Torsion of a pedunculated subserous leiomyoma: A rare cause of acute abdominal pain

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Section: Genital (female) imaging
Area of Interest: Genital / Reproductive system female
Imaging Technique: MR
Special Focus: Acute Case Type: Clinical Cases
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Patient: 40 years, female

Clinical History:

A 40-year-old female patient presented to emergency with a history of 24 hours of intense abdominal pain, without other symptoms. Physical examination revealed lower abdominal pain with positive Blumberg sign. Laboratory tests disclosed mild leukocytosis (12500/mm3 WBC with 88% neutrophils). Her past medical history included two previous cesareans. An ultrasound examination was performed.

Imaging Findings:

Abdominal ultrasound showed an oval lesion of 4 x 9 x 5 cm with an echogenicity similar to the uterus, located between the uterus and the bladder, suggestive of myoma (Fig. 1). However, it was not possible to see anatomical dependence with the uterus. There was free fluid in the pelvis and in the paracolic gutter. Ovaries and appendix were normal.

24 hours later, MRI was performed confirming the presence of a central pelvic mass with solid appearance and heterogenic hypointense signal on T2-weighted imaging with slightly hyperintense peripheral areas (Fig. 2, 3, 4). On T1-weighted imaging, the lesion was isointense to the uterus, except the pedicle that was hyperintense (Fig. 5a). T1WI after gadolinium revealed predominance of necrotic areas with contrast enhancing restricted to the central portion of the lesion (Fig. 5b). Extensive inflammatory signs of pelvic fat were found.

All these findings were consistent with partially necrotic pedunculated uterine leiomyoma, probably secondary to the torsion of the pedicle.

Discussion:

Uterine leiomyomas are by far the most frequent gynaecological tumours. Depending on their intrauterine location, they are classified as: submucosal, intramural and subserosal. Although usually asymptomatic, if they cause symptoms, the most frequent are: vaginal bleeding, pain, mass effect and infertility [1].

Acute pain is a rare presentation and is associated with their complication: the most frequent is degeneration. Other less frequent causes to consider would be the torsion or the prolapse of a submucosal pedunculated leiomyoma [1].
The torsion of a subserous pedunculated myoma is a rare complication and there are few cases described in the literature. As it usually presents with nonspecific symptoms, preoperative diagnosis is difficult. However, knowledge about it is important since its diagnostic delay can lead to myoma necrosis with the consequent peritonitis and life-threatening sepsis [2, 3].

Abdominal ultrasound is the first imaging modality of choice. Normally the ultrasound depicts a solid mass lateral to the uterus, with the pedicle being difficult to identify [4]. It is mandatory to recognise normal ovaries to rule out an ovarian torsion, a more frequent cause of pelvis abdominal pain, requiring emergency surgical treatment. The differential diagnosis should also include ovarian tumour, and other causes more common of abdominal pain such as appendicitis or acute diverticulitis [2, 3, 4].

To assess uterus dependence and the torsion mechanism it is often mandatory to perform a CT scan or MRI, as in our case.

Roy et al. (4) reported a case of acute torsion of subserous leiomyomas at CT in which diagnosis was based on the presence of normal ovaries and contrast enhancement of the uterine portion connected to the mass.

In our case, an MRI was preferred, since it has greater sensitivity for the diagnosis of uterine leiomyomas and irradiation is avoided [1].

The presence of a pedicle between the mass and the uterus and the identification of a necrotic myoma on MRI are the clues for the diagnosis of torsion of a pedunculated myoma [2]. Necrotic leiomyomas have a heterogeneous appearance with hyperintense signal in T2 and hyper-isointense in T1 depending on whether the necrosis is haemorrhagic or ischaemic. After contrast administration, no enhancement is observed due to the interruption of vascular flow [2].

The treatment of the twisted pedunculated leiomyoma is surgical. Normally myomectomy is the procedure of choice. The pathological anatomy confirmed the presence of a necrotic myoma.

Written informed patient consent for publication has been obtained.

**Differential Diagnosis List:** Torsion of pedunculated subserous uterine leiomyoma, Acute appendicitis, Ovarian torsion, Ovarian tumours, Uterine torsion

**Final Diagnosis:** Torsion of pedunculated subserous uterine leiomyoma

**References:**


Figure 1

Description: (a) Abdominal ultrasonography depicts a solid, well-circumscribed and homogeneous mass, with an echogenicity similar to the uterus, located between the uterus and the bladder. (b) There is free fluid in the pelvis. Origin: © Department of Radiology, Hospital de la Ribera, Spain, 2019
Description: (a) Abdominal ultrasonography depicts a solid, well-circumscribed and homogeneous mass, with an echogenicity similar to the uterus, located between the uterus and the bladder. (b) There is free fluid in the pelvis. Origin: © Department of Radiology, Hospital de la Ribera, Spain, 2019
Figure 2

Description: Coronal T2WI MRI from anterior to posterior (a to d) shows a heterogeneous mass connected by a thin pedicle (white arrow) with the uterus. Ovaries are normal. Origin: © Department of Radiology, Hospital de la Ribera, Spain, 2019
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Figure 3

Description: Video of coronal T2WI demonstrates the pedicle of the mass twisted along itself, which confirms torsion. Origin: © Department of Radiology, Hospital de la Ribera, Spain, 2019
Description: Sagittal T2WI MRI shows the uterine pedunculated mass that remains eccentric to the uterus. Origin: © Department of Radiology, Hospital de la Ribera, Spain, 2019
Description: Axial T1 SPIR revealed hyperintense foci in the center of the lesion reflecting haemorrhagic content. Origin: © Department of Radiology, Hospital de la Ribera, Spain, 2019
Description: At the same level, axial gadolinium-enhanced T1-weighted image depicts lacking enhancement of the majority of the lesion (encircled) consistent with necrotic areas with only contrast-enhancing of a central nodular area. There is a remarkable hyperenhancement in the perilesional pelvic fat secondary to diffuse inflammation. Origin: © Department of Radiology, Hospital de la Ribera, Spain, 2019