

# A large pedunculated leiomyoma with two-sided cystic degenerations mimicking a bilateral ovarian malignancy: a case report

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## Summary

The authors present an unusual case of a large, pedunculated uterine leiomyoma with two-sided cystic degenerations, which mimicked a bilateral malignant ovarian tumor on ultrasonography and magnetic resonance imaging (MRI). A 32-year-old unmarried female patient presented to our outpatient clinic with complaints of abdominal distention and a palpable abdominal mass extending into the upper abdomen. Ultrasonography and MRI revealed a large solid mass with bilateral cystic areas extending into both uterine adnexa. The patient then underwent a laparotomy. Gross examination revealed normal ovaries and a pedunculated mass with two-sided prominent cystic structures originating from the uterine fundus. The tumor was excised through the peduncle and pathologic evaluation revealed a uterine leiomyoma with cystic degenerations. In conclusion, a large, pedunculated leiomyoma with two-sided cystic degenerations can mimic a bilateral malignant ovarian neoplasm on imaging studies. Therefore, uterine leiomyomas with bilateral cystic degenerations should be considered during the differential diagnosis of malignant ovarian masses.

*Key words:* Leiomyoma; Ovarian neoplasms; Ultrasonography.

## Introduction

Pelvic masses are frequently encountered in daily gynecological practice, and the correct preoperative diagnosis of these masses is of paramount importance. However, differential diagnosis of pelvic masses can be challenging for practitioners. Among the pelvic masses, leiomyomas originating from the uterus are the most common neoplasms, which develop in 20%–30% of women during their reproductive years [1]. Imaging methods such as ultrasonography and magnetic resonance imaging (MRI) can identify the typical appearance of leiomyomas without difficulty; however, degenerative changes in these pelvic masses may cause atypical expression on images and lead to confusion in their diagnosis [2, 3]. Ovarian cancer is one of the most common gynecologic cancers, which carries a lifetime risk of development between 1%–1.5%. Ovarian cancer is considered the most lethal malignancy of the female genital tract and continues to be one of the main causes of female cancer death. Early and accurate diagnosis of this condition is necessary to improve overall patient survival. Here, we report a case of a large, pedunculated, and subserosal uterine leiomyoma with bilateral cystic changes that mimicked an ovarian malignancy.

## Case Report

A 32-year-old unmarried female patient presented to our outpatient clinic with complaints of abdominal distention and a palpable abdominal mass extending into the upper abdomen. Upon physical

examination, a mobile abdominal mass with irregular contours extending four to five cm above the umbilicus was discovered, whereas the uterus and uterine adnexa could not be examined individually. Pelvic ultrasonography revealed a predominantly solid, intra-abdominal 19 × 15 × 10-cm complex mass located just above the apparently normal uterus. The mass contained bilateral unilocular cystic areas without any papillary projections and was located within a solid neighborhood, suggesting an ovarian malignancy. The ovaries were not distinctly observed, and a minimal amount of free pelvic fluid was detected. The levels of the serum tumor markers beta subunit of human chorionic gonadotropin ( $\beta$ -hCG), carcinoembryonic antigen (CEA), and alpha-fetoprotein (AFP) were within normal limits, whereas the cancer antigen 125 (Ca 125) level was determined to be 87 IU/ml (> 35 IU/ml is abnormal). MRI of the abdominopelvic region showed a large, well-defined pelvic mass measuring 20 × 15 × 12 cm. Although normal ovaries were not identified individually, evidence of hyperintense cystic areas were observed bilaterally on T2-weighted MRI images. No regional lymphadenopathies were detected on MRI (Figure 1).

Although uterine leiomyoma with possible two-sided cystic degenerations was suspected on the basis of the preoperative diagnosis, the possibility of bilateral malignant ovarian cystic masses with concurrent leiomyoma or a complex malignant mass of ovarian origin that was invading the uterus could not be ruled out. Consequently, abdominal exploration using laparotomy was performed and a large, pedunculated tumor originating from the fundus of a normal looking uterus was encountered. Both uterine adnexa and other pelvic organs were found to be normal upon inspection. The mass was incised through its peduncle and removed completely, followed by closure of the abdomen. Upon gross examination of the specimen, bilateral outgrowth of masses with cystic appearances, arising from the main mass, was noted (Figure 2). A solid mural nodule, which was apparent on MRI, was

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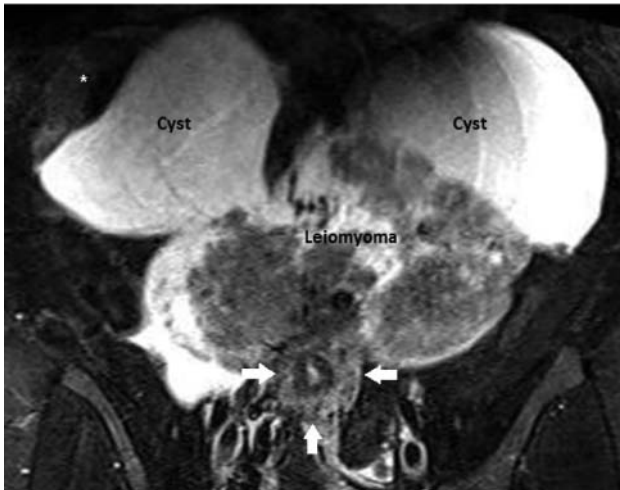


Figure 1. — MRI image of the mass. A coronal T2-weighted fat-saturated image showing a well-defined semi-solid pelvic mass extending into both uterine adnexal areas. The mass contains obvious two-sided cystic areas, which present as hyperintense regions on T2-weighted images. A likely continuity exists between the mass and the uterine fundus. A solid area within the wall of the right cyst is apparent in the right cystic lobule of the mass (asterisk). A minimum amount of free fluid is noted in the pelvis (arrows show the uterus).

observed inside the right cystic lobule (Figure 1). Pathological evaluation of the surgical specimen revealed a uterine leiomyoma with two-sided cystic degenerations.

