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Y. Patel
Aga Khan University

S. Z. Wanyonyi
Aga Khan University

F. S. Rana
Aga Khan University

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Y. Patel, MBBS, MD (Obs & Gynae), Senior Registrar, S.Z. Wanyonyi, MBChB, Postgraduate Resident, Department of Obstetrics and Gynaecology and F.S. Rana, MBChB, MMed (Path), Associate Professor, Department of Pathology, Aga Khan University Hospital, Nairobi, P.O. Box 16963-00100, Nairobi, Kenya

Request for reprints to: Dr. S.Z. Wanyonyi, Department of Obstetrics and Gynaecology, Aga Khan University Hospital, Nairobi, P.O. Box 16963-00100, Nairobi, Kenya

LAPAROSCOPIC MANAGEMENT OF AN OVARIAN ECTOPIC PREGNANCY: CASE REPORT

Y. PATEL, S.Z. WANYONYI and F.S. RANA

SUMMARY

Ovarian pregnancy is a rare variant of ectopic gestation. The diagnosis is often made at surgery and requires histological confirmation. The condition has not been reported locally and its diagnosis is easily missed. A case of an ovarian ectopic pregnancy in a 41 year old para 1 + 1 with secondary infertility is reported. The patient presented with lower abdominal pain and vaginal bleeding at six weeks gestation with a serum B-hCG of 79.12mlU/L. An ultrasound showed a complex left adnexal mass. She underwent a diagnostic and operative laparoscopy. A left oophorectomy was performed due to difficulty in achieving haemostasis.

INTRODUCTION

Ovarian pregnancy is rare. It constitutes about 3% of ectopic pregnancies with estimates of incidence ranging from 1 in 7,000 to 1 in 60,000 pregnancies (1-3). There are no local published cases of the condition, though this has been described in other centres worldwide. Ovulation induction and controlled ovarian hyperstimulation for assisted reproduction have dramatically increased the incidence of this condition (2). The diagnosis of ovarian ectopic pregnancy is rarely made pre-operatively. Currently laparoscopy is the gold standard in the diagnosis and management of ectopic pregnancy and ovarian pregnancy is no exception. We describe a case of an ovarian pregnancy diagnosed and managed laparoscopically at the Aga Khan University Hospital, Nairobi. This case is presented due to its rarity and diagnostic difficulty.

CASE REPORT

A 41 year old para 1 + 1 (one full term pregnancy, with a living child and one first trimester miscarriage a year prior to presentation) with a six-week period of amenorrhoea presented to the accident and emergency department with a one day history of sudden onset of lower abdominal pain associated with scanty bleeding per vaginum. There was no history of dysuria, haematuria, urgency or frequency. She had no alterations in her bowel motions and no history of syncope. She had been followed up for secondary infertility at a local private clinic for one year following a first trimester miscarriage and had conceived after one cycle of clomiphene citrate. Conception had been confirmed by a commercial urinary pregnancy test and she had not commenced antenatal clinic yet. Her last pregnancy was seven years ago after spontaneous conception. She had an assisted vacuum delivery with good neonatal outcome. She did not report having been treated in the past for pelvic inflammatory disease and there was no prior pelvic or abdominal surgery. There was no relevant family and social history.

On initial evaluation she was found to be haemodynamically stable with no pallor, icterus, cyanosis or any lymphadenopathy. Her abdomen was soft with mild left sided tenderness. There was

no guarding or rigidity and the bowel sounds were audible. Her pelvic examination revealed normal external genitalia with healthy vaginal mucosa. The cervix was closed with minimal vaginal bleeding and few dark clots of blood in the posterior fornix. On digital examination the cervix was soft and closed. The uterus was bulky, retroverted, regular and freely mobile. The left adnexum was tender, with a positive cervical excitation test. No adnexal mass was palpable. The right adnexum was non-tender. The posterior *cul de sac* was non-tender but felt boggy.

The B-hCG levels were 79.12 mIU/L and consequently a transvaginal ultrasound was done which showed a complex cystic mass with heterogenous echogenicity in the left adnexum measuring 2.85 x 2.19 cm. There was also some fluid in the *cul-de-sac* with an empty uterine cavity. A simple cyst measuring 1.65 x 1.63 cm was also noted in the right ovary. The left mass was highly suspicious of an ectopic pregnancy and so an emergency diagnostic/ operative laparoscopy was done.

In theatre under general anaesthesia and observing aseptic techniques, a routine pneumoperitoneum was created using a verres needle. An 11 mm trochar and a 10 mm 30º Karl Storz® laparoscope were inserted through the umbilical port. A good view was obtained. There was approximately 100 mls of haemoperitoneum. A ruptured left ovarian ectopic pregnancy was visualised (Figure 1).

