Intraperitoneal haemorrhage secondary to perforation of uterine fibroid after cystic degeneration. Unusual CT findings resembling malignant pelvic tumor: case report

M. Varras[1], *M.D., Ph. D.*; **S. Antoniou**[1], *M.D., Ph. D.*; **Ch. Samara**[2], *M.D., Ph. D.*; **S. Frakala**[1], *M.D.*; **Z. Angelidou-Manika**[3], *M.D., Ph. D.*; **P. Paissios**[1], *M.D., Ph. D.*

[1]*Department of Gynaecology*
[2]*Department of Ultrasound, Computed Tomography, MRI*
[3]*Department of Pathology, "George Gennimatas" General State Hospital of Athens, Second District National Health System, Athens (Greece)*

Summary

Intraperitoneal haemorrhage is a rare complication of myomatous uterus. We present a case of a 37-year-old white nullipara who presented in the emergency room with acute, lower-abdominal pain which reportedly started after riding over a bump on a motorcycle. On examination, the abdomen was diffusely tender, with moderate spasm and rebound tenderness in both iliac fossae. Pregnancy test was negative. Computed tomography revealed a soft-tissue mass with cystic components and inhomogeneous appearance. Free fluid in the peritoneal cavity suggested ascites. The patient underwent an exploratory laparotomy. A ruptured, actively bleeding, subserosal, nonpedunculated, cystic degenerated uterine fibroid was found, as well as approximately two liters of free, bloodstained peritoneal fluid and clots. Subtotal hysterectomy without salpingo-oophorectomy was performed, followed by evacuation of the fluid and clots. The patient's postoperative course was uneventful. In conclusion, definitive, preoperative diagnosis of a perforated, haemorrhaging, uterine fibroid is difficult; exploratory laparotomy is both diagnostic and therapeutic in this rare, life-threatening condition.

Key words: Uterus; Computered tomography; Fibroid; Uterine myoma; Rupture; Haemoperitoneum; Cystic degeneration.

Introduction

Uterine leiomyomas are benign tumors of uterine smooth muscle resulting from the proliferation of myometrial cells [1] hypersensitive to oestrogen [2]. These tumors are the most common pelvic neoplasms in women, occurring in 20% to 30% of women aged 30 years and over [3].

Myomas usually become symptomatic in the fourth decade of life [4]; it is estimated that 20% to 50% of affected women exhibit symptoms [5]. Patients may present with abnormal uterine bleeding, pelvic pressure or pain, urinary symptoms, spontaneous abortion, poor obstetrical outcome and infertility, depending on the lesion size and location [5, 6]. Massive intraperitoneal haemorrhage due to uterine fibroids is an uncommon complication; fewer than 100 cases have been reported in the English literature [7]. In most such cases, haemorrhage has resulted from rupture of dilated subserosal vessels overlying the fibroids [8], however haemmorhage following avulsion of uterine fibroids from the uterus [9, 10], spontaneous perforation of fibroid after red degeneration in pregnancy [11] or cystic degeneration in nonpregnant woman [12] has also been reported.

In this report, we describe a case of haemoperitoneum which resulted from perforation of a nonpedunculated, subserosal, benign, uterine fibroid after cystic degeneration.

Case Report

In November 2001, a 37-year-old white woman, gravida 0, para 0, presented in the emergency room with acute lower abdominal pain which reportedly had begun after riding a motorcycle over a road bump one hour earlier. On admission, the patient had severe lower-abdominal pain, nausea, vomiting and felt faint. Menstruation had been regular and her last menstrual period had been six days before. The patient had not experienced abnormal uterine bleeding or pelvic pain in the past. She denied ever having had a pap test, gynaecological examination or abdominal surgery and reported having been in good health until the present illness. Physical examination revealed a pale, moderately obese young woman, with a heart rate of 108 beats per minute, blood pressure 120/80 mmHg, and temperature 36.6°C. Her abdomen protruded slightly and was diffusely tender, with moderate spasm and rebound tenderness in both iliac fossae. Peristaltic sounds were diminished. An abdominal mass occupying all the pelvis and extending to the umbilicus was palpated. Haemoglobin concentration was 12.4 g/dl, haematocrit 36.7%, white blood count 13,500 cells/ml with 89% polymorphonuclears, platelets 234,000/μl. The Ca 125 level was 49.6 IU/ml (normal <33 IU/ml). Clotting time, bleeding time, serum liver enzymes and kidney function tests were within normal limits. Urine pregnancy test and urinalysis were negative. Upper and lower abdominal CT scans without oral contrast material (patient was vomiting) were obtained at 10-mm contiguous intervals. CT scans showed a soft tissue mass with a multi-lobular contour in the lower abdomen

