka&Reich,Soderstrom et al.,[20,21]. The failure rate of Pomeroy's technique is estimated as 0.25-2.1[22] .

Ectopic gestation usually presents with Amenorrhoea, Bleeding P/V, Abdominal Pain with acute symptoms like pelvic pain, bleeding p/v and long term complications like infertility [23].The incidence of rupture has declined in the last decades due to the availability of quantitative HCG assays, transvaginalsonography and minimally invasive surgeries [24].Early diagnosis of ectopic pregnancy helps to reduce the incidence of rupture. So, the physician can provide conservative medical and surgical treatments [25]. Since, ectopic pregnancy is an important health problem among the reproductive age group women, the study was aimed to determine the clinical profile of the patients as well as the risk factors so as to make recommendations in order to reduce the incidence of this life threatening event.

### Materials and Methods

The cross-sectional study was conducted at Tirunelveli medical college hospital among ectopic pregnancy cases who attended Obstetrics and Gynecology at Tirunelveli Medical College Hospital from July 2012 to June 2014 for a period of 2 years.

### Data Collection

Data collection tool was used to collect the different information. Face to face interviews were conducted using data collection tool by the investigator including detailed history taking and relevant physical examination.A detailed history was taken from the patient (if the patient was in shock the history was taken retrospectively). After taking history physical examination was done especially for vital signs, abdominal examination, per vaginal examination, cervical excitation test and culdocentesis when needed. The basic investigations were done in all patients. All data were collected on a structural data form (sample enclosed)and analyzed for descriptive statistics.

### Results

A total of 138 patients were recruited in the study. The study population was estimated to be 0.94% of total deliveries (14,688) and0.73% of total admissions (18,939) in gynecology ward during the study period.5 patients in the study had undergone medical management. Remaining 133 patients had undergone laparotomy. During laparotomy124 patients were found to be having ectopic pregnancy which was confirmed by histopathology. One patient had heterotopic pregnancy.

One patient had negative laparotomy. Remaining 7 patients had other gynecological lesions.63.8% of the study population belongs to 21 to 30 years of age. 49 (35.55%) patients were more than 30 years of age.

Among the study population 74.5% were multigravida and 24.6% were primigravida. Among the parous women with at least one live child 25(18.1%) were sterilized and 66 (47.8%) were not sterilized. The duration between sterilization and the occurrence of ectopic pregnancy was 1-3 yrs in 7 (28%) patients, 4 to 10 yrs in 16(64%) patients ,> 10 yrs in 2(8%) patients.(Figure-1)

Among the sterilized women 11(44%) patients had concurrent sterilization, 4 (16%) patients had laparoscopic sterilization, 6 (24%) patients had puerperal sterilization and

4(16%) patients had total abdominal tubectomy.(Figure-2)

### Discussion

In the present study, the incidence of ectopic pregnancy was 8.7per 1000 deliveries. In a study conducted by shraddhashetty k et. al in Mangalore , the incidence was 5.6/1000 deliveries.[6]Majority of the patients (63.8%) were in the age group of 21 to 30years in our study. Similar results were found in Smitasingh et.al and Samiya Mufti et.al studies[26,27 ] . This corresponds to the age of peak sexual activity and reproduction . There are studies stating that age related tubal changes increase the incidence of ectopic pregnancy [28,29] .

In this study multigravida (75.4%) were found to be more prone to have an ectopic pregnancy. This result was similar to other studies conducted by ShraddhaSettyet.al[6] . In Laxmikarki study 61% were multiparous women. Among the nulliparous women 62.5% had history of sub fertility for more than one year. Similar findings were obtained in Tanveer Shafquat et.al study[30].

In the present study 25 (18.1%) cases were post sterilization ectopic pregnancies. Among the sterilization methods, concurrent and puerperal sterilization were found to be associated with higher number of ectopic pregnancies. Ectopic pregnancies most commonly occurred 3 to 10 years after the sterilization surgery. The incidence of ectopic pregnancy is higher when tubal sterilization is performed in the postpartum period because of the edematous, congested & friable fallopian tubes, which increases the chance of incomplete occlusion of the lumen [31].

The probable explanation for the occurrence of ectopic gestation after tubal sterilization is recanalisation or formation of tubo-peritoneal fistula. Sperms can pass through these fistulas but the fertilized ovum cannot. So, implantation of fertilized ovum typically occurs in the distal segment of the tube [31]. Recanalisation results in abnormal reconstruction of the tubal lumen with formation of slit like spaces & blind pouches. This may results in ectopic implantation.[31]Fluid movements within the remaining segments may also influence the implantation.[31]

The risk of ectopic gestation may be higher after electro coagulation procedures, than any other methods. To avoid luteal pregnancy, sterilization should be performed in the early follicular phase. The ectopic pregnancy must not be disregarded in a woman who has undergone tubal sterilization, particularly if two or more years have elapsed since the surgery.[32]

In a large series study from various hospitals, the risk of ectopic pregnancy after sterilization reversal was reported to be 0.3 to 3% of all pregnancies.[32]Microsurgical techniques for reversal of sterilization provide better results than conventional surgery.[33]The lower rate of ectopic pregnancy in microsurgical technique is associated with Proper alignment of lumen, Gentle handling of tissues and Proper excision of all pathological tissues under magnification .

### Conclusion

Ectopic pregnancy is famous for its diversity of clinical presentations and atypical presentations. Strong suspicion is required for its early diagnosis.Sterilisation could not rule out the possibility of an ectopic pregnancy. So, we should advise the patients to come for checkup if she misses the periods as early as possible. The recommended steriliza-

tion techniques should be followed strictly. Early diagnosis and referral is the key factor in reducing the maternal morbidity and in preserving the future fertility. Routine first trimester ultrasound should be done in all pregnant women at the booking visit itself.

Figure-1-Time Since Sterilization (Years)

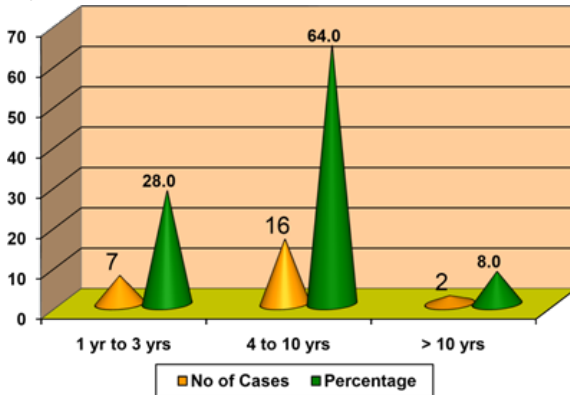
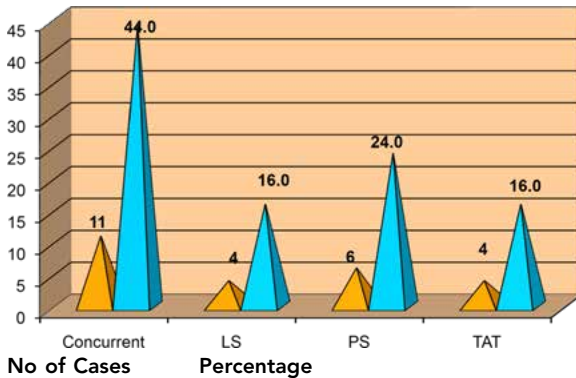


Figure-2 - Method of Sterilization



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