

# A giant degenerative uterine leiomyoma mimicking an ovarian neoplasm: Case report

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## Abstract

Uterine leiomyoma, also referred to as fibroid or myoma, is a prevalent benign tumor that can present with a range of clinical manifestations. The symptoms, which vary based on the tumor's location, size, and number, include pain, constipation, urinary disturbances, and abnormal menstrual bleeding. Certain types of uterine leiomyomas, such as pedunculated subserosal myomas or large degenerating cystic myomas, may closely mimic ovarian tumors, leading to significant diagnostic and management challenges. In this report, we present the case of a 47-year-old woman who experienced severe dyspnea and abdominal distension. Comprehensive radiological evaluation revealed a massive lesion, with both solid and cystic components, occupying the entire abdominopelvic cavity. Histological analysis confirmed the diagnosis of cellular leiomyoma. This case underscores the importance of considering degenerative cystic myoma in the differential diagnosis of large, cystic intra-abdominal tumors of unknown origin, to avoid misdiagnosis and ensure appropriate management.

## Keywords

Cystic degeneration, ovarian tumor, uterine leiomyomas, uterine fibroids

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## Introduction

Uterine leiomyomas, also known as fibroids, are noncancerous tumors arising from the smooth muscle of the uterus and can contain varying amounts of fibrous connective tissue.<sup>1</sup> These tumors may present as a single lesion, but multiple fibroids of different sizes are more common. Leiomyomas are classified by their location in the uterus: submucosal, intramural, or subserosal, with subserosal fibroids sometimes being pedunculated and resembling ovarian tumors.<sup>1,2</sup> According to the FIGO classification system, this categorization aids in understanding their clinical impact and management.<sup>2</sup>

Fibroids are observed in 20%–40% of women, usually becoming more prevalent with increasing age, particularly from the age of 30 onward.<sup>3</sup> They are hormone-dependent, responding to estrogen and progesterone, which influences their growth.<sup>4</sup> Rapidly growing fibroids can outgrow their blood supply, leading to ischemic changes and inflammatory responses, resulting in various types of degeneration: hyaline (the most common, seen in 60% of cases), cystic (rare, about

4%, often linked to extreme edema), myxoid, and red/carcinomatous degeneration.<sup>5–7</sup> The latter can cause acute pain, particularly during pregnancy, and may be associated with dystrophic calcifications.<sup>2,6,7</sup>

Clinically, fibroids can be asymptomatic or symptomatic depending on their size, number, and location. Symptoms often include pelvic pain, pressure, abnormal menstrual bleeding, constipation, and reproductive issues

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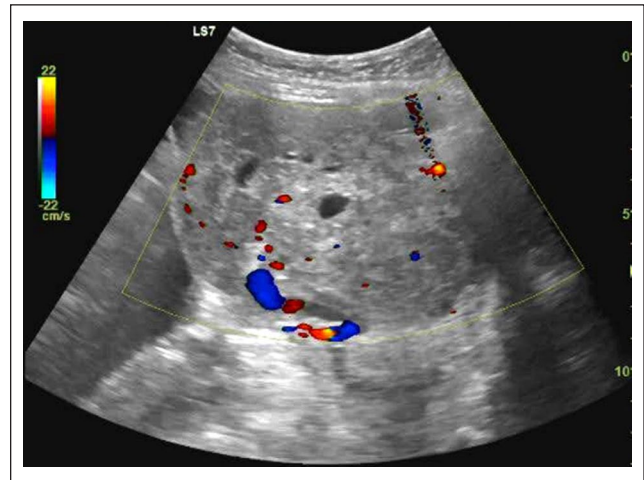


like infertility or complications in pregnancy. While typical fibroids are usually recognizable on imaging, degenerative changes can alter their appearance, complicating the diagnosis and sometimes resulting in confusion with conditions such as adenomyosis or ovarian neoplasms. This diagnostic difficulty is particularly pronounced when a large, degenerating leiomyoma extends laterally, mimicking ovarian masses. The slow and often asymptomatic growth of these tumors allows them to reach substantial sizes before symptoms become apparent, aided by the abdomen's ability to gradually accommodate the tumor's expansion.<sup>8,9</sup>