Both fallopian tubes were intact and appeared healthy. The upper abdomen was inspected and appeared normal. The right ovary had a small clear cyst and the uterus was normal. Secondary 6mm punctures were introduced under vision in the iliac fossae and uterine manipulation achieved by use of a Cohen® uterine cannula. The ectopic pregnancy was dissected out but the chorionic villi were found to be deeply infiltrating into the ovarian stroma. Attempts to preserve the ovary were hindered by continuous bleeding from the site despite electrocoagulation and other haemostatic measures. Consequently an oophorectomy was done and haemostasis achieved. The total duration of the surgery was sixty three minutes.

The patient's post-operative period was unremarkable and she was discharged home on her first post-operative day. She had completely resumed her duties in two weeks with no complaints. She was discharged from our gynaecological clinic as she opted to continue her follow up elsewhere since she stayed upcountry.

Histology of the resected specimen confirmed the presence of first trimester chorionic villi within the ovarian stroma (Figure 2), together with a corpus luteum cyst.

Figure 1

A laparoscopic view of the ruptured ovarian ectopic pregnancy

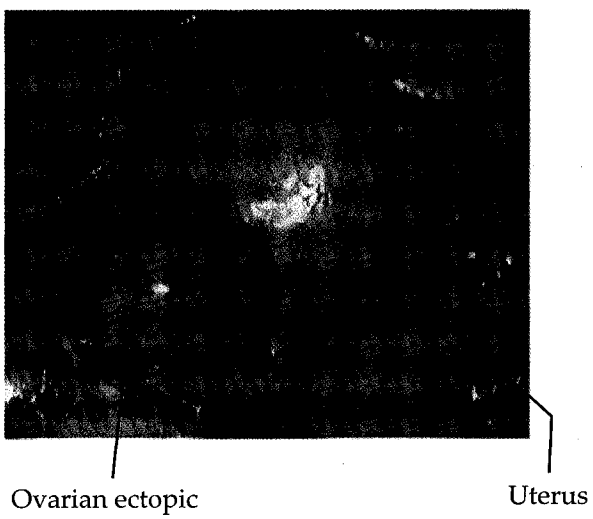
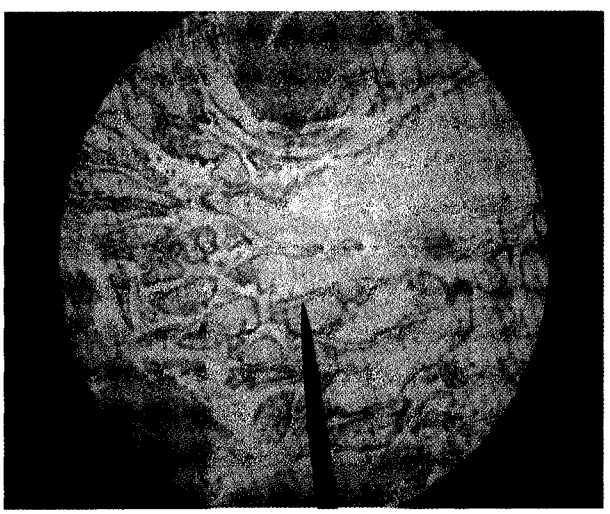