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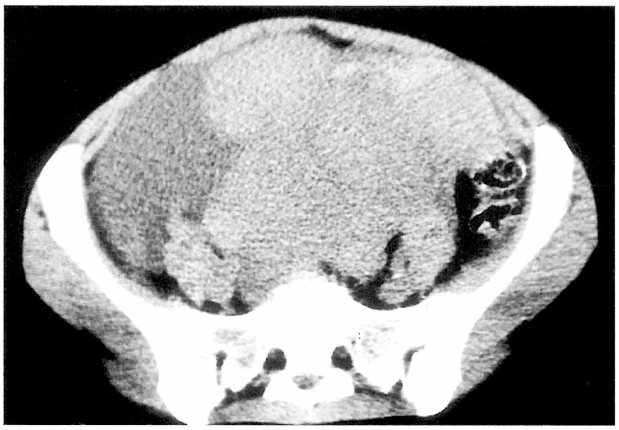

Figure 1. — Computed tomography of abdomen without oral contrast material shows multilobulated, soft-tissue mass occuping lower abdomen and peritoneal cavity.

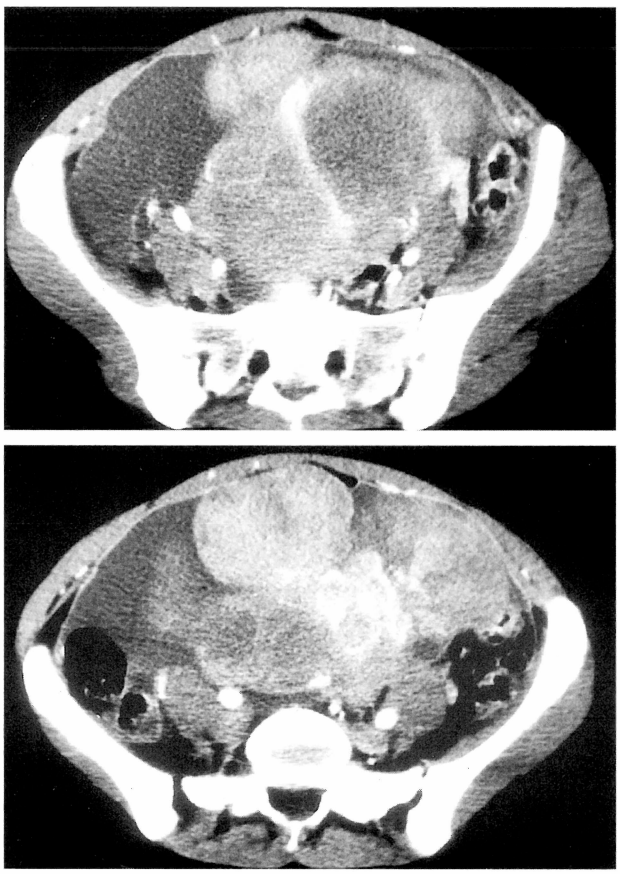

Figure 2 and Figure 3. — Computed tomography of abdomen after administration of contrast agent shows inhomogeneous enhancement in the solid part of tumor. Free fluid is also present.

and extending to the upper abdomen (Figure 1). Intravenous contrast agent showed inhomogeneous enhancement from the solid components of the tumor. Abdominal vessels were encapsulated by the mass but not invaded. The uterus and ovaries were not visible. Free peritoneal fluid appeared as ascites (Figures 2 and 3).

The acute abdomen and differential diagnosis of a ruptured or twisted adnexa malignant mass led to immediate exploratory laparotomy. A vertical, midline infra-umbilical incision exposed bloodstained fluid and blood clots in the peritoneal cavity. Further exploration revealed a large myomatous uterus occupying the entire pelvis and extending to the upper abdomen; on the top left of the uterine fundus a ruptured, degenerated cystic, nonpedunculated subserosal fibroid was actively bleeding into the abdominal cavity (Figure 4). No other bleeding was identified. Two liters of fluid and blood clots were evacuated and a

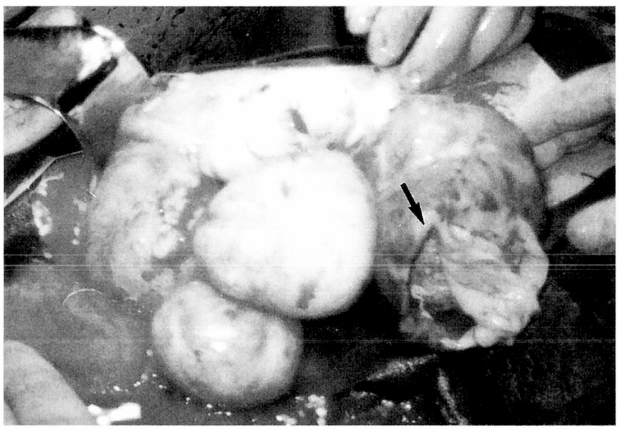

Figure 4. — Presentation of ruptured, subserosal, cystic degenerated fibroid (arrow) in a myomatous uterus.