## Case report

A 47-year-old female, gravida 2, para 2 was admitted to the hospital due to dyspnea 2 days before. At the emergency department, she was hemodynamically stable and had a normal respiratory rate. Laboratory tests and chest X-rays were unremarkable. Physical examination showed no significant abnormal finding at the thorax but revealed a large, firm intra-abdominal mass. She had a slightly overweight body with a BMI of about 29. She reported menstrual irregularities and occasional menorrhagia, each time accompanied by dull abdominal pain. She stated that she knew about the pelvic mass, which was detected by ultrasound 1 year ago, but she did not remember the results exactly. Her abdomen gradually grew over the past 5 months, with abdominal distension and chest tightness.

Abdomino-pelvic ultrasound revealed a huge mass that extended from the pelvic to the epigastric region and appeared with heterogeneous echogenicity with both solid and cystic areas. These findings suggested a uterine leiomyoma or ovarian cyst but did not exclude ovarian malignancy (Figure 1). Computed tomography (CT) images revealed a large uterus with a fundus solid mass approximately  $9 \times 13 \times 18$  cm in size (possibility of uterine fibroids). Following the administration of contrast, heterogeneous contrast enhancement was observed, with multiple irregular necrotic areas. Above this solid mass, there was a large cystic mass measuring  $12 \times 19 \times 26$  cm (possibility of fibroids degenerating fluid or ovarian cysts), with the margin fused with the solid component at the fundus of the uterus. The mass compressed other intra-abdominal structures, with unclear boundaries to the left ovary. The right ovary had a simple cyst just over 20 mm. Based on ultrasound and CT scan, the initial diagnosis was degenerative leiomyoma and a large abdominal fluid cyst suggesting a left ovarian cyst (Figure 2). A malignant cyst of the ovary has not been excluded, but the diagnosis was more likely to be a benign tumor because the CA-125 marker for ovarian cancer was within normal limits. Magnetic resonance imaging (MRI) examination was requested, however, the patient declined due to fear of noise in enclosed spaces (claustrophobia) and financial problems.

