



# Torsion of Large Uterine Fibroid Presenting as an Acute Abdomen

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## Abstract

Uterine fibroids are the most common type of gynecologic tumors. Although they rarely cause acute complications, a torsed pedunculated leiomyoma can present as an acute abdomen. We report the case of a 77-year-old with a fibroid torsion who presented with right lower quadrant pain and an acute abdomen mimicking acute appendicitis. This report then reviews the imaging modalities and treatment options for such cases.

**Keywords:** Uterine fibroid; Acute abdomen; Tumor; Appendicitis; MRI

## Introduction

Uterine fibroids, or leiomyoma, are benign monoclonal neoplasms of the endometrium. They are the most common gynecologic tumor with a prevalence ranging from 20% to 50% and vary in size, number, and location. Many women are asymptomatic. Symptoms such as menorrhagia, dysmenorrhea, or early satiety are usually related to bleeding or bulks of the tumor and typically regress after menopause. Fibroids, although very common, rarely cause acute complications [1]. Pedunculated leiomyomas are at risk of torsion which may present as an acute abdomen.

The nonspecific signs and symptoms, lack of an ideal imaging modality, and rarity of a torsed pedunculated leiomyoma make the diagnosis difficult. However, imaging studies can help to rule out other emergent pathologies, such as acute appendicitis, acute diverticulitis, bowel obstruction, perforated viscus, and adnexal torsion [2]. We report a case of a 77-year-old who presented with right lower quadrant pain and an acute abdomen who was intraoperatively found to have a torsed pedunculated leiomyoma.

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## Case Presentation

A 77-year-old gravida 3, para 3 female presented to the emergency department complaining of right lower quadrant abdominal pain that has been progressively worsening for one week. The pain was located in the right lower quadrant, worse with movement, 8/10 severity on pain scale. Associated symptoms included nausea, diarrhea, and anorexia. She had a past medical history of diverticulosis, uterine fibroid, and breast cancer for which she was status post lumpectomy, radiation, and chemotherapy. Within the last week she was seen by her urologist and gynecologist and placed on Augmentin and Flagyl for possible UTI or diverticulitis, though urinalysis and CT at that time were both negative. Vital signs were within normal limits. On exam, she was found to have a distended abdomen with tenderness and guarding in the periumbilical, right lower quadrant, and left flank regions. White blood cell count was  $15.1 \times 10^9/L$ . She was admitted and placed on broad-spectrum IV antibiotics. CT scan of the abdomen and pelvis showed a large pelvic mass and trace fluid around the liver (Figure 1). CT scan was equivocal for acute appendicitis, and the general surgeon was consulted. Due to the severity of the patient's pain and her previous abdominal procedures, she was taken to the operating room for exploratory laparotomy with total abdominal hysterectomy, bilateral salpingo-oophorectomy, appendectomy, and possible bowel resection. Upon entering the peritoneal cavity, the inflamed pelvic mass was visualized and noted to be a pedunculated leiomyoma with torsion at the pedicle. A total abdominal hysterectomy, leiomyomectomy, with bilateral salpingo-oophorectomy was performed. An incidental appendectomy was performed to reduce any future diagnostic uncertainties. The patient tolerated the procedure well and was discharged a few days later. The patient has been seen in clinic and is doing well one year post-operatively.

## Discussion

Uterine leiomyomata are the most common gynecologic tumors in women. Although nearly



**Figure 1:** Axial (left) and sagittal (right) CT scan demonstrating abdominal mass.

50% of patients with fibroids are symptomatic, acute complications are rare. These more severe complications include acute abdomen secondary to fibroid torsion, intraperitoneal hemorrhage, expulsion of submucosal fibroids, or mesenteric vein thrombosis. Prompt management is necessary in the presence of severe symptoms as complications carry an increased morbidity [3]. Torsion of leiomyomata is one of the known complications that may present with severe abdominal symptoms or peritoneal signs [4]. Timing of clinical signs until imminent treatment is variable and may range from a matter of hours to several weeks. There are multiple types of leiomyomata which are classified by location with regards to the uterus. Subserous leiomyomata are located outside the uterine lining and have the highest risk for torsion, up to 92% of cases [5]. Fibroids characterized with a peduncle also carry a significantly higher risk for torsion. A peduncle of a long and thin caliber can promote motility of the mass thus increasing the possibility of torsion. A study by Miyamoto et al. [6] found an association of longer peduncle lengths with torsion, and a higher length to thickness ratio ( $>1.0$ ) is more likely to predict the event of a torsion. In the case presented, the patient complained of abdominal pain, nausea, and diarrhea and physical exam revealed peritoneal signs. The relative non-specificity of these presenting clinical signs made it difficult to rule out other diagnoses, such as appendicitis. Imaging modalities aid in diagnosis in such cases by ruling out other causes of acute abdomen [7]. Ultrasound is the primary imaging methodology used to diagnose a uterine leiomyoma. Ultrasound is a fast way to obtain imaging and very useful in cases of large fibroids. Visualization of small and medium sized leiomyomata can be difficult. The use of Doppler studies may aid by detecting a decreased vascular supply to a pedunculated mass relative to the surrounding uterine tissue. One of the main limitations is decreased utility in fibroids with very thin peduncles [3]. With inconclusive US findings, CT of the pelvis and abdomen may be performed. This method can differentiate the location of the mass. CT scans are first line in cases presenting with acute abdominal pain and peritoneal signs. In our case, the presentation did not point to a uterine leiomyoma, so US was bypassed for CT of the abdomen and pelvis. Although a pelvic mass was visualized on CT, a preoperative diagnosis was still indefinite.

The most accurate and sensitive imaging technique is an MRI which allows for precise localization and can be applied in time-insensitive cases. MRI is superior to ultrasound due to the enhanced resolution of anatomy and the increased specificity for uterine leiomyomas which present with a characteristic signal [4]. A non-complicated leiomyoma lacks the enhancement found in the myometrium, and a necrotic leiomyoma will appear hyper- or iso-intense [4,7]. Diagnosis of a uterine leiomyoma is always confirmed intraoperatively. Surgical treatment involves a myomectomy or hysterectomy, depending on the age and desired fertility of the patient. The patient presenting was post-menopausal so a total abdominal hysterectomy with bilateral salpingo-oophorectomy was performed in conjunction with an appendectomy. Timely treatment of fibroid torsion is necessary as more severe complications, such as infarction and infection, can arise. Development of a necrotizing leiomyoma may eventually lead to extreme pain or disseminated intravascular coagulopathy [1].

## Conclusion

Although rare, torsion of a pedunculated leiomyoma must be considered in the differential diagnosis in an adult female presenting with an acute abdomen. Imaging may be inconclusive, but prompt surgical exploration can offer confirmation of the diagnosis and prevent further complications.

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