

CYSTIC ADENOMYOMA: TRANSVAGINAL ULTRASOUND AND MRI FINDINGS

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Abstract

This report describes an unusual case of large cystic adenomyoma in a 37 year-old woman. Cystic degeneration is often seen in a leiomyoma, but has not been reported so far in adenomyoma. TVUS and MRI were carried out in the diagnosis. TVUS demonstrated the cystic nature of the mass and its characteristic hemorrhagic pattern, and MRI gave more detailed information about the lesion and its content. The patient underwent surgical resection of the mass, and diagnosis of cystic adenomyoma was confirmed pathologically. (Anatol J Clin Investig 2009;3(1):68-70).

Introduction

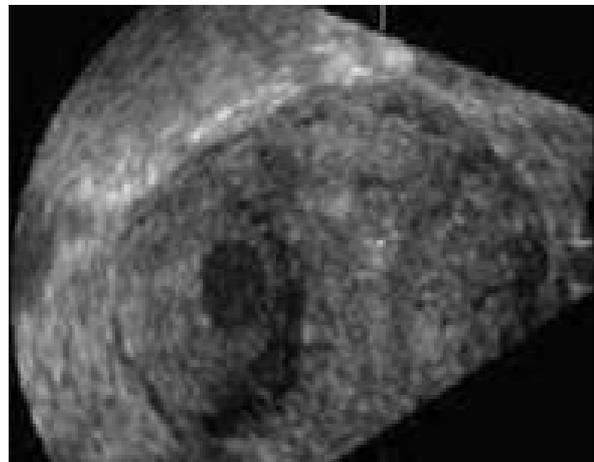
Adenomyomas are uncommon tumors of the uterus, composed of smooth muscle fibers and endometrial glands. Etiology is still unknown and myometrium is invaded by the endometrium. It mainly affects perimenopausal women and usually appears as a diffuse disease but may also occur as a focal lesion [1]. Its location is frequently intramural and few millimeters in diameter [2]. We report a case of a patient with a large, solitary, and subserosally located cystic adenomyoma utilizing transvaginal ultrasonography (TVUS) and pelvic magnetic resonance imaging (MRI).

Case

A 37 year-old woman (gravida 1, para 0) presented with a history of endometriosis and severe abdominal pain. On pelvic examination, there was a palpable mass on the right side of the uterus. All laboratory studies including tumor markers (CEA, CA-125, β -HCG); white blood-hemoglobin count, and coagulation parameters were within the normal limits. 3D multiplanar transvaginal ultrasonography demonstrated an elongated cystic mass containing diffuse low level echoes which was within the right-sided uterus. The mass was 4.9x1.9x3.5 cm in diameter (Fig.1). The left and right ovary was clearly identified and there was no evidence of adnexal mass. Endometrial cavity and both cornuas were well demonstrated on coronal plane, therefore the diagnosis of a unicornuate uterus with a atretic rudimentary horn on the right was excluded.

MR imaging of the pelvis was performed with a 1.5T unit (Signa; GE Medical Systems, Milwaukee, WI, USA) with a dedicated pelvic coil (Medrad, Indianola, PA, USA) using a 24cm field of view. Sequences performed were: coronal T2 single shot fastspin echo (TR/TE effective 2500/180, bandwidth 31, matrix 256 x

256, 5mm slicethickness, signal 0.5), axial T2 FSE (TR/TE effective 4000/100, bandwidth 15, matrix 256 x 256, 7 mm slice thickness, signal 2), sagittal T2-weighted fast spin echo (TR/TE effective 2500/80, bandwidth 31, matrix 256 x 192, 6mm slice thickness, signal 1) with fat suppression, axial T1 gradient echo opposed-phase (TR/TE 175/2.4), in-phase (TR/TE 175/5) and fat suppressed three dimensional gradient echo (TR/TE/flip angle 6/ 2/15, 4mm slice thickness) imaging before and after the intravenous administration of contrast (0.1mmol/L per kilogram of body weight of gadopentetate dimeglumine, Magnevist; Berlex Laboratories, Wayne NJ). There was a well defined 5.0x4.0 cm heterogenous mass that appeared to be within the right peripheral myometrium abutting the serosal surface. T1 W appearance was predominantly high signal. And it was low to isointense on T2 W images, with characteristics that resemble those of an endometrioma and was mostly consistent with a cystic adenomyoma (Fig.2, Fig.3). The remaining myometrium and endometrium was within the normal limits. No enhancing lesions were detected on post gadolinium images.



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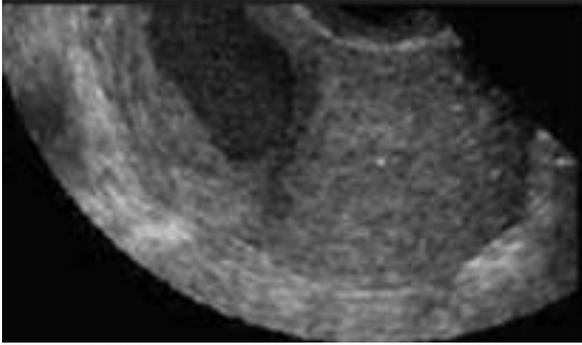


Figure 1. Multiplanar display from 3D TVS of the uterus shows a cystic mass within the right side of the uterine corpus containing low-level echoes. Coronal plane image (A) through the endometrial cavity and axial plane image (B) showing 2 normal cornua.

