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Case Report

Diagnostic pitfalls of a degenerating uterine fibroid mimicking ovarian cystadenoma

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ABSTRACT

Uterine leiomyomas, commonly called fibroids, are benign smooth muscle tumors of monoclonal origin. As leiomyomas enlarge, they can outgrow their blood supply, resulting in various types of degeneration, such as hyaline, cystic, myxoid or red degeneration and dystrophic calcification. Degeneration is a common complication occurring in approximately two thirds of all fibroids. Hyalinization being the most common type of degeneration, occurring in up to 60% of cases, cystic degeneration seen in about 4% of leiomyomas which may be considered extreme sequelae. Although fibroids typically have a characteristic USG appearance, degenerating fibroids can have variable patterns and pose diagnostic challenges. I am presenting case of 45 years old perimenopausal female, who was diagnosed with ovarian cystadenoma on MRI findings. But intra operative posed a greatest diagnostic dilemma.

Keywords: Leiomyoma, Adnexal masses, Ovarian cyst, Fibroid, Müllerian anomaly, Infertility, Reproductive health, Mimicking ovarian malignancy, Abdominal hysterectomy

INTRODUCTION

Uterine leiomyomas, also known as fibroids, are benign neoplasms arising from smooth muscle cells and are of monoclonal origin.[1] With progressive growth, these tumors may exceed their vascular supply, resulting in degenerative changes such as hyaline, cystic, myxoid, or red degeneration, along with dystrophic calcification. Degenerative changes are common and are reported in nearly two-thirds of leiomyomas.

On ultrasonographic examination, the uterus may be enlarged either focally or diffusely, and leiomyomas typically appear as well-defined solid masses that are mildly hypoechoic compared with the adjacent myometrium. Although they do not possess a true capsule, leiomyomas are usually sharply demarcated. In contrast, degenerating leiomyomas may show unusual imaging appearances, creating diagnostic dilemmas and frequently resulting in incorrect diagnoses. These lesions may be misinterpreted as ovarian tumors, adenomyosis, hematometra, or uterine sarcoma.[2]

We describe a case of a giant uterine leiomyoma with cystic degeneration that was initially misdiagnosed preoperatively as a large ovarian cystic lesion.

CASE REPORT

A 49-year-old perimenopausal woman presented with a six-month history of progressive abdominal distension. She denied any associated symptoms, including weight loss, gastrointestinal disturbances, urinary complaints, or abnormal vaginal bleeding. There was no significant past medical or surgical history. Her menstrual history revealed regular cycles occurring every 28-32 days, with menstrual flow lasting 3-4 days.

On general physical examination, the patient was overweight, with a body mass index (BMI) of 27 kg/m².

Her vital parameters were within normal limits. Abdominal examination revealed marked distension due to a large abdominopelvic mass of cystic consistency, corresponding to a gravid uterus of approximately 36 weeks' size. The mass extended up to the xiphisternum and appeared to arise from the pelvis; however, its lower margin was not palpable. There was no shifting dullness on percussion, thereby excluding ascites. On per vaginum examination-cervix was high up and flushed with vagina and Bilateral fornix were full. On bimanual examination, large abdominopelvic mass equivalent in size to a 36-week gravid uterus was palpated. The uterus could not be appreciated separate from the mass. Clinical examination was followed by imaging investigations.

Ultrasound depicted (Figure 1)-uterus-which was anteverted and bulky, normal in outline and position, ET-normal (6.6 mm). Right ovary-was not separately identified. A multiloculated mass predominately cystic in nature was seen in Right adnexal region which extended into abdominal cavity-15×10×7 cm. Left ovary-was normal in shape, size and echotexture. No free fluid was seen.

