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

Faisal Abdulrahman Althobaiti
Khulod Khaled Alsaadi
Awwadh Abdulrahman Althobaiti

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
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 serosa.

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.
fluid collection in the hepatorenal pouch. Following active re-
suscitation, her vital signs normalized which allowed radio-
logical imaging to be performed before transfer to the opera-
tion room. The abdominal computed tomography (CT) scan
showed a heterogeneous pelvic-abdominal mass that mea-
sured 12×8 cm with uterine mass lesions (Figure 1).

A surgical consultation was requested, and the patient under-
go an emergency exploratory laparotomy. At laparotomy,
2 liters of blood and blood clot were evacuated from the ab-
dominal 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 dis-
sected 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 pa-
tient’s postoperative course was unremarkable, and five days
following admission, the patient was discharged from hospi-
tal 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 underesti-
eated, 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 inves-
tigate the cumulative incidence of uterine leiomyoma in black
women and women who were 50 years of age [14]. Factors as-
associated with an increased risk of uterine leiomyoma also in-
clude Asian and Afro-Caribbean ethnicity, nulliparity, early men-
arche, 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 di-
agnosed incidentally on ultrasound. Larger tumors may be as-
sociated 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 su-
perficial 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 spon-
taneous rupture of the superficial vessels is extremely rare, with
only six cases reported in the literature [17,18]. In cases associ-
ated 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 leio-
myoma. 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 rup-
ture. 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 ves-
sels overlying the uterine leiomyoma can occur due to passive

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

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

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.

**References:**

1. Vollenhoven B: Introduction: The epidemiology of uterine leiomyomas. Bailliere’s Clin Obstet Gynaecol, 1998; 12(2): 169–76
2. Buttram VC Jr., Reiter RC: Uterine leiomyoma: etiology, symptomatology, and management. Fertil Steril, 1981; 36(4): 433–45
3. Wise LA, Palmer JR, Harlow BL et al: Risk of uterine leiomyomata in relation to tobacco, alcohol and caffeine consumption. Am J Epidemiol, 2001; 153(1): 11–19
4. Sato F, Nishi M, Kudo R, Miyake H: Body fat distribution and uterine leiomyomas. J Epidemiol, 1998; 8(3): 176–80
5. Chiaffarino F, Cipriani S, Ricci E et al: Alcohol consumption and risk of uterine myoma: A systematic review and meta-analysis. PLoS One, 2017; 12(11): e0188355
6. Wise LA, Palmer JR, Harlow BL et al: Risk of uterine leiomyomata in relation to tobacco, alcohol and caffeine consumption in the Black Women’s Health Study. Hum Reprod, 2004; 19(8): 1746–54
7. Baird DD, Hill MC, Schectman JM, Hollis BW: Vitamin D and risk of uterine fibroids. Epidemiology, 2013; 24(3): 447
8. Faerstein E, Szlko M, Rosenshein NB: Risk factors for uterine leiomyoma: A practice-based case-control study. II. Atherogenic risk factors and potential sources of uterine irritation. Am J Epidemiol, 2001; 153(1): 11–19
9. Eggert SL, Huycz KL, Somasundaram P et al: Genome-wide linkage and association analyses implicate FASN in predisposition to uterine leiomyomata. Am J Hum Genet, 2012; 91(4): 621–28
10. Villos GA, Allaire C, Laberge P-Y, Leyland N: The management of uterine leiomyomas. J Obstet Gynaecol Can, 2015; 37(2): 157–78
11. Donnez J, Dolmans MM: Uterine fibroid management: From the present to the future. Hum Reprod Update, 2016; 22(6): 665–86
12. Lumsden MA, Hamoodi I, Gupta J, Hickey M: Fibroids: Diagnosis and management. BMJ, 2015; 351: h4887
13. Okolo S: Incidence, aetiology and epidemiology of uterine fibroids. Best Pract Res Clin Obstet Gynaecol, 2008; 22(4): 571–88
14. Baird DD, Dunson DB, Hill MC et al: High cumulative incidence of uterine leiomyoma in black and white women: Ultrasound evidence. Am J Obstet Gynecol, 2003; 188(1): 100–7