

# Primary Ovarian Pregnancy after Bilateral Tubal Sterilization

Poonam Lama,<sup>1</sup> Gautam Jha,<sup>2</sup> Indra Prasad Amatya<sup>3</sup>

<sup>1</sup>Department of Obstetrics and Gynecology, Kapilvastu District Hospital, Kapilvastu, Nepal, <sup>2</sup>Department of General Practice, Patan Academy of Health Sciences, Kathmandu, Nepal, <sup>3</sup> Patan Academy of Health Sciences, Kathmandu, Nepal

## ABSTRACT

Tubal sterilization is considered a permanent method of contraception because it is highly effective. However, pregnancy can still occur following a successful procedure and such pregnancies are likely to be ectopic. Primary ovarian pregnancy is one of the rarest forms of ectopic pregnancy having incidence of 1/7000-1/40,000 in live births and 0.5-3% of all ectopic gestations. In this paper, we report a rare case of ovarian pregnancy after tubal sterilization.

All women who are offered this procedure should always be educated about its failure rate. And in women presenting with acute abdomen, a prior history of tubal sterilization doesn't preclude the possibility of ectopic pregnancy.

**Keywords:** Contraception; ovarian pregnancy; tubal sterilization

## INTRODUCTION

Tubal sterilization is the most commonly used method of fertility regulation worldwide.<sup>1</sup> Although highly effective and considered a permanent form of contraception because of its low failure rate, pregnancy can still occur which is likely to be an ectopic pregnancy, a major cause of maternal morbidity and mortality resulting in 2-2.5% of maternal deaths.<sup>2</sup>

Ovarian pregnancy is very rare with an incidence of 1/7000-1/40,000 live births and 0.5-3% of all ectopic gestations.<sup>3</sup> We report a case of primary ovarian pregnancy which occurred 1.5 years after bilateral tubal sterilization.

## CASE REPORT

A 33 years P3L3 lady presented to gynecology out-patient department with complaints of amenorrhea for one and half months and dull abdominal pain for three days. Apart from that, she had no vomiting, vaginal bleeding, dizziness or fever. She had undergone bilateral tubal sterilization one and half years back during cesarean section.

On examination, she had no pallor and was hemodynamically stable. Her abdomen was soft and slightly tender at suprapubic region. Per speculum

examination showed no evidence of bleeding. Bimanual examination revealed a soft and slightly mobile mass approximately 3 x 3 cm in left adnexa. Uterus was bulky. Cervical excitation was positive. Her urine tested positive for pregnancy. With the suspicion of ectopic pregnancy, an ultrasonography was done which reported a heterogeneous complex mass of 4.0 x 3.5 cm in left adnexa and empty uterine cavity (Figure 1). All blood parameters were normal. A diagnosis of ruptured ectopic pregnancy was made and having counseled the patient and the attending party, an informed consent was taken for emergency laparotomy.

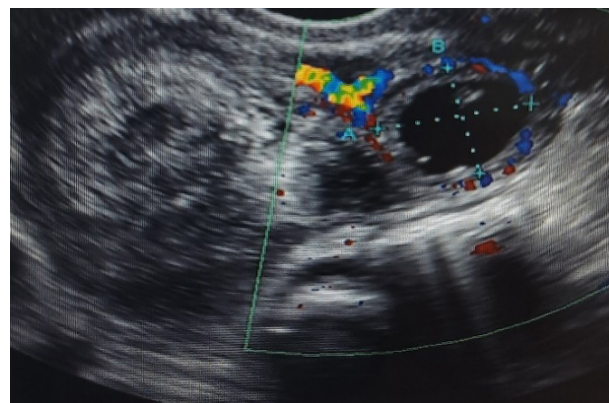


Figure 1. Ultrasound image demonstrating a mass in left adnexa measuring 4.0 × 3.5 cm and no intrauterine pregnancy.

**Correspondence:** Dr Poonam Lama, Department of Obstetrics and Gynecology, Kapilvastu District Hospital, Kapilvastu, Nepal. Email: drpoonamlama@gmail.com, Phone: +9779808033906.

Intraoperatively, no hemoperitoneum was noted and both the tubes showed evidence of previous sterilization as fibrosed and narrowed points. Left ovary measured 4.5 x 4.0 cm with evidence of ectopic mass showing impending rupture (Figure 2). Left sided salpingectomy with oophorectomy was performed. Right side tube was re-ligated. The tissues were sent for histopathological examination. Post-op period was uneventful and she was discharged on third postoperative day.