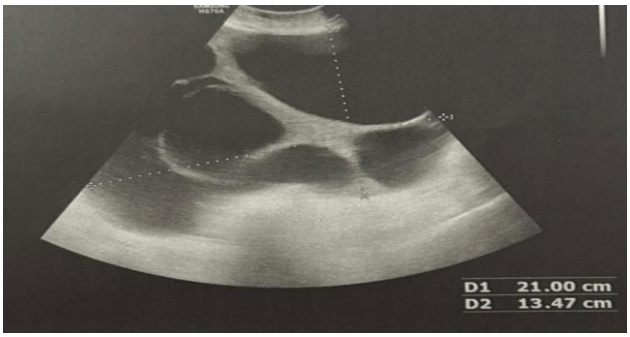

Figure 1: Ultrasound findings-multiloculated cystic lesion.

On further evaluation, MRI was done next day, which revealed-A large abdominopelvic multiloculated cystic lesion (Figure 2). It was probably arising from right ovary, measuring 29×28 cm. Cysts were separated by septa. Bilateral ovaries were not well visualised. Uterus was normal (Figure 3). No ascites was seen.

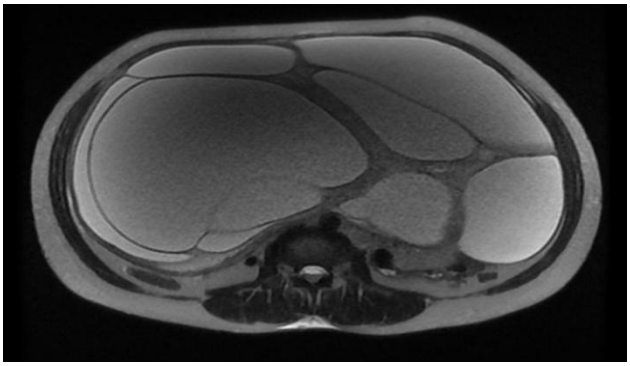

Figure 2: CEMRI (transverse view)-suggestive of large multiloculated cystic lesion.

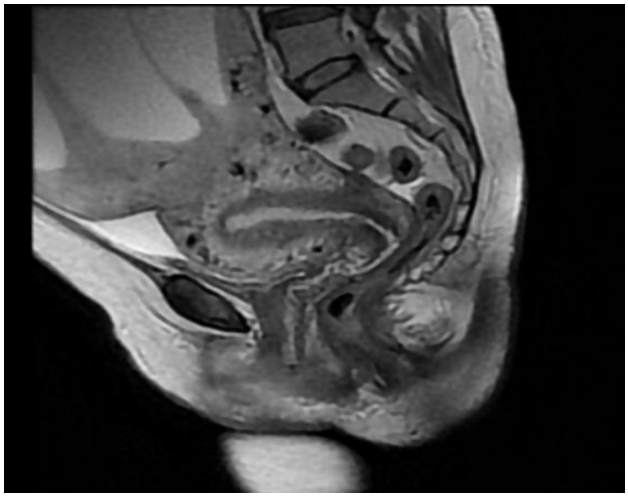

Figure 3: CEMRI (Sagittal view)-suggestive of multiloculated lesion covering whole of abdomen and present on top of uterus.

Routine laboratory investigations, including complete blood count, serum electrolytes, liver and renal function tests, and Papanicolaou smear, were within normal limits. Based on the clinical findings and the ultrasonographic and computed tomography features, a primary malignant ovarian tumor was initially considered the most likely diagnosis. However, all tumor markers, including CEA, AFP, CA 19-9, β-hCG, and LDH, were within normal ranges.

The final preoperative impression was that of a right ovarian cystadenoma. After obtaining informed written consent and ensuring the availability of adequate blood products, the patient was taken up for surgery with a planned right ovarian cystectomy.

The abdomen was opened through a vertical midline incision. Intraoperatively, a large multiloculated cystic mass measuring approximately 30×28 cm was identified (Figure 4).

