Adnexal torsion in a 20-year-old nulliparous woman

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ABSTRACT

Twisting of an organ or a part of it along its own axis is known as torsion. Twisting of the ovary, often along with the fallopian tube is known as adnexal torsion. Both the ovaries and fallopian tubes are often involved so the preferred term is adnexal torsion rather than ovarian torsion. It is the fifth most common gynaecological emergency. Twisting of the ovary, often along with the fallopian tube on its ligamentous supports results in vascular compromise and infarction of the ovary. The patient usually presents with a sudden onset of intense pain; however, this is not always the case. Imaging plays a vital role in the diagnosis of adnexal torsion and the definitive management of surgical detorsion which facilitates preservation of the ovary.

Keywords: Adnexal torsion, ovarian torsion, gynaecological emergencies.

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INTRODUCTION

Adnexal torsion is one of the gynaecological emergencies that affects approximately 2 to 3% of females who present with acute pelvic pain. Fallopian tubes are often involved along with the ovary, so the preferred term is adnexal torsion rather than ovarian torsion. In clinical practise, both the terms are used interchangeably.[1] Twisting of ovary and fallopian tube on their vascular and ligamentous supports initially causes venous and lymphatic congestion and later occurs compromise to arterial flow.[2] Severe acute pelvic pain and vomiting are the most common clinical features.[3] Diagnosis is most often made clinically with additional ultrasonographic support. The definitive management is surgical detorsion of the ovary and fallopian tube which facilitates preservation of the ovary.[1]

CASE PRESENTATION

A 20-year-old nulliparous woman presented to us with left flank pain for one day which was acute in onset, severe, radiating towards the lower abdomen, and aggravated on movement and little relief on rest. She also had vomiting for one day, five to six episodes which was mixed with food particles and water, non-bilious, non-projectile, non-blood stained, and about 10 to 20 ml per episode. There was no history of fever, burning micturition, or constipation. There was no history of similar illness in the past. She had no significant past medical or surgical history. Her menstrual history was regular. She was non-vegetarian, non-alcoholic, and non-smoker.

On examination, she was afebrile with a heart rate of 98 beats per minute and a blood pressure of 120/80 mmHg. Her abdomen was soft but there was tenderness over the left iliac fossa. There was no renal angle tenderness and bowel sounds were normal.

Speculum examination demonstrated minimal vaginal discharge. No mass lesion nor polyp was found. Urine analysis showed a normal

report and the urinary pregnancy test was negative. Her complete blood count (CBC) report was normal.

Abdomen and pelvis ultrasound report demonstrated a grossly enlarged left ovary measuring approximately 5.6 x 6.9 x 7.1 cm^3 (approximately 148 cc) in volume with peripherally displaced follicles and echogenic stroma (Figure 1). There was minimal peripheral vascularity and minimal vascularity within the stroma (Figure 2). The right ovary was normal in size and appearance. There was no free fluid in the pouch of Douglas. There were no sonographic features of acute appendicitis or nephrolithiasis or ureteric calculus. Above findings indicate high suspicion for adnexal torsion.

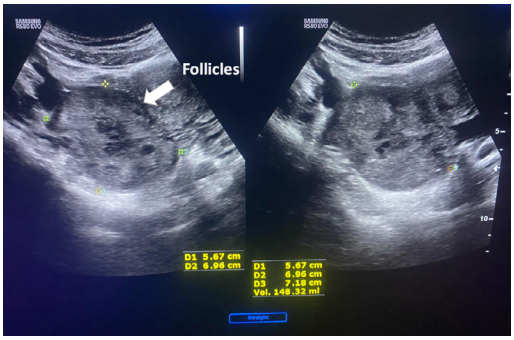

Figure 1: Ultrasound image of left ovary (Bulky left ovary with peripherally arranged follicles)

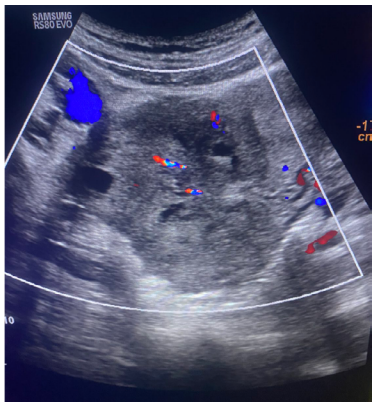

Figure 2: Doppler imaging of left ovary (Bulky left ovary which on color doppler study shows minimal central and peripheral vascularity)

The patient was admitted and the decision to go for a diagnostic laparoscopy was made. Intra-operative findings revealed a 10 x 10 cm^2 left ovarian cyst having a smooth surface and regular margin. On aspiration, 100 ml haemorrhagic fluid was revealed. No septation was noted in the cyst. Approximately 100 ml of the serosanguinous collection was noted in the pouch of Douglas. The left fallopian tube was inflamed and edematous. The right fallopian tube and ovary were normal. A left partial oophorectomy was done for the left twisted hemorrhagic ovarian cyst. Appendix appeared normal. (Figure 3)

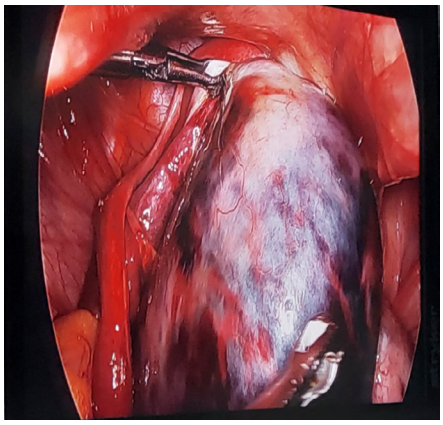

Figure 3: Diagnostic Laparoscopy showing bulky left ovary having hemorrhagic components within

The post-operative period was uneventful, and the patient was discharged home after eight days of hospital stay.