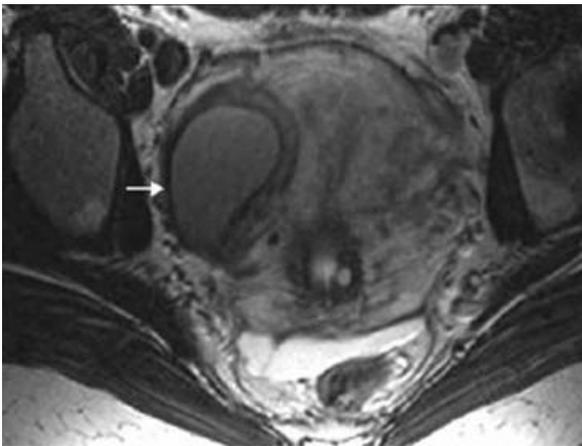


Figure 2. Axial T1-weighted gradient echo opposed phase MRI image shows a hyperintense lesion within the myometrium. Lack of a chemical shift artifact around the lesion confirms the absence of fat within.

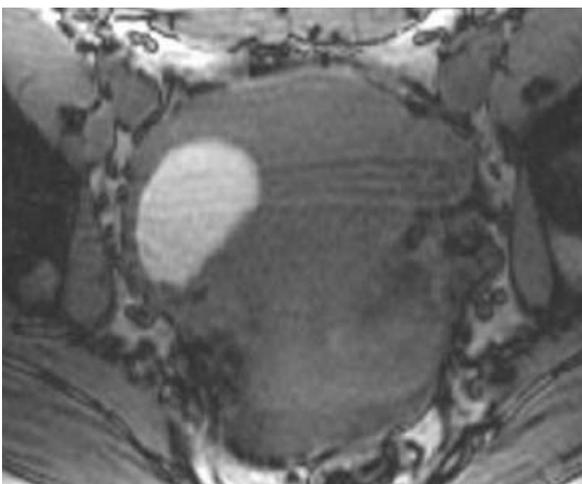


Figure 3. Axial T2-weighted MRI image shows an intermediate to hyperintense signal in the cystic mass (arrow), showing shading, consistent with chronic hemorrhage.

The preoperative diagnosis of adenomyosis was based on the patient history, physical examination, and radiological findings. Due to the severe abdominal pain, surgical resection

was arranged. Laparotomy revealed a subserosal uterine tumor that was projecting the right side of the myometrium superficially and to the broad ligament. Pathological examination revealed endometrial glands within the myometrial tissue, and confirmed the diagnosis of adenomyoma.

Discussion

Adenomyosis is a condition characterized by a benign invasion of the endometrium into the myometrium associated with reactive diffuse overgrowth of the surrounding musculature [3]. The adenomyosis can be classified as a three categories depending on the location of lesion and its extensions. It is considered to be a variant of endometriosis. Unlike endometriosis, irregular uterine bleeding is the most common symptom in adenomyosis [4].

Adenomyotic cysts are usually small and less than 5 mm in diameter. Large cystic adenomyosis is extremely rare [5]. Our case is an example of a large cystic adenomyoma with a unusual growth pattern. Cullen et al. [6] previously reported that adenomyosis can bulge at the outer peritoneal surface, forming subperitoneal adenomyoma. Such a myoma is prone to becoming cystic, with the cystic cavities being filled with hemorrhagic content, as seen in our patient. The differential diagnosis of a such large uterine lesions includes leiomyoma, congenital cyst, endometrial carcinoma, and uterine sarcoma. Adenomyoma may not be indistinguishable from a leiomyoma by radiological findings. Congenital cysts are filled with clear fluid. Uterine sarcomas appear as a heterogeneous bulky mass. Endometrial carcinoma is usually heterogeneous mass extending to the uterine cavity and associated with deep myometrial invasion [7]. In the present case, the large uterine mass projected into the pelvis, contained a blood-filled cyst; unlike congenital cyst. The possible diagnosis of cystic degeneration in leiomyoma was considered in differential diagnosis, but it could not be excluded by radiological and laboratory findings. Cystic degeneration of a uterine leiomyoma or adenomyoma is extremely rare. To our knowledge only one case with large cystic uterine adenomyoma has been described so far in the literature without any radiological images [8].

TVUS has a positive predictive value of 86%, a sensitivity of 86%, and a specificity of 50% in symptomatic women with dysfunctional uterine bleeding or an enlarged uterus. Most recent studies conclude that TVUS is a useful adjunct, but not as specific as MR imaging or pathologic

confirmation in the diagnosis of adenomyosis [9,10]. In our case, TVUS correctly located the lesion and showed its smooth, well defined margins, cystic content and low level echoes suggesting intracystic hemorrhage. Doppler sonography showed no intralesional solid components and vascularization. Therefore, malignancy was unlikely. The cystic lesion exhibited hyperintense signal on T1 W images and low to isointense signal on T2 W images in our case. The differential diagnosis of the fluid that exhibits hyperintense signal on T1 W includes fat, hemorrhage, and some fluid containing high protein. However, the fluid that hyperintense on T1 W images and iso-low hypointense on T2 W images suggests correctly the hemorrhagic content. In addition fat and hemorrhage can be distinguished easily by the use of fat suppression techniques. Thus, MR

findings are specific enough to indicate that the content of the hemorrhagic cyst. Furthermore subserosal myoma, fibroma, and thecoma might be considered in differential diagnosis in the case of hypointensity on T2 W images. However, all these lesions are rarely hemorrhagic [11].

In summary, neither physical presentation nor TVUS and MR imaging were pathognomonic for the diagnosis. However, MRI which is most efficacious imaging tool for pelvic masses provides useful information about the lesion's origin and content. We suggest that the radiologist need to be aware of uterine adenomyoma showing cystic formation and exophytic extension, additionally in the cases of uterine masses that appear aggressive in nature, adenomyoma should be considered in the differential diagnosis.

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