CASE REPORT

ECTOPIC PREGNANCY AFTER BILATERAL TUBAL LIGATION

Sefogah PE[1], Onuzo CK[2], Gordon AS[3]
[1]LEKMA Hospital, Ghana Health Service, Teshie-Nungua, Accra, [2]Mannah Mission Hospital, Teshie-Nungua, Accra, [3]Madina Polyclinic, Ghana Health Service, Madina, Accra

Summary

Tubal ligation is a permanent voluntary form of contraception in which a woman's fallopian tubes are surgically cut or blocked off to prevent pregnancy. The procedure is a common method for achieving permanent sterilization and can be done at a Caesarean section or at a mini-laparotomy either immediately postpartum or as an interval procedure.

Case Report: To report the case of a 35year old woman (G3P2) who was successfully managed for ectopic pregnancy after a bilateral tubal ligation, and review the literature on this rare complication and its management.

Conclusion: This case has demonstrated that even though ectopic pregnancy after bilateral tubal ligation is uncommon, sterilization does not invariably confer permanent infertility in all cases.

Key Words: Ectopic, Pregnancy, Tubal, Ligation, Permanent, Contraception, Complication, Ghana

Introduction

Tubal ligation is a permanent voluntary form of contraception in which a woman's fallopian tubes are surgically cut or blocked off to prevent pregnancy. It is among the leading forms of birth control in the USA, preferred mainly because the sexually active potentially fertile users try to avoid the limitations of other contraceptive methods. According to Beers et al, this method is used by over 10 million women in the United States of America (USA) where over 15% of women of reproductive age, are typically over 30years, married, and with two or three children[1].

In many developing countries with rapid population growth concerns, tubal ligation by the open technique is a common method for achieving permanent sterilization. In these cases, the procedure is done at a Caesarean section or as a mini-laparotomy either immediately postpartum or as an interval procedure[2].

An ectopic gestation is a complication of pregnancy in which the embryo gets implanted outside the uterine cavity[3]. It is a common gynaecological emergency, that can be life-threatening and a major event in a woman's reproductive life[4].

Ectopic pregnancy is a high-risk condition that occurs in 1.9 percent of reported pregnancies and has been reported as the leading cause of pregnancy-related death in the first trimester[5]. In many developing countries, ectopic pregnancy remains a major public health challenge as it is a major cause of maternal morbidity and mortality[6].

Most ectopic pregnancies occur in the Fallopian tubes, termed tubal pregnancies, but implantation may also occur in the cervix, ovaries and abdomen.

There are a number of risk factors for ectopic pregnancies, even though in up to 50% of cases, there have been no risk factors identified. Known risk factors include previous pelvic inflammatory disease (PID), assisted reproductive technology (ART), use of intrauterine contraceptive device (IUD), previous ectopic, tubal surgery, intrauterine surgery and smoking[7].

The incidence of failed abdominal bilateral tubal ligation (BTL) is quite low. The reasons for this failure are usually faulty surgical technique, formation of fistulous tract between the severed ends or spontaneous re-anastomosis of the severed tubal ends. The failure rate is higher in the patients undergoing tubal ligation at the time of Caesarean section[5]. If it occurs, this pregnancy is usually extra uterine or ectopic in location, with most common site being the interrupted fallopian tubes. It has also been reported in ovaries or intra-abdominal locations[2].

The patient with ectopic pregnancy after BTL can have serious and fatal consequences in untreated cases or where the treatment is delayed. Because the sterilization confers a good sense of security, the patient typically does not suspect pregnancy and so may overlook the signs and symptoms, thus reporting late[5].

Compared with a vasectomy, BTL is 20 times more likely to have major complications, 10 to 37 times more likely to fail, and also costs three times as much. Moreover, the procedure-related mortality, although rare, is 12 times higher with sterilization of

Corresponding Author: **Dr. Promise E. Sefogah**
Department of Obstetrics and Gynaecology, LEKMA Hospital, PMB, Teshie-Nungua, Accra, Ghana. Email: promees@hotmail.com
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the woman than of the man. Despite these advantages, 300,000 more BTLs are usually done than vasectomies. Hendrix et al found from their study that vasectomy was the safest, most efficacious, and least expensive method of sterilization. They subsequently propose that physicians should recommend vasectomy when providing counseling on sterilization, despite the popularity of BTL[10].