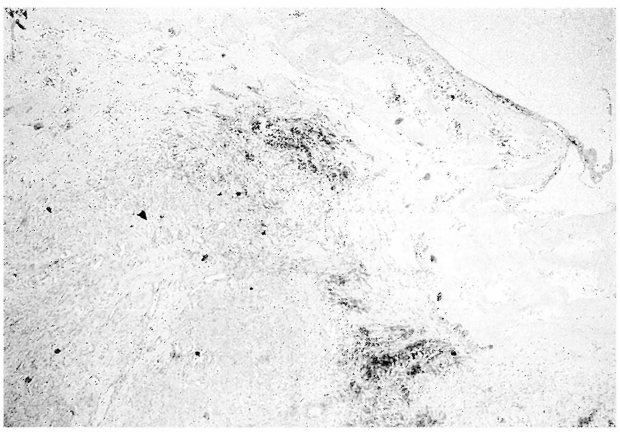

Figure 5. — Leiomyoma with hyaloid and cystic degeneration and haemorrhagic infiltrations (Haematoxylin and Eosin, × 10).

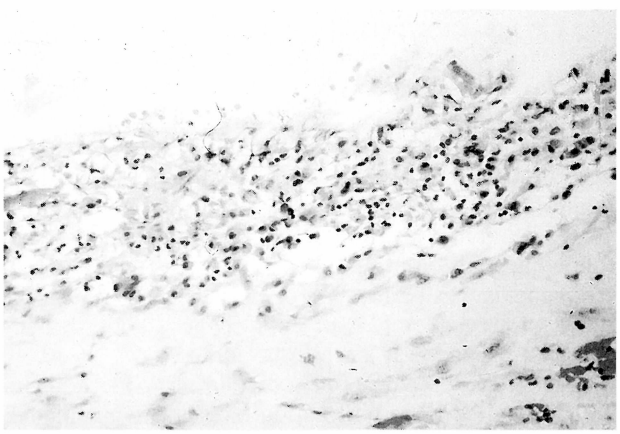

Figure 6. — Acute serositis with fibroid deposits (Haemotoxylin and Eosin, × 40).

subtotal hysterectomy without salpino-oophorectomy was performed. A drain was inserted into the posterior pouch of Douglas. Intraoperatively the patient was transfused with one unit of packed red blood cells and one unit of fresh frozen plasma. The abdomen was closed in layers and a nasogastric tube was inserted. The patient was transfused with packed red cells on the day of the operation and the first postoperative day (one unit each day), and with one unit of fresh frozen plasma on the second postoperative day; she was discharged on the 7th postoperative day.

Pathology

Gross examination

The uterus was enlarged ($30 \times 13 \times 15$ cm) with multiple subserosal and intramural, spherical tumors measuring 1.5 to 20 cm in diameter. The largest was subserosal and included a cyst of 9 cm protruding from the fundus (Figure 1). The cyst was open without content and showed haemorrhagic infiltration of surrounding tissues. A second, smaller intramural tumor of 2.5 cm in diameter was also centrally cystic. The solid parts of the tumors were firm and whitish-red with a whorled pattern. The endometrium was 0.2 cm and smooth; the cervix had micropapillary configuration of the external os.

Light microscopic findings

Light microscopy confirmed the tumors as leiomyomas, most with focal hydropic degeneration. In addition, in two tumors hyalinization and cystic degeneration were noted with eruption of the larger cyst into the peritoneum associated with serositis and fibrinoid deposits (Figure 5 and 6). The leiomyomas were moderately cellular with no significant atypia and showed focal mitotic activity. The endometrium was irregularly proliferative. A moderate micropapillary chronic cervitis was also noted.