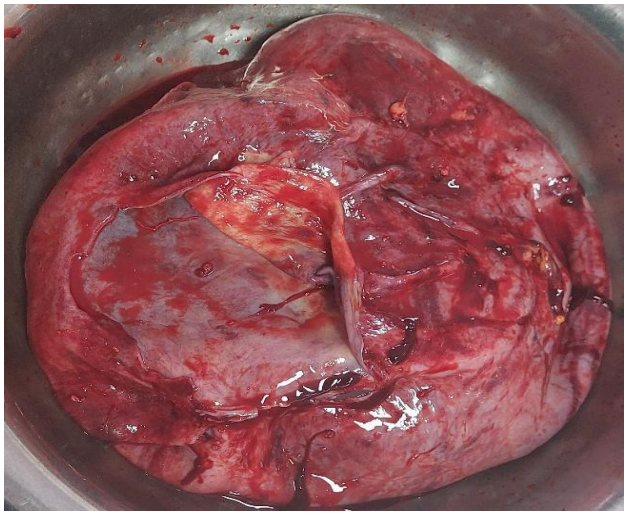

Figure 4: 30×28 cm multiloculated cystic lesion.

Approximately 5-6 cysts were ruptured draining 3 L, straw color fluid-which was sent for cytology. The cysts were separated by thick septa. Thus, confirming diagnosis of multiloculated cystic lesion. On tracing the lower end of this multiloculated mass, it was seen that the mass was originating from fundal end of uterus. On cut section- it gave whorled appearance suggestive of uterine leiomyoma (Figure 5).

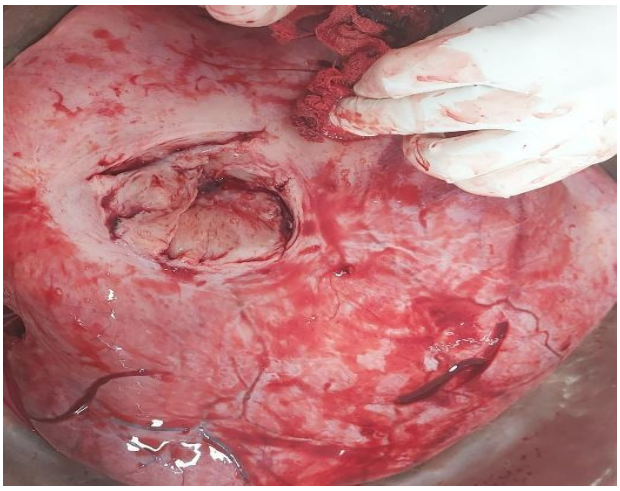

Figure 5: Cystic mass at site of attachment from fundus of uterus- with whorled appearance.

Bilateral fallopian tubes and ovaries were normal (Figure 6). Intra operative decision for TAH+BSO was taken. The postoperative period was uneventful with satisfactory recovery.

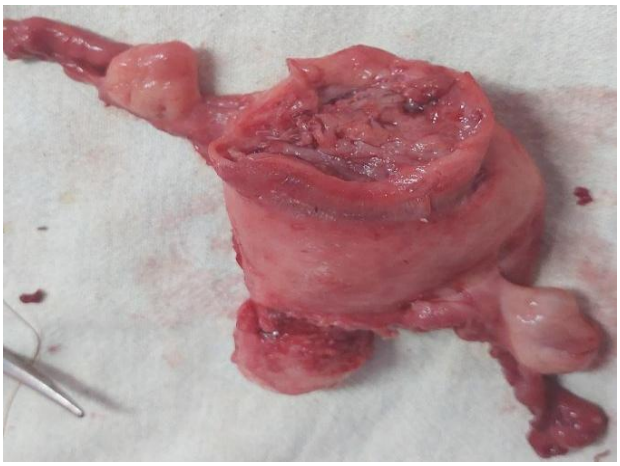

Figure 6: Bilateral tubes and ovaries-within normal limits with fundal end of uterus (depicting the origin of mass).

