

ECTOPIC PREGNANCY AFTER TUBAL LIGATION AN EXPERIENCE IN RURAL SET UP

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ABSTRACT: OBJECTIVE: To analyze retrospectively cases of ectopic pregnancy occurring after tubal ligation. **MATERIAL AND METHODS:** Number of ectopic pregnancies occurred during the year June 2012 to June 2013 were analyzed. A total number of 20 cases of ectopic pregnancy were managed in the hospital. Of these, seven patients had history of tubal ligation surgery in the past. Factors associated with these seven cases were analysed. **RESULTS:** Tubal ligation carries risk of failure in small proportion of cases. The risk of ectopic pregnancy in such cases varies from 5-90%. Seven out of 20 ectopic (35%) pregnancies occurred after tubal ligation. **CONCLUSION:** Tubal ligation is a risk factor for ectopic pregnancy. High index of suspicion is required for diagnosis of such cases.

KEYWORDS: Ectopic pregnancy, Tubal ligation, Rural setup.

INTRODUCTION: Ectopic pregnancy is an important cause of obstetric haemorrhage with resultant maternal morbidity and mortality.^[1] obstetric haemorrhage accounts for 30.8% of causes of maternal mortality of which ectopic pregnancy accountable to 0.1%.^[1] was also observed in united kingdom that maternal deaths were attributed to direct causes like obstetric haemorrhage ectopic pregnancy and venous thromboembolism also there is a rising trend in increase in maternal deaths due to indirect causes.^[2] Various etiological factors are listed for the cause of ectopic pregnancy of which tubal ligation is one among them.^[3] The authors found the incidence of ectopic pregnancy after failed tubal ligation to be 67% in their study. But literature review quotes an incidence of 5-90%.^[3] Chi IC and Siemens et al found an incidence of 10%.^[4] Tubal ligation is the most common surgical method of female sterilization for the couples who opt for permanent method of contraception. According to family planning programme 2011 annually 5 million sterilization procedures are performed in India.

Tubal ligations constitute 95.6% and vasectomies 4.4%. Total number of 50 tubal ligations and two vasectomies performed in our hospital during a period of one year. Tubal ligation though an effective method of contraception is associated with a failure rate of 0.3-1.3% resulting in pregnancy.^[5] A significant proportion of these pregnancies 15-33% are ectopic.^[5] Hence tubal ligation performed for permanent sterilization carries a risk of ectopic pregnancy adding to the maternal morbidity and mortality. There should be high degree of suspicion of ectopic pregnancy even in patients who have undergone tubal ligation. The present study is undertaken to analyse retrospectively ectopic pregnancies which occurred in patients who underwent tubal ligation procedure in the past.

MATERIAL AND METHODS: Twenty cases of ectopic pregnancy occurred in a period of one year from June 2012 to June 2013. Seven out of twenty cases (35%) underwent tubal ligation in the past. A detailed evaluation of these seven cases is done and factors such as age, type of sterilization procedure, time elapsed from tubal ligation type of clinical presentation, site of ectopic pregnancy, are analysed.

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RESULTS: Table 1 shows the distribution of patients according to the age. Two out of seven cases were more than 30 years of age, one was 34yrs and the other was 38yrs. Out of seven patients six patients underwent tubal ligation by mini laparotomy technique and one patient underwent laparoscopic sterilization by falope ring application. Majority of patients (57%) underwent postnatal sterilization. The duration from tubal ligation was more than 5 years in 85.7% of patients. One patient presented after 15yrs of tubal ligation.

Pain in abdomen was observed in all cases while delayed period was seen in only 2(28.5%) cases. Ectopic pregnancy has to be suspected even in the absence of amenorrhoea. Of the 3 cases who presented with shock one patient died immediately after surgery. 71% of cases presented with tubal rupture. Ectopic gestation was located at the site of interruption in 71% of cases. Patient having ectopic gestation at cornual region with rupture had severe haemoperitoneum, consumptive coagulopathy and could not be saved.

Of the seven cases laparotomy was done in five cases and two cases underwent laparoscopic salpingectomy. All the patients required blood transfusions. One among them progressed to consumptive coagulopathy requiring transfusion of fresh frozen plasma and platelet concentrate. Post-operative recovery was good in 5(71.4%) patients and discharged within 7 days without any complications. One patient developed intestinal obstruction which was managed conservatively and the patient recovered well without surgical intervention.

DISCUSSION: Ectopic pregnancy indeed is an important risk factor for maternal mortality.^{[1],[2]} Tubal ligation is most common method of permanent sterilization. According to family planning programme 2011 94.5% of permanent sterilization procedures are tubal ligation. The rate of pregnancy after tubal ligation is 0.3-1.3% and the rate of ectopic pregnancy after tubal ligation is 15-33%.^[5] Tubal ligation carries risk of ectopic pregnancy in small proportion of cases and high index of suspicion is required to diagnose the same in such patients. Coste J, Job Spira et al.^[6] observed that prior tubal surgery is a risk factor for ectopic pregnancy with odds ratio of 5.1. In this retrospective analysis numbers of cases of ectopic pregnancy were 20 and seven out of twenty cases occurred after tubal ligation.

