

Laparoscopic Ovarian Ligament Plication in Pregnancy

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ABSTRACT

This 32-year old patient presented at seven weeks gestation with severe left-sided lower abdominal pain. This was against the background of a previous history of left salpingectomy from a ruptured ectopic gestation seven years previously. Transvaginal sonographic evaluation revealed a viable seven week intrauterine embryo, a 2 cm left corpus luteum cyst and Doppler studies revealed reduced internal flow. This led the way for a conservative approach via laparoscopy of untwisting the pedicle to restore blood flow. In this case, the ovarian ligament was shorted using 1/0 vicryl and the pregnancy went to term.

Keywords: Adnexal torsion, colour Doppler, corpus luteal cyst, laparoscopy, pregnancy

Plicatura Laparoscópica del Ligamento Ovárico en el Embarazo

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RESUMEN

Esta paciente de 32 años se presentó en la séptima semana de gestación con un severo dolor abdominal en el lado inferior izquierdo. Esto ocurría teniendo la paciente por antecedente una historia previa de salpingectomía izquierda a partir de la ruptura de un embarazo ectópico siete años antes. La evaluación sonográfica transvaginal reveló un embrión intrauterino viable de siete semanas, un quiste del 2 cm en el cuerpo lúteo izquierdo, y los estudios de Doppler revelaron un flujo interno reducido. Esto abrió el camino para un abordaje conservador vía laparoscopia encaminada a deshacer la torsión del pedículo y restablecer así el flujo sanguíneo. En este caso, el ligamento ovárico fue acortado usando vicryl 1/0, y el embarazo continuó a término.

Palabras claves: Torsión anexial, Doppler a color, quiste del cuerpo lúteo, laparoscopia, embarazo

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INTRODUCTION

Traditionally, torsion of the adnexa has been treated by laparotomy and often resulted in the loss of the affected adnexa. Often this would have drastic consequences for the patient in the reproductive age group, particularly if occurring during early pregnancy. With the advent of grey scale and Doppler ultrasound, patients who present clinically with severe pelvic pain secondary to torsion can now be diagnosed preoperatively. This has led the way for a more conservative approach particularly in the gravid uterus. The prominence of the enlarged ovaries is usually associated with controlled ovarian hyperstimulation and increases the incidence of torsion in pregnancy (1). Therefore there is an urgent need to

utilize investigations as well as minimal access surgery with the ultimate aim of preserving the ovaries.

CASE REPORT

A 32-year old woman, gravida 4, para 1⁺² presented to her gynaecologist at four weeks and two days of amenorrhoea, having had a positive pregnancy test. In her past obstetrics history she had a previous spontaneous abortion seven years previously; this was followed one year later by a ruptured ectopic pregnancy which resulted in a right salpingectomy.

At eight weeks gestation, she returned complaining of an acute severe left-sided abdominal pain for two days, not associated with bleeding *per vaginum*.

A clinical examination revealed a patient in extreme discomfort, afebrile but with marked rebound tenderness in the left iliac fossa. The vital signs were normal, with no evidence of cardiovascular decompensation. Pelvic examination revealed a soft bulky uterus with cervical excitation pain.

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A diagnosis of ectopic pregnancy or a torsed ovarian cyst was entertained and a transvaginal sonogram was performed.

Ultrasound done at this time revealed a gestational sac approximately seven weeks gestation, a 2 cm thick walled cyst with internal echoes in the left adnexa and reduced blood flow to the left ovary. The left ovary was larger than the right ovary. The haematological investigation was normal with a haemoglobin of 12.5 gms/dL and a white cell count of 5.8 gm/dL.

Laparoscopic surgery was performed under general anaesthesia; the right tube was absent and the right ovary normal. The left ovary and tube was twisted 360° twice on itself and appeared oedematous and blue/black in colour (Fig. 1). There was a 2 × 2 cm left corpus luteum cyst.



Fig. 1: Torsion of left adnexa, with blue/black discoloration.

