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# A Case of Hemoperitoneum Due to Spontaneous Bleeding from a Uterine Leiomyoma

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**Conflict of interest:** None declared

**Patient:** Female, 26  
**Final Diagnosis:** Uterine leiomyoma  
**Symptoms:** Abdomen distension • acute abdomen  
**Medication:** —  
**Clinical Procedure:** Exploratory laparotomy  
**Specialty:** Obstetrics and Gynecology

**Objective:** Unusual clinical course  
**Background:** Uterine leiomyoma, or uterine fibroid, is the most common gynecologic neoplasm and its management usually results in a good clinical outcome. This report is of a rare case of hemoperitoneum associated with spontaneous hemorrhage from a benign uterine leiomyoma.

**Case Report:** A 27-year-old single woman presented with generalized acute abdominal pain and vomiting. Clinical examination showed a distended abdomen and unstable vital signs. Following active resuscitation, ultrasound and computed tomography (CT) imaging showed an intraperitoneal fluid collection and heterogenous uterine mass. The patient underwent emergency laparotomy with the identification of bleeding blood vessels, which were clipped, resulting in hemostasis. The uterine lesion was completely excised and histopathology confirmed the diagnosis of benign leiomyoma. The patient's postoperative course was unremarkable. Five days following admission, the patient was discharged from hospital without further complications.

**Conclusions:** Hemoperitoneum secondary to spontaneous hemorrhage from a benign uterine leiomyoma is rare. This case demonstrates that clinical history, imaging, and surgical exploration are required to identify and control the source of bleeding to prevent a potentially fatal outcome.

**MeSH Keywords:** Hemoperitoneum • Leiomyoma • Uterine Neoplasms

**Full-text PDF:** <https://www.amjcaserep.com/abstract/index/idArt/914573>

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## Background

Uterine leiomyoma, or uterine fibroid, is a benign tumor with variable rates of growth that arises from the myometrium, and may be located within the uterine wall, or project into the lumen, or may occur near the uterine surface [1]. This benign tumor can remain very small for several years and then grow more rapidly [1]. Uterine leiomyoma occurs more commonly in women of reproductive age, between 30–40 years of age, and may cause symptoms that include abnormal uterine bleeding, anemia, lower abdominal pain, pain during intercourse, and pressure symptoms if there is a large tumor size [2].

Uterine leiomyoma occurs in women of reproductive age and the reported additional risk factors include increased alcohol intake, dietary factors that include increased consumption of red meat, ethnic susceptibility, a history of hypertension, and a familial or genetic predisposition [3–9]. Uterine leiomyoma has been classified based on location within the uterus and includes submucosal, intramural, subserosal, and pedunculated subtypes. The management of uterine leiomyoma depends on the number, size, and location of the tumors and can include medical or surgical treatment [10].

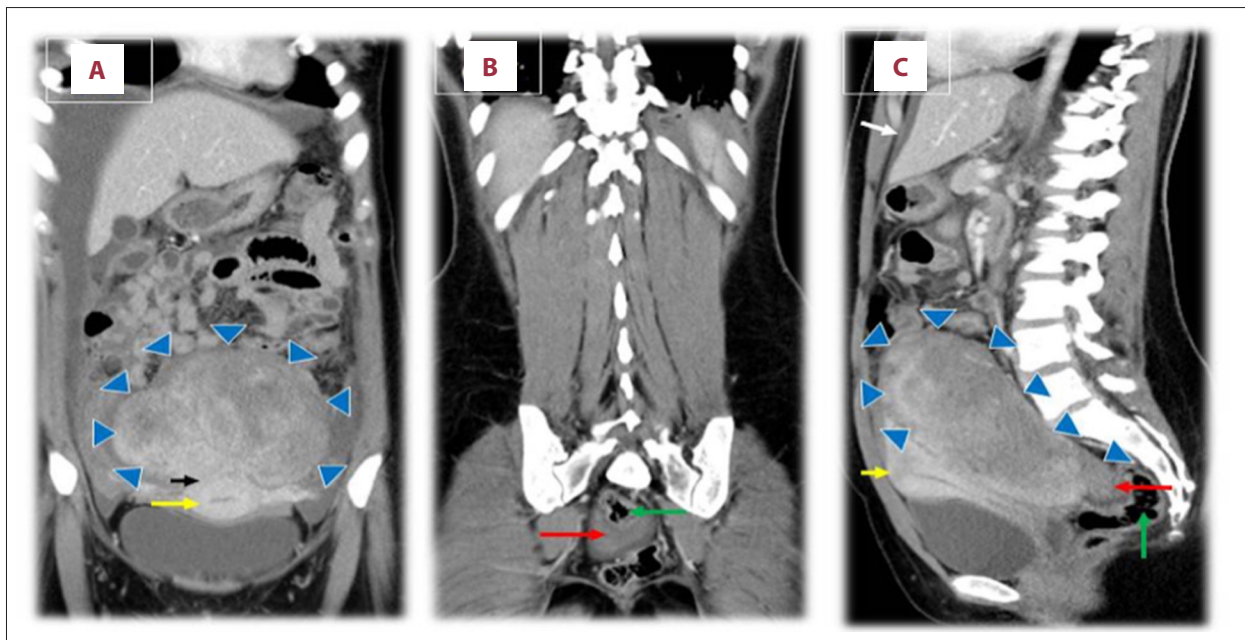
Although previous surgical treatment has included the use of laparotomy, during the past decade, laparoscopic or hysteroscopic surgical treatment methods have resulted in fewer