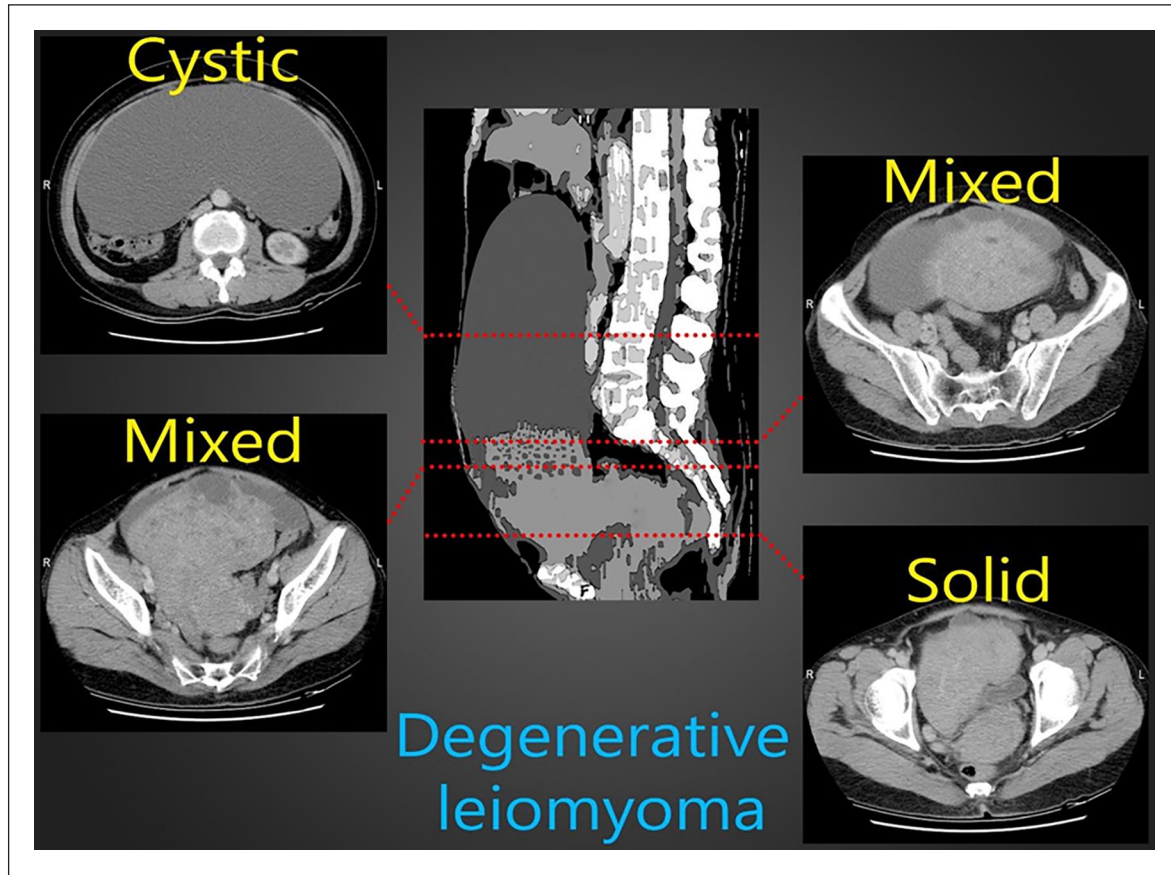


**Figure 1.** Color Doppler ultrasound revealed a large complex mass occupying the whole abdominopelvic cavity. It had varying echogenicity from place to place within the tumor.

The patient then had surgery with Pfannenstiel's abdominal wall opening. The abdominal cavity contained about 180 ml of dilute blood fluid. There was a huge cystic mass that had a stalk with a wide base attached to the fundus of the uterus. Flipping this cystic mass up, the surface had many cystic structures of different sizes, including serous and mucinous cysts. The uterus was as large as a 15-week pregnancy containing many mucinous degenerative fibroids. The left ovary showed a normal appearance. The right ovary was fibrosed and had a small multi-lobed cyst. Approximately 4 l of fluid were drained from the cystic mass. The patient then underwent total hysterectomy, bilateral salpingectomy, and right oophorectomy. The surgeons closed the cutting apex, covered the peritoneum, wiped the abdomen, and then gave prophylactic antibiotics. The surgical specimen showed a large uterus containing many dense lesions, some necrotic lesions in the center of blood and mucus. Microscopic examination revealed that uterine leiomyoma consisted of abundant spindle cells growing in fascicles, lacking fibrous tissue, a few mitotic figures, scattered hemorrhage, necrosis, and mucinous degeneration. The histological diagnosis was a cellular leiomyoma. After that, the patient was recommended to be re-examined every 3–6 months with imaging methods and laboratory tests. We monitored the patient's electronic medical records for a year and showed that the patient's health condition was unremarkable.

## Discussion

A giant uterine fibroid is defined as a tumor weighing more than 25 lb (11.4 kg). In the literature, only a few cases of giant uterine leiomyomas have been reported. The largest uterine leiomyoma ever reported weighed 63.3 kg in 1888.<sup>10</sup> Uterine fibroids often mimic ovarian tumors, making them difficult to identify clinically and radiologically. Sometimes the diagnosis is made only during surgery. This was proved



**Figure 2.** CT images showed a heterogeneous intra-abdominal mass consisting of solid and cystic components.  
CT: computed tomography.

by Yorita et al.,<sup>11</sup> which showed that 12/17 cases of ovarian tumor-like uterine leiomyomas could not be diagnosed using imaging modalities (ultrasound, CT, and/or MRI). Kaushik et al.<sup>7</sup> reported two cases of degenerative leiomyomas resembling a complex ovarian cyst and a large myometrial cyst. Interestingly, Aydin et al.<sup>9</sup> reported a case preoperatively diagnosed as primary malignancy of the ovary but surgically identified a subserous leiomyoma with extensive cystic degeneration. In a case report of Prabhu et al.,<sup>12</sup> it was impossible to detect the origin of the mass even intraoperatively because it contacted both the ovary and the uterus. Negi et al. and Akkour et al. each published separate case reports describing large, cystic, and degenerated uterine leiomyomas in women under the age of 40, both of which, on imaging, closely mimicked malignant ovarian tumors.<sup>13,14</sup>