Case Report

The patient is a 35year old woman (P3+0) who had her first delivery vaginally, followed by two Caesarean sections. At her last deliver, which was her second Caesarean section 4years earlier, she had a Bilateral Tubal Ligation for permanent contraception. She reported at a health facility in Accra on 10/09/2014 at 2:49pm with complaints of having missed her period, feeling pregnant, with nausea, heaviness in both breasts and dysuria over three days. Her last menstrual period (LMP) was on the 14/07/2014. She has had regular 28day menstrual cycles during which she bled for 4days.

She is a known hypertensive diagnosed two years earlier and currently being managed on oral Nifedipine 30mg daily and Bendrofluazide 5mg daily.

On examination the young woman looked stable, fully conscious, alert and well oriented. She was not febrile, pale or dehydrated. Her respiratory system findings were normal. Her pulse rate was 95beats per minute, Blood pressure 141/85mmHg.

Her abdomen appeared full, moved normally with respiration, and had a Pfannenstiel incision scar. There was mild supra-pubic tenderness with no associated guarding or rebound tenderness; neither was there any masses palpable nor fluid demonstrable.

A routine pelvic ultrasound scan showed a slightly bulky anteverted uterus with multiple tiny intramural myomata giving a heterogenous echogenicity. The endometrium appeared thickened, measuring 88mm, both adnexae appeared normal with minimal fluid noted in the pouch of Douglas. Her differential diagnoses were Urinary Tract Infection and a suspected extra-uterine gestation in a woman with previous BTL

A full blood count, urinalysis, urine culture with sensitivity, and a baseline quantitative serum beta Human Chorionic Gonadotrophin (HCG) and a repeat HCG after 48hours were requested. She was started on oral Cefuroxime and Paracetamol, counseled and scheduled for review after 72hours with the laboratory results.

She was subsequently reviewed 72hours later with a persistence of her initial symptoms. Her blood counts and urine test results were normal. Her baseline beta HCG measured 72,200iu/l and the 48hour repeat reported 72,600iu/l.

A repeat pelvic ultrasound scan revealed an empty uterus with a gestational sac and a live fetus in the right adnexa with fetal cardiac activity and a crown ramp length (CRL) of 2.06cm corresponding to 8weeks and 4days gestation.

The diagnosis of ectopic gestation was thus confirmed and patient appropriately counseled and prepared for an emergency laparotomy. Findings at surgery were: a slightly bulky uterus, bilaterally disjointed tubes, and an intact gestational sac containing one live fetus with gross movements implanted on the posterior aspect of the right broad ligament and partially attached to the right ovary.

The right broad ligament was removed with the gestational sac, haemostasis secured, haemo-peritoneum of about 250mls suctioned, peritoneum cleaned and abdomen closed in layers.

The patient made uneventful post-operative recovery and was discharged home on the third post-operative day in a very satisfactory condition. She was reviewed after two weeks and six weeks, and then discharged.

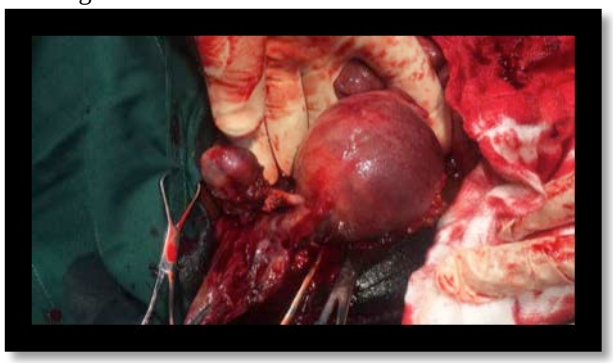

Fig. 1: Right postero-lateral view of uterus showing location of gestation

Fig. 1b: Gestational sac containing fetus after removal

Discussion

Tubal ligation is a common surgical method of contraception. The procedure permanently occludes the Fallopian tubes and may involve the tubes being cut and tied, cauterized, blocked with a silicone band (Falope ring), or clipped to ensure spermatozoa are unable to reach and fertilise an oocyte.