complications, reduced the length of hospital stay, and have resulted in more rapid postoperative patient recovery. Also, uterine artery embolization has been reported to be an effective treatment for uterine leiomyoma and interventions such as thermal ablation, performed under radiologic or ultrasound guidance, have been reported to be effective [11]. This report is of a rare case of hemoperitoneum associated with spontaneous hemorrhage from a benign uterine leiomyoma that required treatment with laparotomy.

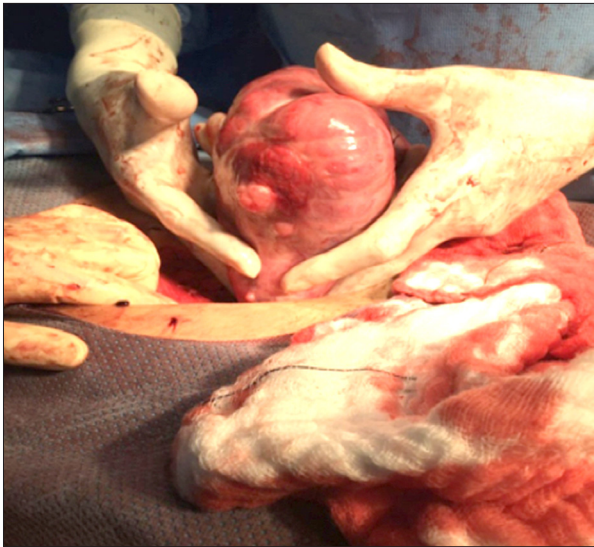
## Case Report

A 26-year-old single woman presented to the emergency department as a referred case with acute abdominal pain with a pelvic mass. Her presentation was acute in onset and was associated with lower abdominal pain and vomiting. Her past medical history was not significant, and she had no history of trauma or exertion. On examination in the emergency room, the patient appeared pale and was hemodynamically unstable with low blood pressure and increased heart rate. Her abdomen was tender and distended, resembling a pregnancy at 28 weeks, and shifting dullness was noted. Her pregnancy test was negative.

Because her hemoglobin (Hb) level was 8 mg/dl, the patient was transfused with two units of packed red blood cells (RBCs). Ultrasound of the abdomen showed a pelvic mass with a pelvic



**Figure 1.** Abdominal contrast-enhanced computed tomography (CT) imaging. (A, B) Coronal view. (C) Sagittal view. The blue arrow indicates a heterogenous uterine mass measuring 8×12 cm. The black arrow indicates the origin from the uterine fundus. The yellow arrow indicates the uterus. The green arrow indicates the lumen of the rectum. The red arrow indicates a pedunculated stalk attached to the rectal serosa. The white arrow indicates peritoneal fluid with an imaging density suggestive of blood.



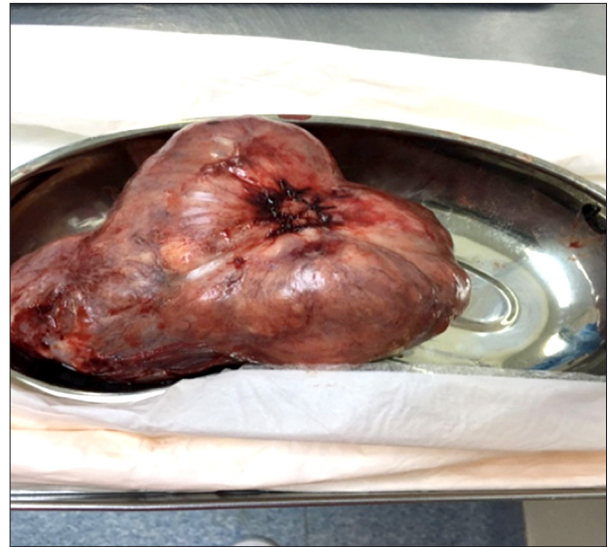
**Figure 2.** Exploratory laparotomy shows a large pedunculated uterine leiomyoma originating from the uterine fundus.

fluid collection in the hepatorenal pouch. Following active resuscitation, her vital signs normalized which allowed radiological imaging to be performed before transfer to the operation room. The abdominal computed tomography (CT) scan showed a heterogeneous pelvic-abdominal mass that measured 12×8 cm with uterine mass lesions (Figure 1).