## Discussion

Leiomyomas arise from smooth muscle and connective tissue and are most commonly found in the uterus [1]. Histologically, these tumors show monoclonal proliferation and may undergo different types of degenerations, such as hyaline, cystic, calcific, malignant, or red degeneration. Among the degenerative changes, hyaline degeneration is the most commonly noted, whereas cystic changes can be seen in 4% of all cases [4]. In this report, the authors present the case of a large, pedunculated uterine leiomyoma with bilateral cystic degenerations, which mimicked an ovarian malignancy on imaging studies. A few reports have previously described uterine fibroids with unilateral cysts thought to be ovarian malignancies [5-7]. However, a search of the current literature failed to identify any previous studies describing uterine leiomyomas with two-sided cystic degenerative areas mimicking bilateral ovarian malignancy.

Ultrasonography is considered to be the initial and most cost-effective method for the evaluation of pelvic masses. Uterine leiomyomas constitute a considerable proportion of the solid pelvic masses and are usually seen without difficulty as hypoechoic masses on ultrasonography images. However, degenerative changes may result in diagnostic con-

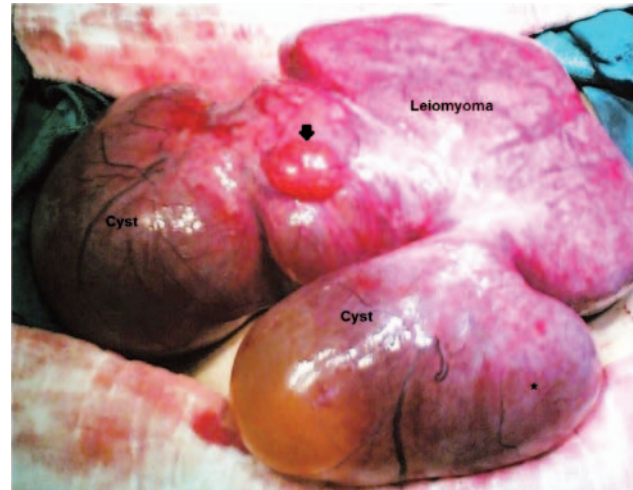


Figure 2. — Laparotomy showed the presence of a large pelvic mass. The pelvic mass presented with bilateral cystic areas. The right cyst contained a solid area within the wall (asterisk). Another smaller cyst is also evident (arrow).

fusion due to the unusual heterogeneous appearance of the leiomyomas on the ultrasonography images [3]. In the present case, the presence of bilateral cysts suggested the possibility of ovarian cystic masses, leading to diagnostic confusion. MRI can be readily used to detect leiomyomas [1]; however, degenerated leiomyomas show variable intensities on MRI images. Cystic changes within the leiomyoma appear as hyperintense regions on T2-weighted images, and a malignant cystic mass may also have a very similar appearance. In the present case, the authors observed bilateral, hyperintense cystic areas on T2-weighted MRI images (Figure 1). In conclusion, these imaging methods can provide general information about a pelvic mass; however, unusual or heterogeneous appearance of the mass due to degenerative changes may lead to preoperative diagnostic confusion.

In the present case, one of the preoperative diagnoses was uterine leiomyoma with possible two-sided cystic degenerative areas. Up to 66% of serous ovarian cancers are well known to be present bilaterally [8], and in ovarian tumors with solid and cystic areas, the malignancy rate is reported to be higher [9]. Therefore, the possibility of ovarian malignancy could not be ruled out because of the two-sided development and complex nature of the pelvic mass. A pedunculated leiomyoma apart from the uterus may mimic an ovarian neoplasm because of its proximity to the ovaries and possible cystic degeneration [2]. In the present case, the peduncle between the mass and the uterus was not apparent on ultrasonography, although a possible continuity between the mass and uterus was observed on MRI. Consequently, imaging methods such as ultrasonography may fail to detect an anatomic connection between the mass and the uterus, and the possibility of an ovarian mass may arise.

Serum levels of Ca 125 are not considered to be a specific marker of malignancy and are elevated (> 35 IU/ml) in various malignant (ovarian cancer) and benign (leiomyoma) conditions. In the present case, the level of this serum marker was slightly elevated but the marker provided little information about the preoperative diagnosis of the mass.

In conclusion, uterine leiomyomas can be detected using ultrasonography or MRI without difficulty. However, a large, pedunculated leiomyoma developing two-sided cystic degenerations was found to mimic a bilateral malignant ovarian neoplasm on imaging studies and was a diagnostic challenge. Therefore, uterine leiomyomas with bilateral cystic degenerations should be considered in the differential diagnosis of malignant ovarian masses.

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