DISCUSSION

Adnexal torsion can occur at any age but most frequently women of 20 to 30 years of age are affected.[2] This must be included in the differential diagnosis of any women presenting with abdominal pain or pelvic pain.[4] Ovary rotates on its axis causing a twist in the suspensory ligament that contains the vascular pedicle. Low pressure causes compression of the ovarian vein and lymphatics, which gets engorged resulting in massive increase in size of the ovary and vascular pedicle. At this period, arterial supply is still preserved because arterial pressure is higher than of veins and lymphatics and arterial vessel wall are more muscular. At this point, changes are reversible. If uncorrected at this time it causes ischemia and subsequent infarction, and patient has to lose her ovary.[1] This is consistent with this case in which case partial oophorectomy had to be done.

Risk factors of adnexal torsion are enlarged ovary, masses greater than 5 cm in diameter, benign lesion, ovarian induction for infertility, corpus luteum cyst in the first trimester of pregnancy, prior pelvic operative history, etc. Adhesions related to malignant lesions and endometriosis are believed to be protective factors.[1] In this case report benign large mass favours for the adnexal torsion.

Diagnosis of adnexal torsion is challenging. It is a clinical diagnosis that requires the integration of many factors like the patient's presentation and exclusion of other non-gynaecological causes. Ultrasound can be used to support a diagnosis of adnexal torsion.[5] Lower abdominal pain and/or flank pain are the most common presentations along with nausea, vomiting, and fever.[6]

Ultrasonography can show a massively enlarged ovary,

typically at midline. There can be central ovarian edema (hypoechoic heterogeneous central medulla), regions of increased echogenicity (haemorrhagic infarction), a string of pearls (follicle containing cortex stretched around the periphery of medulla), follicular ring sign (hyperechoic rim surrounding peripherally displaced antral follicles), twisted vascular pedicle, whirlpool sign (twisting of a hypoechoic vessel with or without a color doppler signal) and target sign (concentric alternating hypo and hyperechoic rings). Doppler flow can show a lack of arterial and venous flow. Presence of Doppler flow cannot eliminate the diagnosis. The absence of blood flow within the vascular pedicle suggests a non-viable ovary. The absence of venous flow has a positive predictive value as high as 94% for ovarian torsion despite the persistence of arterial signal.[1]

CT is good at ruling out ovarian torsion if a normal ovary/adnexa is seen on ultrasound. Most cases have a large pelvic mass (>4cm) which is superior to the uterus and at midline. The thickened vascular pedicle is pathognomic. MRI is reserved for problem-solving in complex gyanecologic cases.[1]

Differential diagnosis of adnexal torsion is ectopic pregnancy, ruptured hemorrhagic ovarian cyst, massive ovarian edema, and ovarian hyperstimulation. Ectopic pregnancy can be mainly ruled out with a urinary pregnancy test. Ultrasonographic features of ruptured hemorrhagic ovarian cysts are internal complexity or dependent low-level echoes (ground-glass appearance) with septations. Hyperechoic fluid in the peritoneal cavity with internal echoes suggest hemoperitoneum. Appearances of ovaries are similar to those of adnexal torsion in massive ovarian edema, but there is no pedicle twist or adnexal soft tissue. Ovarian hyperstimulation at imaging have distinguishing features like enlarged follicles in a spoke-wheel distribution and normal central ovarian tissue. It is usually bilateral. Clinical features play vital role in distinguishing differential diagnosis.[1]

Laparoscopy is the surgical treatment of choice because it has advantages like shorter duration of hospital stay and reduced post operative pain. Sometimes laparotomy may be required in patients having suspicious malignancy.[2]

CONCLUSIONS

Adnexal torsion eventually leads to ovarian and possibly fallopian tube infarction, therefore prompt diagnosis is necessary to salvage the ovary. Sudden onset of pelvic pain, nausea vomiting, particularly in premenopausal woman are high suspicious clinical features. Enlarged abnormally positioned ovary positioned superiorly and towards midline with uterus pulled to the side of the torsion are typical findings. Additional features are central ovarian edema with peripherally displaced follicles that form a string of pearls appearance. CT and MRI are reserved for problem solving complex gynaecological masses. Benign ovarian lesions are biggest risk factor for adnexal torsion. Early diagnosis and timely intervention with successful detorsion are better than more extensive surgery for missed torsion having ovarian necrosis.

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AUTHORS' CONTRIBUTION

KG contributed to the conceptualization of the study, data collection, manuscript preparation, and editing. PA contributed to conceptualization, data analysis, and editing. Final editing and confirmation have been given by all authors.

PATIENT CONSENT

The patient has provided informed consent for the publication of the case.

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