The possibility for this method to fail is as low as 7 pregnancies per 1,000 procedures. Failure following BTL can happen if the cut ends of the tubes re-

anastomose; if the tube was not completely cut or blocked off; if the plastic clip or rubber band has loosened or come off; or if the woman was already pregnant at the time of the procedure[1]. The Pomeroy technique of tubal ligation and resection is the most commonly used, and involves creating and tying off a loop of the fallopian tube. The tied off section is then surgically removed. The ligatures are designed to dissolve; eventually leaving two separated sealed ends. There are variations of the Pomeroy technique and the risk of failure has been related to the duration the suture material takes to dissolve to free the two ends of the tube[11]. In Ghana, most clinicians use either the chromic cutgut or vicryl sutures in tubal ligations largely based on what is available. There is evidence to support the increased likelihood of failure if the ligature remained longer, holding the severed ends of the tubes together, as this allows for easy fistulous recanalization. Also, it has been shown that BTLs done at Caesarean sections are associated with higher failure rates[2].

The patient in this case had BTL done through the modified Pomeroy fashion using a delayed absorbable suture three years earlier, during her second Caesarean section. There was therefore appreciable risk in this patient for the BTL to fail. Knowing she has had a tubal ligation, the woman was certain she had protection from any unwanted pregnancy, hence reported two months after missing her periods.

Ectopic pregnancy after BTL can have serious and fatal consequences if untreated or where the treatment is delayed. As the sterilization confers a sense of security, the patient does not suspect pregnancy and may overlook the signs and symptoms. Most often, the patient has had her periods at the due date, even though the flow is scanty due to the shedding of decidua cast from the uterus. This leads to a delay in seeking treatment. In cases of unruptured tubal pregnancies, the patient may present with sharp agonizing pain located in the pelvic region or the iliac fossa. If tubal rupture has occurred the patient can present to the emergency room in a state of unexplained hypovolemic shock. The history of tubal ligation and the apparently normal monthly period can mislead even the most experienced clinician[12].Early diagnosis requires a high index of suspicion by the clinician with the understanding that patient history, physical examination, and a single quantitative beta-HCG level cannot reliably rule out an ectopic pregnancy.

Despite this woman's previous BTL, the suspicion of ectopic informed the evaluation of baseline, and the repeat serum hormones to confirm the diagnosis. In agreement with the recommendation by Della-Giustina et al[12] that ultrasound findings, in conjunction with quantitative serum beta-HCG levels should guide the diagnosis of ectopic, this patient had the needed evaluation approach.

This patient's baseline hormone levels reached the pregnancy threshold but the 48hour repeat did not attain the near doubled level expected in majority of intrauterine viable gestations, and the sonographic findings of the extra-uterine gestation confirmed the diagnosis.

Following BTL, ectopic pregnancy has been reportedly found in the ovaries and other intra abdominal locations[5], but none documented to have been seen on the posterior aspect of the broad ligament as seen in this case.

The location of this extra-uterine gestation on the posterior aspect of the right broad ligament may likely be the result of a recanalized proximal tubal stump that provided access to the spermatozoa to reach an ovum released from the right ovary most likely on to the posterior surface of the right broad ligament.

Management of ectopic gestation depends on the presentation. Most patients present with features of shock and would require urgent resuscitation combined with urgent laparotomy to arrest potentially life-threatening internal haemorrhage. Those who are haemodynamically stable and meet the set criteria may benefit from expectant treatment like the use of medical or laparoscopic management[5],[2].

The patient in this case had fluid demonstrated in the pouch of Douglas, and coupled with the two previous caesarean surgeries, appropriately had an emergency laparotomy.

Conclusion

This case has demonstrated that even though ectopic pregnancy after bilateral tubal ligation is uncommon, sterilization does not confer permanent infertility in all cases. These women should be adequately counseled on the rare possibility of failure. Clinicians should not disregard the possibility of ectopic gestation in women who have undergone bilateral tubal ligation.

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