It was observed that the occurrence of ectopic pregnancy after tubal ligation has no predilection to age. Patients in reproductive age (20-40years) are predisposed. The median age at the time of sterilization was found to be 30years by Herbert B, Peterson et.al.^[7] They also observed that failure rate was lesser with postnatal sterilization than within tervaltubectomy. They calculated a 10 year probability of failure of 4.9 per 1000 procedures as against 7.5 per 1000 procedures for interval tubectomy. The difference in our observation can be explained by the greater number of postnatal sterilizations performed in our hospital 85.7% of patients presented after 5 years of tuballigation. One patient presented as

Long as after 15 years of tubalsurgery. This is because of young age at the time of sterilization and impending risk of ectopic pregnancy throughout the reproductive years.^[7] Risk of failure after 5 years for partial salpingectomy is 1.2per 1000 procedures and 8.3 for laparoscopic bipolar coagulation.^[7] 85.7% of patients underwent tubal ligation by minilaparotomy while one out of seven underwent laparoscopic sterilization by falope ring application. This might lead to a bias that partial salpingectomy is associated with high risk of ectopic pregnancy. But in rural areas the acceptance of laparoscopic sterilization is much lesser when compared to partial salpingectomy. Sudhir Babu Palli, Vijayalakshmi et al.^[8] observed that the acceptance of laparoscopic sterilization was lesser in illiterate women than in educated women.

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They also observed that acceptance of laparoscopic sterilization was lesser in house wives than in working women. Our hospital caters to the rural population and the acceptance of laparoscopic sterilization is lesser than post-partum sterilization. Fifty tubal ligation surgeries are performed during the year June 2012 to June 2013. Ten (20%) among them are interval tubectomies done by minilaparotomy and three (6%) were performed by laparoscopic route. The numbers of caesarean ligations are 37(74%). In this study 57% of patients with ectopic pregnancy underwent postnatal sterilization and 28% underwent caesarean ligation.

Huggins GR, Sondheimer S Jetal.^[9] observed that the risk of pregnancy failure was more in the first year and risk decreases in subsequent years. Another study analysed 15 ectopic pregnancies occurring after female sterilization comparing with non-pregnant control patients found that patients with ectopic pregnancy after sterilization procedure had history of induced abortion (matched triplet odds ratio = 9.0, 95% confidence limits = 1.39, 58.26).and previous abdominal surgeries(odds ratio 5.8, 95% confidence limits = 1.78, 18.60).^[10]our study reported induced abortion in one patient and there was no history of abdominal surgeries but for caesarean section in two patients.

Shah JP, Parulekaretal.^[11] Observed that the incidence of ectopic pregnancy increases after 2 years than intrauterine pregnancy should a failure of sterilization occur. Pain abdomen was a common symptom seen in all patients while delayed period occurred only in 28% of patients. This makes the diagnosis more difficult. 42.8% of patients presented with shock at the time of diagnosis. The history of tubal ligation and near normal monthly period can mislead the diagnosis.^[12] 71% of patients with ectopic pregnancy had rupture of the tube while only one patient had tubal abortion. The tubes in this patient were recanalised spontaneously and there was no evidence of previous partial salpingectomy. In majority of patients 71% the site of ectopic was the site of interruption.^[12] One patient (14.2%) presented with a cornual pregnancy with massive haemoperitoneum and consumptive coagulopathy.

The patient presented to hospital 72 hrs after the symptoms developed and was diagnosed the as ectopic pregnancy. Sterilization gives a sense of security so the symptoms and signs are overlooked, delaying the diagnosis of pregnancy. As a consequence it may result in maternal death.^[12] Surgical intervention is required in majority of ectopic pregnancies. Though laparotomy is conventional method of management laparoscopic salpingectomy can also be performed in selective cases.^[13]

CONCLUSION: Tubal ligation is an effective method of contraception but in a small proportion of cases results in pregnancy due to failure of the method. Sterilization failure results in ectopic pregnancy in significant number of cases. History of sterilization procedure and absence of classical symptoms delays the diagnosis adding to the maternal mortality.

Age of the patient (Years)	Number
21-25	3(42.8%)
26-30	2(28.5%)
31-35	1(14.2%)
36-40	1(14.2%)

Table 1: Distribution of Patients according to the Age

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Type of Tubal Ligation	Number of Patients
Pomeroy technique	6(85.7%)
Laparoscopy(falope ring)	1(14.2%)
Timing of tubal ligation	Number of patients
Postnatal sterilization	4(57.1%)
Caesarean sterilization	2(28.5%)
Interval sterilization	1(14.2%)

Table 2: Distribution of Patients according type of tubal ligation and timing of ligation

Duration (Years)	Number of Patients
>5	2(28.5%)
5-10	4(57.1%)
>10	1(14.2%)

Table 3: Distribution of patients according to duration from tubal ligation

Clinical Symptom	Number of Patients
Delayed period	2(28.5%)
Pain abdomen	7(100%)
Bleeding per vaginum	5(71.4%)
Shock	3(42.8%)
Course of ectopic pregnancy	Number of cases
Unruptured	1(14.2%)
Tubal abortion	1(14.2%)
Ruptured	5(71.4%)
Location of ectopic gestation	Number of patients
Cornual	1(14.2%)
Isthmic	1(14.2%)
Site of interruption	5(71.4%)

Table 4: Distribution of patients according to clinical symptoms, Course of ectopic pregnancy and location of ectopic gestation

Management of Ectopic Pregnancy	Number of Patients
Laparotomy	5(71.4%)
Laparoscopy	2(28.5%)

Table 5: Management of Ectopic Pregnancies

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