Histopathological examination revealed no evidence of malignancy, and cytological analysis was also negative for malignant cells. The final diagnosis was a uterine leiomyoma with extensive cystic degeneration, which had clinically and radiologically mimicked an ovarian malignancy.

DISCUSSION

Uterine fibroids, also known as leiomyomas, are benign tumors arising from the smooth muscle of the uterus. They are most commonly encountered during the reproductive years and are exceedingly rare after menopause. Leiomyomas are classified according to their anatomical location within the uterus.

Fibroids can vary significantly in size and may lead to symptoms such as pelvic pain, constipation, frequent urination, and heavy menstrual bleeding.[3-7] They can also affect reproduction by causing infertility, miscarriage and/or premature labor. As fibroids grow, they can outstrip their blood supply, leading to various degenerative changes.[8]

Hyaline Degeneration which is the most common type, accounting for approximately 60% of cases. Over time, areas of hyalinization may undergo liquefaction, resulting in the formation of cystic spaces filled with clear fluid called as cystic degeneration (4% of cases). Others such as myxoid, red degeneration and dystrophic calcification can also occur.

While rare, some fibroids can grow to enormous sizes. This highlights the significant growth potential of these tumors, which can expand within the large volume of the abdominal cavity and the distensible abdominal wall.

Diagnostic imaging

Ultrasonography is preferred for initial evaluation because it is non-invasive and cost-effective; it helps differentiate fibroids based on their echogenicity, which varies according to the fibrous-to-smooth muscle tissue ratio, type of degeneration, and presence of calcification. CT scan is particularly useful for identifying calcified or necrotic fibroids, although it may not always clearly distinguish them from normal uterine tissue. MRI provides detailed anatomical information and superior tissue characterization; however, its high cost and limited availability may restrict routine use.[9,10]

Management approaches

Management options for uterine fibroids include expectant, surgical, medical, and interventional approaches. Expectant management involves careful observation with regular follow-up in asymptomatic patients or those with minimal symptoms. Surgical management is often indicated for large, rapidly growing, or symptomatic fibroids and includes procedures such as myomectomy or hysterectomy. Medical management employs hormonal therapies aimed at symptom control and reduction of fibroid-related morbidity. Uterine artery embolization is a minimally invasive technique that reduces the vascular supply to the fibroid, leading to ischemia and subsequent tumor shrinkage. An individualized management approach is essential and

should be guided by symptom burden, suspected malignancy, patient age, fertility considerations, and menopausal status.

The removal of giant uterine fibroids should be performed only by highly experienced gynaecologic surgeons. Given the complexity of the procedure, it is beneficial to involve a multidisciplinary team, including gynaecologic oncology, general surgery, colorectal surgery, and urology specialists, for intraoperative consultation.

At laparotomy, both ovaries were found to be normal but displaced by a large cystic mass occupying the entire abdomen, which had made their visualization difficult on ultrasonography and MRI.MRI in our case demonstrated a predominantly cystic mass with high signal intensity on T2-weighted images. Non-visualization of one ovary led to the interpretation that the lesion was ovarian in origin. Furthermore, the large size and multiloculated appearance of the mass were imaging features suggestive of an ovarian cystadenoma or cystadenocarcinoma. However, the final histopathological diagnosis revealed a degenerated uterine leiomyoma.

CONCLUSION

Although uterine fibroids typically exhibit characteristic sonographic features, extensive cystic degeneration can disrupt their normal architecture, resulting in atypical appearances and significant diagnostic challenges.

While MRI is considered a superior imaging modality for the evaluation of pelvic masses, the findings in our case were suggestive of an ovarian neoplasm. Accurate diagnosis and appropriate management require careful correlation of clinical findings with sonographic, radiologic, and intraoperative observations.

This case underscores the importance of identifying both ovaries on ultrasonography and MRI and highlights the need to consider a degenerated uterine fibroid as a differential diagnosis when evaluating large pelvic masses.

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