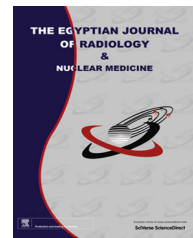




Egyptian Society of Radiology and Nuclear Medicine
The Egyptian Journal of Radiology and Nuclear Medicine

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CASE REPORT

Ascending infection causing pyomyoma in a young woman



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Received 8 May 2014; accepted 18 May 2014

Available online 7 June 2014

KEYWORDS

Pyomyoma;
Escherichia coli;
 CT scan;
 Pus;
 Laparotomy

Abstract Pyomyoma is a very rare complication of uterine fibroid, but is associated with high morbidity and mortality. We report a case of pyomyoma in a young lady caused by an ascending infection. She presented with chronic fever. CT scan showed the presence of gas inside the pyomyoma. An exploratory laparotomy was performed followed by drainage of pus. She responded well to the treatment. Although rare, pyomyoma should be suspected in patients with leiomyoma, unexplained fever, abdominal pain and no other apparent source of infection.

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1. Introduction

Uterine leiomyomas are the most common uterine neoplasm. The incidence of leiomyoma among women is generally cited as 20–25% but has been shown to be as high as 70–80% in studies using histological or sonographic examination (1). Pyomyoma is a rare but potentially fatal complication of uterine leiomyoma. The diagnosis of pyomyoma is usually difficult because of its insidious presentation and lack of reported imaging. The condition is usually fatal unless treated with surgical intervention or appropriate antibiotics. Leiomyomas can get infected by bacterial seeding of necrotic foci, which happens mostly in the postmenopausal women due to vascular insufficiency or pregnancy due to haemorrhage and necrosis

(2–6). We report a case of a young woman who developed pyomyoma in an intramural fibroid caused by an ascending infection of *Escherichia coli*.

2. Case report

A 35 year old nulliparous female was admitted with one month history of intermittent low grade fever which was not associated with chills or rigours. She had a history of multiple huge fibroids six years ago for which she underwent myomectomy and had a recurrence of fibroid a year back. She had also been undergoing multiple investigations for primary infertility. Her menstrual history was unremarkable.

On admission she had a temperature of 39.4 °C, pulse of 112 per minute, blood pressure of 120/82 mm of Hg and a respiratory rate of 24 per minute. General examination revealed mild pallor. There was no lymphadenopathy. Upon abdominal examination, there was a mass corresponding to 20 weeks of pregnant uterus, arising from pelvis which was firm in consistency and nontender. The liver and spleen were

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Peer review under responsibility of Egyptian Society of Radiology and Nuclear Medicine.

not palpable, and there was no renal angle tenderness or any clinical feature suggestive of free fluid in the abdomen. Speculum examination showed a hyperaemic vagina and cervix. On bimanual examination, the same pelvic mass was felt and the uterus was not felt separate from the mass.

She had a haemoglobin of 8.0 gm/dL, a platelet count of 4.0 lakh/dL, and a leucocyte count of 26,000/dL with neutrophilia. Peripheral smear showed neutrophilic leukocytosis with toxic granules. Her blood sugar was 150 mg/dL. Renal and liver function tests were normal. Serology for HIV was negative. Blood and urine cultures were sterile. High vaginal swab revealed a heavy growth of *E. coli*.

Ultrasonogram revealed a large hypoechoic mass measuring $14.7 \times 11.5 \times 10.8$ cm with large areas of cystic degeneration within. Uterus and bilateral ovaries were not seen separately. Since ultrasound showed large areas of degeneration, an MRI pelvis and abdomen was done (Figs. 1 and 2). MRI also revealed large areas of cystic degeneration within the fibroid. Patient was started on broad spectrum antibiotics, however, despite a two week course, there was a persistent elevation of temperature to 39.5°C . A computerised tomogram done after two weeks revealed a small uterus with a large heterogeneous mass arising from it, sized $16.3 \times 12.2 \times 11.0$ cm with central cystic areas, internal echogenic debris and air within the mass (Figs. 3–5). With a clinical impression of leiomyoma with abscess formation, the patient was taken for laparotomy.

Intraoperatively, there was a huge intramural fibroid measuring $15.0 \times 12.0 \times 11.0$ cm on the anterior uterine wall, which was boggy in consistency as if fluid filled (Fig. 6). Adnexa appeared normal. Needle aspirate revealed pus (Fig. 7) which was then drained after giving incision. Around 1.2 L of



Fig. 1 MRI (longitudinal view): a large intramural leiomyoma with areas of cystic degeneration inside.



Fig. 2 MRI (cross section): a large intramural leiomyoma with areas of cystic degeneration inside.



Fig. 3 CT scan (cross section) showing leiomyoma with the presence of air inside.

greenish yellow purulent exudate was drained and sent for culture sensitivity. A less extensive myomectomy was then performed as the patient was desirous of future fertility. After performing copious irrigation, abdomen was closed with placement of an abdominal drain.

