Case 7339

Uterine leiomyoma treated with transcatheter uterine artery embolization.

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Section: Interventional radiology
Case Type: Clinical Cases

Patient: 43 years, female

Clinical History:

A 41 year old woman with increasingly uncomfortable, prolonged menses, persistent fatigue and iron-deficiency anemia was admitted to our department.

Imaging Findings:

A 41 year old woman with increasingly uncomfortable, prolonged menses, persistent fatigue and iron-deficiency anaemia went to our Institute after a gynecological examination which had revealed a midline enlarged, but mobile firm pelvic mass distorting the endometrial stripe. A pelvic MRI examination revealed the presence of an intramural uterine mass sized 8x7x10cm located inside the anterior uterine wall, containing fluid-like areas and a solid portion and causing mild compression on the bladder dome. The solid portion of the lesion showed progressive contrast enhancement on dynamic T1-weighted images after intravenous administration of gadolinium chelate. These imaging findings were compatible with uterine leiomyoma. Two months later, the patient underwent transcatheter arterial embolization of the lesion via transarterial injection of 2 ml of embolizing particles (700-900 um) in the most distal branches of the uterine arteries feeding the lesion, resulting in persistent remission of symptoms. The patient will be followed by MRI exams, 3 and 6 months later, and then annually, to assess the effectiveness of treatment.

Discussion:

Uterine fibroids are common tumours that cause menorrhagia, pelvic pressure symptoms, reproductive disorders. Their incidence peaks in the 5th decade of age, meanly in African and American women. Often, fibroids are asymptomatic and require no treatment. However, patients with symptomatic and recurrence uterine fibroids, do require treatment. Evaluation usually begins with pelvic examination and ultrasound or MRI, in order to determine both size and location of fibroids within the uterus. On MRI, leiomyomas appear to be well circumscribed from adjacent tissue; on T1-weighted images they are usually isointense to normal myometrium, while on T2-weighted images they are hypointense with the exception of highly cellular leiomyomas, which are relatively hyperintense for their higher water content. Intralesional calcification may occur, showing low signal intensity on both T1- and T2-weighted images. Some uterine leiomyomas are surrounded by hyperintense rims on T2-weighted images because of dilated lymphatic vessels and veins, edema. Standard treatment of symptomatic fibroids is represented by myomectomy or hysterectomy; however, the advent of new therapeutic options, such as uterine artery embolization(UAE), allows these patients to preserve the uterus. The procedure takes around an hour and it is performed under sedation or regional anaesthesia. After femoral artery catheterization, pelvic digital subtraction angiography is performed to define the uterine vascular tree. The catheter is then manipulated into both uterine arteries and an embolic agent is injected in order to occlude them. Occlusion is then confirmed by angiography and
the procedure is considered finished when fibroid appear to be infarcted > 80%, in order to prevent recurrent growth. Collateral vessels ensure that the normal myometrium rapidly establishes new blood supplies but myomas appear to be supplied by end arteries and hence necrose. The patients will be followed by a gynecologist with pelvic examination, US or MRI, 6 and 12 months later, and then annually, to assess the effectiveness of treatment: the effect on menorrhagia is immediate, but to appreciate volume decreasing, occurs 4-6 months. Different embolic agents are used, such as polyvinyl alcohol, gelfoam and gelatine tris-acyrl microspheres. There is evidence that the largest particles(700–900 um)may penetrate more deeply compared with non-spherical PVA particles(355–500 um)and it may have the advantage of more specifically targeting and minimising ischaemic damage to normal tissues. Unlike surgical approach, GnRH agonists do not have a role in uterine preparation before UAE, because their effects on uterine vessels can generate technical difficulties. Randomised controlled trials comparing UAE against surgical management, have indicated that in the short term, UAE appears to decrease fibroid size and reduce menstrual bleeding. Data on long-term follow up are still emerging, and they show a 20–25% risk of re-intervention for persistent or recurrent symptoms after UAE. However, we have to consider that open myomectomy is a major surgical procedure that may cause uterine scarring and subsequently impact on fertility and pregnancy outcome. According to this view, management of fibroids should be multidisciplinary including gynaecologist and interventional radiologist. Both counselling and treatment must be individualised based on severity of symptoms, desire to preserve fertility, importance of uterine preservation.

**Differential Diagnosis List:** Uterine leiomyoma treated with transcatheter uterine artery embolization.

**Final Diagnosis:** Uterine leiomyoma treated with transcatheter uterine artery embolization.

**References:**


Alanis MC, Mitra A, Koklanaris N. Preoperative magnetic resonance imaging and antepartum myometomy of a giant pedunculated leiomyoma. Obstet Gynecol 2008;111:577-9. (PMID: [18239028](https://doi.org/10.1097/01.AOG.0000315265.23936.5b))


Figure 1

Description: Sagittal T1-weighted image shows large, inhomogenous uterine mass formed by an anterior fluid-like portion and a posterior solid part. The bladder dome is moderately compressed by the mass. Origin:
Description: Sagittal T2-weighted image shows large, inhomogenous uterine mass formed by an anterior fluid-like portion and a posterior solid part. The bladder dome is moderately compressed by the mass. Origin:
Description: Sagittal T1-weighted image obtained after intravenous administration of gadolinium chelate shows intense enhancement of the solid portion of the mass. Origin:
Description: Signal-intensity-versus-time plot shows progressively increasing contrast enhancement of the solid portion of the mass (magenta curve), compared with the gluteal muscle taken as a reference (green curve). Origin:
Description: Selective DSA of the right uterine artery shows marked hypervascular pattern of the mass.
Origin:
Description: After particle embolization the lesion appears to be devascularized. Origin:
Description: Selective DSA of the left uterine artery shows hypervascular pattern of the mass. Origin:
Description: After particle embolization the lesion appears to be devascularized. Origin: