

# Laparoscopic Salpingectomy for Ruptured Tubal Ectopic Pregnancy: A Case Report

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## Abstract

**Background:** Ectopic pregnancy is one of the commonest causes of first trimester maternal death in developed countries and is second, only to induced abortion in sub-Saharan Africa. Laparoscopic management of ectopic pregnancy has been demonstrated to be safe and an effective alternative to conventional management by laparotomy. Only few cases of laparoscopic salpingectomy have been reported in Sub-Saharan Africa. **Methods:** Laparoscopic salpingectomy for ruptured tubal ectopic pregnancy using four port technique with carbon dioxide pneumoperitoneum at a private health facility in southeast Nigeria. **Results:** Successful outcome following laparoscopic surgery for ruptured tubal ectopic gestation. She was discharged home in the first post-operative day. **Conclusion:** Laparoscopic salpingectomy for management of ruptured tubal ectopic pregnancy is a safe and suitable management option in Sub-Saharan Africa, including Nigeria. There is also associated less need for analgesia, short hospital stay and decreased post-operative morbidity. There is urgent need for training of gynaecologists in minimal access surgical procedures to enable them diagnose and treat such cases with better cosmetic and fertility outcomes.

**Keywords:** Laparoscopy; Salpingectomy; Ectopic gestation; Women

## Introduction

Ectopic pregnancy occurs as a result of an error in human reproductive physiology that permits the embryo to implant outside the endometrial cavity <sup>[1]</sup>. With rare exceptions, ectopic pregnancies are not viable. Furthermore, they are dangerous to the mother, as internal haemorrhage is a life-threatening complication. Most ectopic pregnancies occur in the fallopian tube but implantation can also occur in the cervix, ovaries, and abdomen. Without prompt diagnosis and treatment, ectopic pregnancy can be fatal <sup>[1]</sup>.

Ectopic pregnancy is one of the commonest causes of first trimester maternal death in developed countries and is second, only to induced abortion in sub-Saharan Africa <sup>[2]</sup>. There is considerable regional variation in its incidence and worldwide it has been on the rise over the past three decades. Globally, ectopic pregnancy complicates 0.25% to 2.0% of all pregnancies <sup>[2]</sup>. The incidence in Sub Saharan Africa varies from 1.1% to 4%. In Nigeria, incidence of ectopic pregnancy is high, occurring once in every 111 deliveries at Ilorin, in 18.1 per 1,000 deliveries at Sokoto and 43.8 per 1,000 deliveries in Lagos <sup>[2-5]</sup>.

Minimally invasive surgery is one of the most important revolutions in surgical technique since the early 1900s <sup>6</sup>. Further improvement was facilitated by the introduction of miniaturised video cameras with good image reproduction. Laparoscopy has been well established in gynaecology for several years, but further use of the technique depends on the development of new enabling technologies <sup>[6]</sup>. In the developed world, laparoscopy is widely employed in gynaecology including laparoscopic salpingectomy for management of ruptured tubal ectopic pregnancy. This is because of the availability of

required technology, skilled manpower, as well as organized healthcare financing for the provision of such highly specialized surgical care. In developing countries, including Nigeria, use of laparoscopic procedures such as laparoscopic salpingectomy has been generally low because of lack of skilled manpower, inadequate equipment and high cost of the procedure on the patients, considering the poor coverage of healthcare insurance in Nigeria.

Laparoscopy is a very useful tool for diagnosis; however, its routine use on all patients suspected of ectopic pregnancy may lead to unnecessary risks, morbidity, and costs <sup>[7,8]</sup>. Moreover, it can miss up to 4% of early ectopic pregnancies <sup>[8]</sup>. Laparoscopic management of ectopic pregnancy has been demonstrated to be safe and an effective alternative to conventional management by laparotomy. Laparoscopic procedures are associated with less intra-operative blood loss, lower analgesic requirements, shorter hospital stay and a quicker return to normal activities <sup>[9]</sup>. Experienced surgeons may be able to manage laparoscopically women with even large haemoperitoneum safely, but the surgical procedure which prevents further loss quickly should be employed <sup>[10]</sup>. Considering all these advantages of laparoscopic salpingectomy over open salpingectomy, there is need to improve availability of such procedures in the management of patients in Sub Saharan Africa, including Nigeria and also ensure affordability to patients.

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Laparoscopic management of ruptured tubal ectopic pregnancy has been widely reported. However, there is paucity of data regarding such in West Africa, including Nigeria [11-13]. This report is therefore aimed at revealing the practice of laparoscopic salpingectomy for management of patients with ruptured tubal ectopic pregnancy and the outcome of such management at Life Specialist Hospital Limited, Nnewi, Nigeria which is a specialized gynaecological endoscopy center.

## Case Report

Mrs. O.C. is a 26-year-old university undergraduate student who resided at Nnewi, Anambra State. She is a Christian and Gravida 3, Para 1+1. Her last menstrual period was on 3rd March, 2013, with a gestational age of 6 weeks at presentation.