Discussion

Complications arising from uterine myomas include metrorrhagia, menorrhagia, postmenopausal bleeding, torsion, hyaline, myxomatous, mucoid, fatty or cystic degeneration, calcification and sarcomatous changes [7, 13]. Degenerative changes in fibroids are due to inadequate blood supply; the type of change seems to depend on the degree and rapidity of onset of the vascular insufficiency [14]. Cystic degeneration is uncommon; Persaud *et al.*, found 6.15% of tumors showing cystic degenerating changes (12/195) [13]. In cystic degeneration there is a tendency for hyalinization to undergo liquefaction with the formation of cystic spaces without an epithelial lining; these cystic areas are filled with colorless or bloodstained fluid [13]. Haemoperitoneum as a complication of uterine myoma results most commonly from rupture of subserosal veins on the surface of the tumor [7]. This can occur secondary to increased abdominal pressure, menstruation, pregnancy, or torsion of a pedunculated subserosal fibroid due to passive congestion and subsequent rupture of superficial veins [7, 15, 16]. Spontaneous bleeding without an increase in abdominal pressure is rare [7]. Essential hypertension has been considered a factor in arterial bleeding [7, 15]. Other possible causes of bleeding include avulsion of a pendunculated uterine myoma after trauma [9, 10] or spontaneous perforation of a necrotic uterine myoma with red degeneration during mid-pregnancy or the puerperium [11]. In our case, rupture of the non-pedunculated subserosal myoma occurred after cystic degeneration, followed by minor trauma which increased abdominal pressure. Rupture of a degenerated cystic uterine fibroid can occur spontaneously due to necrosis in the fibroid or secondary to increased abdominal pressure resulting from work, violent coitus, trauma, abdominal massage, defecation, sports, examination under general anesthesia or after torsion of a pendunculated subserosal myoma. Grisaru *et al.*, described a spontaneous perforation of a degenerative non-gestation uterine leiomyoma associated with massive ascites; the ascites had probably accumulated over time as the leiomyoma degenerated and released substances causing peritoneal irritation [12].

Definitive diagnosis of internal haemorrhage associated with uterine fibroids is critical. The first reported case, by Von Rokintansky in 1861, is an autopsy finding in which the patient died from intraperitoneal bleeding [17]. Precise preoperative diagnosis is uncommon [18], reportedly 7.8% (5/64) [15]. The usual preoperative diagnosis is acute abdomen or intra-abdominal bleeding of unknown origin [7]. The differential diagnosis of pelvic mass includes advanced ovarian or endometrial carcinoma, uterine sarcoma, ovarian fibroma and uterine myomas [12]; free fluid in the abdomen suggests ascites or blood. Acute abdomen necessitates exploratory laparotomy to rule out twisted adnexa, ruptured ectopic pregnancy, haemorrhagic corpus luteum or follicular cyst [18]. In haemoperitoneum resulting from spontaneous bleeding of a uterine leiomyoma, the onset of symptoms is sudden, with sharp lower abdominal pain, weakness, dizziness and vomiting. As the bleeding continues, the patient may complain of shoulder pain and signs of hypovolemic shock are manifested. Haemoglobin and haematocrit drop. On palpation, abdominal guarding and rebound tenderness due to peritoneal irritation are noted and a pelvic mass is usually felt [7]. A negative pregnancy test excludes ectopic pregnancy [7, 15]. Sonogram or CT scan reveals a pelvic mass and free intraperitoneal fluid [10, 12, 19]. Tada *et al.,* [20] described uterine leiomyoma CT manifestations as lobulated soft-tissue masses protruding from the outer margin of the uterus, or as a soft mass that distorts the uterine cavity. Calcification or irregular low-density areas within the uterine mass represent degeneration of the myoma. In our patient, the CT scan demonstrated the following atypical characteristics: (a) multilobulated morphology, (b) inhomogeneous contrast enhancement, (c) presence of cystic-necrotic areas and (d) presence of free peritoneal fluid. These findings led to an initial diagnosis of either uterine sarcomatous tumor or ovarian cystoadenocarcinoma. Sharp abdominal pain and signs of peritoneal irritation suggested a ruptured or twisted adnexa malignant mass; as a result, an immediate exploratory laparotomy was performed.

A patient's age must be considered in decisions about hysterectomy [12], however, when the condition is critical, or there are multiple uterine leiomyomas a subtotal hysterectomy may be essential [8, 15]. Both conditions were present in our patient.

In conclusion, the diagnosis of ruptured cystic degenerative uterine myoma should be considered when a nonpregnant woman presents with an acute abdomen and pelvic mass. Exploratory laparotomy is required for definitive diagnosis and treatment of this life-threatening condition.

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Address reprint requests to:
M. N. VARRAS M.D., Ph.D.
Obstetrician - Gynaecologist
Consultant in Obstetrics and Gynaecology
Platonos 33,
Politia (Kifissia) 14563
Athens, Greece