Torsion of Uterine Fibroid - a rare complication of a common pathology - Case Report.

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Learning objectives

- Identify torsion of subserosal uterine fibroids as a cause of acute pelvic pain.
- Discuss the role of CT and ultrasound in establishing the diagnosis and differentiating it from the much more common diagnosis of ovarian torsion.
Background

Although uterine fibroids are common benign uterine neoplasms, acute complications are rare. However, when they do occur, they can cause significant morbidity (and occasionally, mortality). These complications include thrombo-embolism, acute torsion of subserosal fibroid, acute urinary retention and renal failure, acute pain caused by red degeneration during pregnancy, acute vaginal or intra peritoneal haemorrhage, mesenteric vein thrombosis and intestinal gangrene.\(^1\)

Torsion is a rare complication of a subserosal fibroid and poses a radiological challenge. Early diagnosis can prevent further complications such as necrosis, peritonitis and consumptive coagulopathy\(^2,3\). The two main imaging differential diagnoses are ovarian/adnexal torsion and massive infarct inside a leiomyoma\(^4\).
Case Report:

A 30 year old woman presented to the emergency department with intermittent lower abdominal pain of 2 weeks duration which became severe, constant and localised to the left lower quadrant. On examination, she was found to have generalized tenderness with guarding over the left lower quadrant. Her serum #hCG level was negative.

A CT scan was performed which demonstrated a well-circumscribed heterogeneous iso to hypodense lesion in the left adnexa with poor contrast enhancement. The left ovary was seen close to the lesion but appeared to be separate from the lesion. Another well-circumscribed low density lesion seen at the uterine fundus was thought to represent a fibroid.

Ultrasound performed to further evaluate the lesion showed a large left adnexal solid-appearing mass. There was no convincing internal blood flow detected on colour Doppler. The left ovary could not be separately visualised on ultrasound.

The patient underwent an emergency laparoscopy which revealed a left cornual pedunculated solid fibroid which had twisted three times on a thin stalk.

Discussion:

Pre operative diagnosis of a torted uterine fibroid is based on clinical and radiological findings. The definitive diagnosis may be difficult preoperatively, partly because specific findings associated with this condition have not yet been clarified due to its rarity\(^4,5\).

In the clinical context of a pelvic mass, following exclusion of an ectopic pregnancy, adnexal torsion should be considered as the next diagnosis of exclusion. Demonstration of normal bilateral adnexa, as in this case, can exclude the presence of adnexal torsion\(^4\). Torsion of a uterine fibroid can be identified by a twisted pedicle seen on real time transvaginal Doppler ultrasound with interruption of the blood flow at its base and increased distance between the fibroid and the uterus. However, this may not always be demonstrable on ultrasound, especially when the twisted pedicle is thin\(^6\).

In 2017, Ohgiya Y et al\(^7\) reported several CT features that could suggest torsion of a subserosal fibroid which included poor contrast enhancement (as in this case), thin rim enhancement, calcification within the fibroid, a beak sign between the uterus and the
fibroid, fan-shaped poor contrast enhancement in an area of the uterus adjacent to the fibroid and ascites.

Previous studies have reported that MRI can have supplementary diagnostic value if a twisted pedicle can be recognized between the uterine corpus and subserosal fibroid. MRI can also identify gangrenous fibroids which demonstrate heterogeneous hyper-intense T2 signal and hyper or iso-intense T1 signal (as opposed to homogenous hypointense T2 signal and iso intense T1 signal in non-necrotic and non-degenerated leiomyomas).
Fig. 1: Fig. 1 Axial (a) and coronal (b) contrast-enhanced CT image through the pelvis demonstrate a well-circumscribed, hypo dense poorly enhancing mass (*) in the left adnexa. Another low density lesion in the fundus of uterus (arrow) represents a fibroid.

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Fig. 2: Fig.2: Axial (a) and sagittal (b) contrast enhanced CT images. The left ovary (arrow) is seen separate to the mass (*).

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**Fig. 3:** Transvaginal ultrasound shows a well circumscribed mass in the left adnexa. No flow was demonstrated within the mass on colour Doppler.

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Conclusion

Torsion of subserosal uterine fibroid is rare but serious complication and accurate preoperative diagnosis is challenging. However, imaging can help in establishing the diagnosis and differentiating it from other common causes of acute pelvic pain such as ovarian torsion, ectopic gestation, acute appendicitis and acute diverticulitis. Some CT features can be valuable in suggesting the presence of a torted fibroid, whilst ultrasound may be less sensitive. MRI may have a supplementary role.
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