She presented at the antenatal clinic of Life Specialist Hospital Ltd, Nnewi, with 3-day history of bleeding per vaginam. The bleeding was spontaneous in onset, moderate in quantity and occasionally came in clots. There was associated moderate lower abdominal pain, abdominal swelling, vomiting and dizziness. She had fainted thrice within 24 hours prior to presentation. There was no bleeding from any other site. There was no history of intake of local concoction or intake of anticoagulants or trauma prior to presentation. She had no history of bleeding diathesis. There was no associated abnormal vaginal discharge. She had undergone a pregnancy test on the day of presentation at a private laboratory which was positive. Due to the symptoms, she decided to present at the hospital for proper evaluation and expert management.

She attained menarche at 14 years and had 5 day moderate menstrual flow in a 27-day regular cycle. She had no history of dysuria, dysmenorrhea or dyspareunia. She was aware of contraception, but had not used any. She also had not undergone cervical cancer screening. She had an uncomplicated pregnancy and vaginal delivery of a live female baby in 2007, with normal puerperium. In 2011, she had a spontaneous miscarriage of an 8 weeks gestation. Manual vacuum aspiration was done to evacuate the uterus without any complication. She had an uncomplicated appendectomy in 2003. She had no history of blood transfusion in the past. She was not a known hypertensive or diabetic or sickle cell disease patient. She is married to a clergyman.

Examination revealed an anxious-looking young woman who was pale, afebrile and anicteric. Her pulse rate was 114 beats per minute, small volume and regular and her blood pressure was 100/90 mmHg. Heart sounds 1 and 2 were heard. The abdomen was mildly distended, with generalized tenderness and guarding. Deep palpation could not be done because of the abdominal tenderness and guarding. Vaginal speculum examination showed clots in the vagina and closed cervical external os.

A repeat pregnancy test was done which was positive, haemoglobin concentration was 8.1 g/dl and urinalysis was normal. Abdomino-pelvic ultrasound scan revealed an empty bulky anteverted uterus with thickened endometrium; a right adnexal cystic mass with trabeculations measuring 48 × 42 mm; significant fluid collection in the pouch of Douglas and paracolic gutters; other intra-abdominal organs were normal.

Sequel to the above findings, an impression of acute abdomen secondary to leaking ectopic pregnancy was made. She was counselled on the diagnosis and management options. She consented to emergency laparoscopic surgery and two units of blood were grouped and cross-matched for her.

The laparoscopic salpingectomy was performed under general anaesthesia using a primary supra-umbilical 10 mm port and two left lateral secondary ports, 5 mm and 10 mm respectively. She was given intravenous Ceftriaxone 1 gram stat. Intra-operative findings included haemoperitoneum of about 1.5 litres, ruptured right ampullary ectopic pregnancy, right corpus luteum cyst, normal uterus, normal left ovary and normal left fallopian tube. The haemoperitoneum and clots were removed via suction with 10 mm suction/irrigation apparatus. A total salpingectomy was done using harmonic instrument and the sac removed via the 10 mm secondary port. Generous peritoneal lavage was done thereafter and the port wounds were closed with synthetic absorbable suture using subcuticular pattern on skin. She was transfused with two units of blood intra-operatively. Her immediate post-operative condition was satisfactory. She was given intramuscular pentazocine statim and placed also on intravenous 5% dextrose water 1 litre 8 hourly to alternate with normal saline 1 litre for 24 hours.

On the first post-operative day, her vital signs were stable, and her bowel sounds were present. She was commenced on oral feeds and discharged home on oral paracetamol and haematinics. She was scheduled for a follow-up visit in 2 weeks. At the two weeks post-operative visit, patient was normal and had no complaints. The laparoscopic port wound sites had healed well. Her histology result confirmed ruptured tubal gestation. She was then counseled and discharged.

## Discussion

Studies have shown that laparoscopic management of ruptured tubal ectopic pregnancy is a suitable and safe way of management, especially in the hands of an experienced gynaecologic endoscopy surgeon [1,7-11]. An experienced gynaecological endoscopy surgeon refers to one who has been trained to proficiency in the practice of gynaecological endoscopic surgeries. The success recorded in this case report further buttressed the point.

Our case also demonstrated the benefits of short duration of hospital stay, decrease in the use of analgesics and decreased morbidity, when compared to the normal cases of laparotomy for ruptured ectopic (tubal) pregnancy. The patient was discharged on the first post-operative day without complications. These benefits are in keeping with reports from other parts of the world [9,10].

Also, the acceptance of laparoscopic surgery by the patient suggests the increasing awareness of and confidence in laparoscopic procedures in our environment. The main challenge envisaged in a case of this nature is the haemoperitoneum and the anticipated impedance on good visualization. This was readily handled in our case by performing direct trocar insertion and rapid insufflation to achieve adequate pneumoperitoneum. Second approach for us was to use a 10 mm suction/irrigation apparatus to effect rapid suction of the haemoperitoneum

and quickly identify and tackle the bleeding site. The use of harmonic instrument greatly enhanced the speed of the surgery, although bipolar coagulation and cutting can be used effectively to perform the salpingectomy.

### Conclusion

The case has shown that laparoscopic salpingectomy for management of ruptured tubal ectopic pregnancy is a safe and suitable management option in our environment, especially in the hands of an experienced gynaecologic endoscopy surgeon. There is therefore need for training of gynaecologists in minimal access surgical procedures to enable them diagnose and treat such cases with better fertility and cosmetic outcomes.

### Declaration of Conflict of Interest

We have no conflict of interest to declare.

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