Figure 2. Left ovarian pregnancy.



Figure 3. Ectopic mass on cut section.

Histological examination of the ovary showed chorionic villi embedded in the ovarian parenchymal tissue with surrounding hemorrhage and necrosis. Fallopian tube was unremarkable. So final diagnosis of ectopic ovarian gestation was confirmed.

## DISCUSSION

Ectopic pregnancy is a familiar, yet life-threatening entity encountered by obstetricians, necessitating prompt and precise management. Mortality rates for ectopic pregnancy are high, being the leading cause of maternal death in first trimester.<sup>4</sup> Complications of ectopic pregnancy are resultant of misdiagnosis, delayed diagnosis, or faulty management approach.

Inability to clinch a prompt and accurate diagnosis of ectopic pregnancy can cause tubal or uterine rupture, which in turn can lead to massive hemorrhage, shock, disseminated intravascular coagulopathy, and/or death.<sup>4</sup>

The number of women resorting to elective sterilization has been increasing in Nepal. The estimated failure rate is reported to be 0.13-1.3% and in case of failure, 15-33% of such pregnancies are ectopics.<sup>5</sup> However, no such studies exploring failure rate of tubal sterilization have been carried out in our country. This is the first reported case from our center describing ectopic pregnancy in ovary following sterilization.

As reported by Shah et al,<sup>6</sup> the possible mechanisms for ectopic pregnancy after tubal sterilization include subsequent recanalization, formation of tubo-peritoneal fistula and theory of external migration of the sperm. In this case, it is inferred that a micro fistula had formed and therefore sperm penetration was possible through the blunt end. As the micro fistula was not large enough to allow the fertilized ovum to pass, ovarian implantation had occurred, resulting in ectopic pregnancy. So far, only a few cases of ovarian pregnancy following tubal sterilization have been reported as per the literature survey.

Ultrasonography is a nifty investigative tool to elucidate the diagnosis; however every now and then it can be deceptive.<sup>7</sup> Literature review has proven it to be an operative diagnosis like the case in question, barring only few reports.

The largest study done so far, US Collaborative Review of Sterilization (CREST) reported a 10 year cumulative pregnancy rate of 18.5/1000 women and 30 % of these were ectopic. The CREST study suggests that the risk of pregnancy persists many years after tubal sterilization. Predominant factors believed to contribute to failure include: operator technique, type of surgical method and age of the patient at the time of the procedure.<sup>8</sup> Methods employing bipolar coagulation system are proven to be more effective than those using unipolar coagulation system. Adequate diathermy of the proximal ends of the resected tubes or sterilization with clips may be necessary to decrease the possibility of failure. This eventually translates to decrease the incidence of post sterilization ectopics.

Our patient had tubal sterilization during caesarean section probably by Pomeroy procedure as evidenced by the nature of the proximal and distal stumps at surgery. It is also the commonest method used for tubal sterilization in Nepal. The failure rate for the Pomeroy

procedure is estimated at 0.25-2%. It is widely believed that any pregnancies after tubal sterilization will generally occur during the first year or two years after the procedure as was the case in this patient.<sup>9</sup>

Therefore, in order to have complete tubal sterilization to reduce the incidence of ectopic pregnancy, we suggest that the gap needs to be adequately wide and surgeons must enhance electro destruction of the excised edge to prevent fistula formation. Total salpingectomy should also be considered to prevent ectopic pregnancy, as this is an additional benefit, which reduces the risk for ovarian cancer. According to Kirsten et al,<sup>10</sup> tubal sterilization and total salpingectomy can reduce ovarian cancer risk by 13% to 41% and 42% to 78%, respectively. As salpingectomy is also an effective prophylactic measure against ovarian cancer, it should be considered as an option for women who wish to undergo sterilization.

From management standpoint, it is advocated that bilateral salpingectomy be performed at the time of an exploration for an ectopic pregnancy, which has occurred after a sterilization procedure. Our case underwent the same.

## CONCLUSIONS

Ectopic pregnancy is rarely considered in the differential diagnosis of acute pelvic pain in patients after tubal ligation. Our case emphasizes this very fact. So a high index of suspicion for ectopic pregnancy should always be allotted when women of reproductive age, even after tubal sterilization, present with acute abdomen. Females who undergo bilateral tubal sterilization should be adequately counseled on the possibility of failure, so that early interventions can be taken to minimize complications.

## ACKNOWLEDGEMENTS

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## CONFLICT OF INTEREST

The authors declare no conflict of interest

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