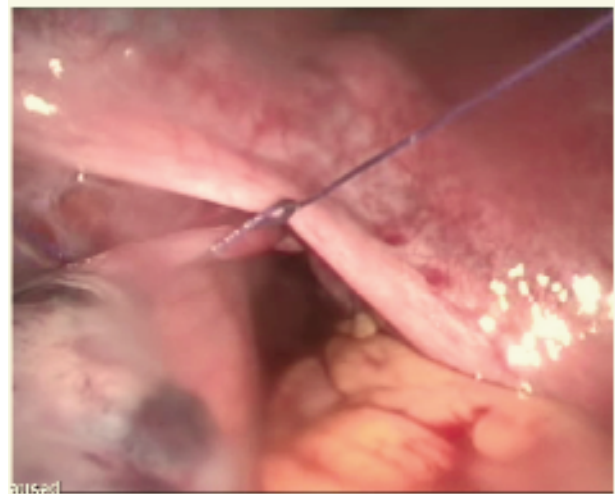
The adnexa were untorted and the tubo-ovarian ligament which appeared elongated was plicated with 1'0 vicryl (Figs. 2 and 3). Haemostasis was achieved and the blood loss was minimal. She had an uncomplicated post-operative period and was discharged from the ward after 24 hours.

The pain subsided and an ultrasound examination performed two weeks later revealed a live intrauterine gestation. Subsequently, the pregnancy was uncomplicated. She had a spontaneous vaginal delivery of a live male infant at 38 weeks and two days.

DISCUSSION

Adnexal torsion is the total or partial rotation of the adnexa around its vascular pedicle. Torsion commonly occurs secondary to ovarian enlargement due to a functional cyst or neoplasm; the mass effect acts as a fulcrum and increases the possibility of torsion.

Adnexal torsion is more common in pregnancy, especially in those of assisted reproductive cycles and multiple gestations. Twelve to twenty-five per cent of cases occur in pregnant women (2). Kemmann *et al* suggest that



Figs. 2 and 3: The left adnexa post detorsion. Most of the adnexa returned to its normal pink colour. Plication of the ovarian ligament with one vicryl is also shown.

the presence of pregnancy may stretch the utero-ovarian ligament and push the ovaries out of the pelvis, predisposing them to torsion (3). Enlarged multicystic ovaries are more common in assisted reproductive therapy compared with natural cycles, hence predisposing these ovaries to torsion (1).

Ovarian torsion is a diagnostic and management dilemma especially in pregnancy as ovarian cyst rupture, haemorrhage and sudden increase in size as well as an early ectopic pregnancy, and appendicitis all present in a similar manner.

Ultrasound has become an invaluable tool in the diagnosis of ovarian torsion in pregnancy. In one series, the positive predictive value of 87.5% and specificity of 93.3% was found (4). It is important to determine the nature of the cyst preoperatively, especially in pregnancy as this aids in planning the extent of surgery and the need for frozen section analysis at the time. The majority of cysts are functional. In this case, a diagnosis of a corpus luteal cyst was made and a

plan was made to leave the cyst *in situ* once the ovary was salvageable. The most frequent non-functional cysts are serous or mucinous cystadenoma, dermoid cysts or ovarian fibromas. Malignant tumours occur in less than 6% of cases (5).

The use of colour Doppler helps to determine the degree of vascular compromise and hence the viability of the ovary. In adnexal torsion, the Doppler flow may range from a normal pattern to absent flow, which in the latter case has been associated with the finding of a necrotic ovary at the time of surgery (6). An element of arterial flow is commonly preserved in ovarian torsion (93%); this is due to low capacitant venous walls which collapse early and the dual arterial blood supply (7). Early diagnosis is imperative as if left untreated, systemic infection and inflammation may occur, leading to subsequent pregnancy loss.

Conservative treatment is now regarded as the treatment of choice to preserve a current pregnancy and future fertility. Therapeutic laparoscopy in all trimesters of pregnancy is safe and 75% of the pregnancies continue to term without complication and end with delivery of an average size baby (8). Ovarian salvage by detorsion has not been a widely accepted practice with rates varying from 7–65% (9). Low acceptance has primarily been because of concern regarding the risk of thromboembolic complications following detorsion (10). This belief has been dispelled by evidence-based medicine as there have been no reports of thromboembolic events in the literature since 1909 (11). Evidence-based studies have also shown that even grossly gangrenous ovaries at the time of surgery may not have sustained total functional loss and may remain salvageable (12). Plication or shortening of the ovarian ligament was done in the index case as it was thought that torsion was likely to recur if only detorsion was done at the time of surgery. Pansky *et al* found that after performing only detorsion procedure of the normal appearing adnexa, the

recurrence rate was more common than after detorsion and cyst excision procedure of the pathological appearing adnexa (13).

Laparoscopy for the management of adnexal torsion in pregnancy is superior to laparotomy as it allows for minimal handling of the gravid uterus and prompt return to regular activity which is the goal of surgery in pregnancy.

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