Ultrasound is the preferred method for the clinical diagnosis of suspected leiomyoma. On ultrasound, leiomyomas are characterized by homogeneous or heterogeneous hypoechoic masses depending on the relative ratio of fibrous tissue to smooth muscle and the presence of calcification or degenerative changes.<sup>15</sup> However, the extreme size of pelvis masses can make it extremely difficult to determine the origin by either abdominal or transvaginal ultrasound. In these

cases, MRI plays a crucial role in diagnosis. On T2W images, leiomyomas are sharply demarcated from the surrounding myometrium. Cystic leiomyomas typically show low T1-weighted images and high T2-weighted image signal intensities, with no enhancement of the cystic areas.<sup>6</sup> Hyaline degeneration leiomyomas present a low signal on T2W images.<sup>16</sup> The differential diagnoses of a large cystic mass with septae and solid components in the pelvic cavity are ovarian malignancy or adnexal masses. This can be ruled out by visualizing normal ovaries or the relation of the mass with the uterus such as the stalk on imaging. Normal levels of tumor markers may favor a diagnosis of leiomyoma.<sup>15-17</sup> According to Mulita et al.,<sup>18-21</sup> in most cases, tumor markers such as CA-125 can be a useful tool to differentiate between malignant ovarian tumors and other benign tumors. However, in some cases, tumor markers may not be specific. For example, CA-125 may be elevated in the case of uterine fibroids.<sup>19,20</sup> Furthermore, fibroids can mimic a few other lesions of the uterus, such as leiomyoblastoma.<sup>21</sup>

The management of uterine fibroids encompasses a range of approaches, tailored to factors such as patient age, symptom severity, risk of malignancy, reproductive plans, and proximity to menopause is generally reserved for patients

experiencing mild symptoms.<sup>1,4</sup> Analgesics, including non-steroidal anti-inflammatory drugs, are commonly employed for pain relief. Endocrine-based treatments, such as estrogens or progestogens, act on the endometrium to alleviate symptoms. Selective progesterone receptor modulators are also effective, reducing bleeding, inducing amenorrhea, and decreasing fibroid volume.<sup>22</sup> Surgical approaches still represent the main strategies for uterine fibroid management. Hysterectomy is a definitive and radical treatment, especially for women who do not wish to conceive or are middle-aged women. Laparotomy or laparoscopic myomectomy is used to remove fibroids and reconstruct the anatomy of the uterus, which is a technique for women who want to retain their uterus. Hysteroscopic myomectomy is a minimally invasive surgical intervention to remove submucous uterine fibroids.<sup>23</sup> There are also nonsurgical alternatives such as uterine artery embolization (safe and minimally invasive technique, for patients wishing to preserve the uterus and give results similar in satisfaction to surgical procedures) and fibroid ablation (tissue destruction with concentrated energy such as ultrasound, radiofrequency, and laser).<sup>24</sup> Surgical interventions are most frequently preferred for the management of giant leiomyomas.<sup>25,26</sup>

## Conclusions

A giant degenerating leiomyoma can exhibit variable imaging patterns, posing significant diagnostic challenges, particularly on ultrasound and CT. Accurate differentiation from other conditions, such as ovarian tumors, requires a thorough understanding of the histopathological features and clinical progression of leiomyomas to guide appropriate therapeutic decisions.

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## Authors' contributions

V.T.H. and T.H.H. conceived and designed the manuscript; H.A.T.V. and N.T.T.P. collected the data and wrote the initial draft; T.T.T.N. and D.T.H. helped to revise the manuscript; V.C., C.T.T., D.T.H. reviewed the paper; all authors read and approved the final manuscript.

## Data availability

There are no data to share. All the details have been mentioned in the manuscript.

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## Ethics approval


Our institution does not require ethical approval for reporting individual cases or case series.

## Informed consent

Written informed consent was obtained from the patient(s) for their anonymized information to be published in this article.

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