Figure 2

Evidence of chorionic villi within ovarian stroma



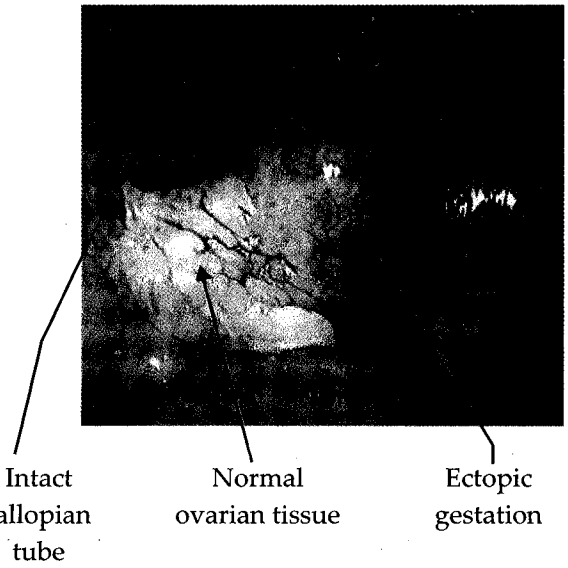
DISCUSSSION

Ovarian ectopic pregnancy is a rare condition whose diagnosis is seldom made before surgery. It is diagnosed when a haemorrhagic mass is seen attached to one of the ovaries in the presence of normal looking fallopian tubes. However, it could easily be mistaken for a haemorrhagic corpus luteum cyst or an endometrioma (5). A correct intraoperative diagnosis of as low as 28% has been reported in one series. In the remaining cases, the diagnosis was made by the pathologist (2). Raised serum B-hCG, with absence of an intrauterine pregnancy, normal fallopian tubes and a haemorrhagic ovarian mass should raise suspicion at surgery especially if a corpus luteum cyst is seen. In the case presented the suspicion at surgery was made possible by an earlier positive pregnancy test, sonographic findings and presence of intact fallopian tubes (Figure 3). The low levels of B-hCG were also consistent with a diagnosis of an ectopic pregnancy, though prior to the transvaginal ultrasound, a complete miscarriage could not be ruled out. The corpus luteum cyst was not visualised in this case as it had probably fused with the pregnancy. The right ovarian cyst was not considered significant since it contained clear fluid and was small in size (less than 2 cm).

The Spiegelberg's criteria of 1878 (6) have been widely used for confirming a primary ovarian pregnancy and distinguishing it from a distal tubal pregnancy with secondary involvement of the ovary. These are (i) the fallopian tubes, including fimbria must be intact and separate from the ovary, (ii) the pregnancy must occupy the normal position of the ovary, (iii) the ovary must be attached to the uterus through the utero-ovarian ligament, (iv) there must be ovarian tissue attached to the pregnancy in the specimen on histology. All these four criteria have to be fulfilled for this condition to be diagnosed. This patient fulfilled all these criteria.

Figure 3

Laparoscopic view of the ectopic pregnancy on the ovary with an intact fallopian tube



There are no sonographic features diagnostic of an ovarian ectopic, unlike those defined for a tubal ectopic pregnancy. However the pregnancy has been described as a cyst with a wide echogenic outside ring on or within the ovary. A yolk sac or embryo is rarely seen (7).

Ovarian ectopic pregnancy has been successfully managed laparoscopically with conservation of ovarian tissue (5, 8, 9). This is however difficult in cases where the ovary is extensively involved or destroyed as it was in this case (10). Attempts should always be made to preserve the ovary especially in cases where fertility is desired. Operative laparoscopy provides a less invasive approach, which is simple and safe. It also has the advantage of reduced post-operative morbidity, with shorter hospitalisation and recovery time as compared to laparotomy (5).

A few cases of non-invasive medical management with methotrexate, prostaglandin $F_{2\alpha}$, prostaglandin E_2 or mifepristone (RU 486) in combination with prostaglandin have been reported (9). On a retrospective analysis of this case, it seems that the patient probably met all the criteria for a medical intervention. She was haemodynamically stable with a very low B-hCG level of 79.12 mIU/L. The size of the gestational sac was only 2.85 x 2.19 cm with no demonstrable foetal cardiac activity. The patient's B-hCG levels would have been closely monitored after a dose of methotrexate and observed for spontaneous regression of the pregnancy. This may have resulted in preservation of the affected ovary. There have been arguments against this approach though. Methotrexate is not entirely without any complications. More important though is the fact that the initial diagnosis of an ovarian ectopic pregnancy is made at surgery, and it would seem imprudent to abandon the surgical procedure

seem imprudent to abandon the surgical procedure in favour of medical therapy once a diagnosis is made. This saves the patients unnecessary anxiety of undergoing medical treatment and the possibility that it could fail and result in a repeat surgery (5). This is unlike tubal ectopic pregnancy where the diagnosis could be made ultrasonographically. Conservative management in this case could however be equated to an abdominal ectopic pregnancy where the placenta is left *in situ* due to risk of haemorrhage and systemic methotrexate given with follow-up.

It is important for a clinician who makes a diagnosis of an ovarian ectopic and decides to go ahead with the surgical removal of the chorionic tissue to anticipate excessive bleeding and also to entertain the possibility of an oophorectomy as was the case in our patient. Chorionic tissue on any structure is highly vascularised and if deeply embended in the affected organ could result in haemorrhage.

One unique feature about the ovarian ectopic that distinguishes it from tubal ectopic is that it is not known to have an increased risk of recurrence in subsequent pregnancies with no reported case to date (3,5).

Successful laparoscopic management of tubal ectopic pregnancy has been reported locally and is widely practiced (11), however, this may be the first confirmed and reported case of an ovarian ectopic pregnancy managed likewise in Kenya. The condition is likely to be encountered more often in modern practice especially with the increased use of assisted reproductive technology. Preservation of the affected ovary may not have been possible in this case but with the increasing use of the laparoscope in the management of ectopic pregnancy more cases with successful ovarian preservation may be reported locally.

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