A surgical consultation was requested, and the patient underwent an emergency exploratory laparotomy. At laparotomy, 2 liters of blood and blood clot were evacuated from the abdominal cavity. A sub-serosal uterine leiomyoma with a thick stalk attached to the rectal serosa was identified (Figures 2, 3). Bleeding from the leiomyoma was identified to be originating from a large vessel at its dome that with blood filling the recto-uterine pouch. The leiomyoma was excised at its stalk and dissected away from the rectum with no major complications, and the uterus was preserved. Histopathology of the excised tumor confirmed the diagnosis of benign leiomyoma. The patient's postoperative course was unremarkable, and five days following admission, the patient was discharged from hospital without further complications.

## Discussion

Uterine leiomyoma, or uterine fibroids, are the most common benign tumor seen in women of reproductive age [12]. However, the prevalence of these benign tumors is likely to be underestimated, as most cases remain asymptomatic unless they cause symptoms due to their pressure effects or they cause changes in the menstrual cycle [13]. Baird et al. used ultrasound to investigate the cumulative incidence of uterine leiomyoma in black and white women and found an increased incidence in black



**Figure 3.** Following surgical excision, a uterine leiomyoma is shown with overlying congested blood vessels.

women and women who were 50 years of age [14]. Factors associated with an increased risk of uterine leiomyoma also include Asian and Afro-Caribbean ethnicity, nulliparity, early menarche, a history of hormonal contraceptive use, obesity, and a positive family history of uterine leiomyoma [12–15]. Small uterine leiomyoma usually remain asymptomatic and are diagnosed incidentally on ultrasound. Larger tumors may be associated with menorrhagia and/or pressure symptoms.

Uterine leiomyoma is a benign neoplasm and the approaches to treatment vary and include observation, medical treatment, surgical myomectomy and, more rarely, hysterectomy [15]. Intraperitoneal hemorrhage associated with bleeding from a superficial vessel of a subserosal leiomyoma is a life-threatening condition and rare complication, and between 1950 to 2016 fewer than 30 cases have been reported [16]. In most previously reported cases (19 cases), bleeding from a uterine leiomyoma was associated with trauma or torsion of the tumor, but spontaneous rupture of the superficial vessels is extremely rare, with only six cases reported in the literature [17,18]. In cases associated with bleeding, the source was mainly venous in origin [16].

There have been several hypotheses regarding the reasons for spontaneous vascular rupture associated with uterine leiomyoma. Horowitz et al. [19] proposed that uterine leiomyoma greater than 10 cm in diameter might be associated with stretching and tension of the overlying vessels resulting in rupture. In the patient presented in this case report, the size of the uterine leiomyoma at the time of presentation was greater than 10 cm. Another hypothesis is that feeding vessels within the leiomyoma might rupture due to the tumor growth [19]. It has also been hypothesized that rupture of superficial vessels overlying the uterine leiomyoma can occur due to passive

venous congestion associated with increased abdominal pressure during menstruation, or when straining to pass stool, or when lifting heavy weights, or doing exercise [16,20,21]. In the patient presented in this case report, none of these risk factors were identified, which supports that this was a case of spontaneous hemorrhage. Uterine leiomyoma can undergo several types of degenerative change, including hyaline, cystic, myxoid, and red degenerative change as the tumors outgrow their blood supply [22,23]. These degenerative changes were not found in the leiomyoma in this case report.

Previously reported cases of hemorrhage associated with uterine leiomyoma were successfully managed with emergency laparotomy and life-saving hysterectomy. Akahira et al. [24] reported the case of a 44-year-old multiparous woman with hemoperitoneum due to a ruptured artery overlying a uterine leiomyoma, who underwent total abdominal hysterectomy. Gulati et al. [25] reported a case of a 29-year-old nulliparous woman with intraperitoneal hemorrhage from a large serosal vessel, who underwent myomectomy in an attempt to preserve the fertility of the patient. Cerruto et al. [26] reported a case a 47-year-old woman, with three previous pregnancies, who underwent hysterectomy with ovarian conservation.

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In the management of the patient presented in this case report, the uterus was preserved during laparotomy and surgical excision of the uterine leiomyoma.

## Conclusions

Hemoperitoneum due to spontaneous hemorrhage is a rare association with uterine leiomyoma that presents in women of childbearing age. Rapid diagnosis and management are required as this can be a life-threatening condition. As this case report has shown, a detailed clinical history is required to exclude conditions that may present with similar symptoms such as trauma, or pregnancy. Although ultrasound imaging is a safe technique, computed tomography (CT) imaging of the abdomen can provide more diagnostic detail. Early surgical intervention is recommended to establish the diagnosis, to control bleeding into the peritoneum, and to minimize patient morbidity and mortality.

## Conflict of interest

None.