The pathology specimen was a 800 g fibroid measuring $15.0 \times 14.0 \times 11.0$ cm with an area of abscess inside. Aerobic and anaerobic cultures obtained from the specimen revealed heavy growth of *Escherichia coli*. Histological examination showed abscess formation with deep infiltration of acute inflammatory cells in the central necrotic area of leiomyoma. Intravenous antibiotics were continued for another 14 days in the postoperative period. With time, patient became afebrile, responding well to the treatment. She was discharged from the hospital in good health. On follow up, 6 weeks



Fig. 4 CT scan (cross section) showing leiomyoma with central necrosis and the presence of air inside.



Fig. 5 CT scan (longitudinal view) showing leiomyoma with the presence of air inside.

postoperatively, she had a 6 week sized uterus and reported normal menses.

3. Discussion

Uterine leiomyomas are the most common neoplasm of the uterus. Most patients are asymptomatic and the usual clinical presentation is either a palpable mass, menstrual complaints or pressure symptoms. The secondary changes of leiomyoma are hyaline degeneration, cystic degeneration, calcification, fatty degeneration, necrosis or sarcomatous transformation (1).

Pyomyomas have been associated with the following clinical conditions: postpartum, ascending uterine infections, abortion, postmenopausal and bacteremia in intravenous drug abusers (2–7). It can also occur after uterine artery embolisation of leiomyoma (8). The possible routes of infection for the development of pyomyoma have been described as contiguous spread from the endometrial cavity, direct extension from the adjacent bowel or adnexa, or haematogenous or lymphatic spread from infection elsewhere in the body (2,7).



Fig. 6 A large pyomyoma seen at laparotomy.

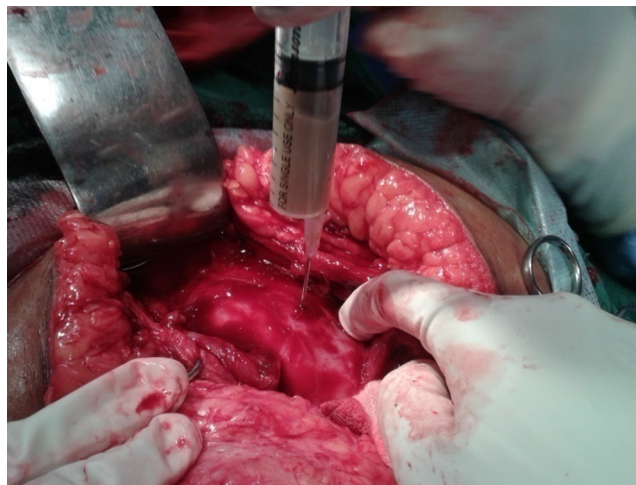


Fig. 7 Needle aspirate revealed pus.

The triad of: (1) bacteremia or sepsis; (2) leiomyoma uteri; (3) no other apparent source of infection should suggest the diagnosis of pyomyoma (7). The time of diagnosis can be delayed up to one year from the onset of the symptoms (2). Delayed diagnosis may result in serious complications, such as rupture into the abdominal or endometrial cavity, septicaemia, respiratory distress syndrome and even mortality (2,9). Early diagnosis of uterine pyomyoma is critical because the mortality rates approach 21–30% (2). The differential diagnosis of pyomyoma is extensive and includes pyometra,

tubo-ovarian abscess or malignancy. In pregnant women, septic abortion and red degeneration of fibroid should be suspected first.

Published reports describe sonographic findings in pyomyoma that include heterogenous pelvic mass with solid and cystic components, but the presence of gas in a uterine leiomyoma is diagnostic for pyomyoma (4). The echogenic foci seen on CT scan in the leiomyoma suggested the presence of gas. Only two prior reports mention the presence of gas inside leiomyoma on CT scan (4,10).

Pyomyoma is more common in submucosal leiomyomas because their supply is relatively tenuous and their position adjacent to the uterine lumen predisposes them to ascending infection (6). In our case, pyomyoma occurred in the intramural fibroid, which is rarely seen. The definite treatment of uterine pyomyoma consists of aggressive antibiotics and myomectomy or hysterectomy. A myomectomy was performed instead of hysterectomy, as the woman was desirous of future fertility.

The organisms causing pyomyomas are diverse and include gram positive, gram negative, aerobic and anaerobic bacteria (Clostridium species, Staphylococcus aureus, Streptococcus hemolyticus, Proteus species, *Streptococcus agalactiae*, *Enterococcus faecalis*, *E. coli*) (2,9). In our patient, *E. coli* was cultured from the pyomyoma.

Though pyomyomas are rarely reported, it should be suspected in patients with leiomyoma, unexplained fever, abdominal pain and no other apparent source of infection.

Disclosure

The authors do not have any financial conflict of interest among themselves or to any commercial entity.

Conflict of interest

We have no conflict of interest to declare.

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