Peritoneal spreading of uterine leiomyosarcoma

A 57-year-old woman referred to our department with an ultrasonographic (US) suspicion of uterine fibromyomatosis. Recently, the patient had uterine bleedings, abdominal pain and lower abdominal heaviness. A Computed Tomography (CT) examination was required.

CT scan (Fig.1) showed a large and inhomogeneous mass in uterine fundus with peripheral vascularization and necrotic areas inside. The lesion caused compression on the surrounding structures with signs of adjacent infiltration.

The patient underwent surgery: hysterectomy with bilateral salpingoophorectomy and descending colon resection because of ‘ab-extrinseco infiltration’. Histological diagnosis of uterine pleomorphic leiomyosarcoma with focal infiltration of the colon was done.

Five days after surgery, because of acute abdomen, another CT examination was performed (Fig.2). It showed a big mixed collection extending from the pelvis to the transverse colon, endoperitoneal effusion and pneumoperitoneum in subdiaphragmatic, perisplenic and perihepatic spaces (intestinal perforation). CT scan showed also suspected repetitions at the level of the mesenteric fat tissue.

The patient underwent ileal resection; histology assessed the presence of focal infiltration of leiomyosarcoma at the site of perforation as well as peritoneal, jejunal and ileal involvement.

CT scan after one month (Fig.3) showed peritoneal spreading of uterine leiomyosarcoma with multiple nodules.

Discussion:

Malignant change in leiomyoma or in normal myometrium is termed leiomyosarcoma. It arises from smooth muscle of the uterus and it is a rare tumour that accounts for 2% to 5% of all uterine malignancies [1]. Prior pelvic radiation and the use of long-term adjuvant tamoxifen in women with breast cancer were considered to be risk factors, not as parity or time of menarche and menopause. Uterine leiomyosarcoma is difficult to differentiate from benign leiomyoma even by imaging or clinical evidence. It is frequently asymptomatic or presents symptoms like massive uterine bleeding, pollakiuria, anaemia and abdominal pain with a rapid increase of uterine volume (70% of cases). Leiomyosarcomas can invade by direct extension, haematologic route, implantation or via lymphatic route. The
peritoneal cavity and omentum are the most frequently involved sites (59%), followed by the lung (52%), pelvic lymph nodes (41%), paraaortic lymph nodes (38%), and liver parenchyma (34%) [2]. Peritoneal carcinomatosis is a dramatic evenience and may be asymptomatic at the onset of the lesions. Progressive involvement of the peritoneum might cause nausea, vomiting, abdominal pain and abdominal enlargement with ascites. The imaging findings of peritoneal carcinomatosis vary from multifocal discrete nodules to infiltrative masses. Magnetic resonance (MR) is very useful for evaluating peritoneal carcinomatosis because of its slow enhancement after the intravenous administration of gadolinium. Abnormal enhancement should be suspected when the peritoneum is enhancing greater than the liver or has associated thickening, nodularity or mass. CT has an overall sensitivity of 85%–93% but poor sensitivity (25%–50%) for detection of tumour implants smaller than 1 cm [3]. In contrast, MR imaging has shown a better sensitivity (85%–90%) than CT for the detection of tumour nodules smaller than 1 cm and an overall sensitivity for all peritoneal tumour nodules of 84% [4]. Fluorine 18 fluoro-2-deoxy-d-glucose (FDG) positron emission tomography (PET)/CT can be used to diagnose peritoneal carcinomatosis (> 1 cm) as areas of increased activity. Surgery is the only treatment. Total abdominal hysterectomy and bilateral salpingoophorectomy represents the standard treatment of uterine sarcomas. Radiotherapy and chemotherapy are used as adjuvant treatment or as primary treatment in advanced disease with controversial prognostic outcome. Sarcomas are generally associated with a poor prognosis because of high rates of local recurrence and metastases with reported 5-year survival rates of 30-48%. Prognosis primarily depends on the extent of disease at the time of diagnosis and the mitotic index [5].

**Differential Diagnosis List:** Peritoneal carcinomatosis from uterine leiomyosarcoma., Leiomyoma, Uterine tumours, Metastatic tumours

**Final Diagnosis:** Peritoneal carcinomatosis from uterine leiomyosarcoma.

**References:**

Description: Basal CT shows a large mass at the level of uterine fundus. The contour of the mass is not well delineated. Origin: Department of Diagnostic and Interventional Radiology, University Hospital of Pisa, Italy
Description: Axial arterial phase. The image shows an inhomogenous lesion (8x10x12cm) with predominantly peripheral vascularization and necrotic areas inside. Origin: Department of Diagnostic and Interventional Radiology, University Hospital of Pisa, Italy
Description: Coronal arterial phase. The image shows the relationship between the neoplastic mass and other visceral organs. Origin: Department of Diagnostic and Interventional Radiology, University Hospital of Pisa, Italy
**Description:** Sagittal arterial phase. **Origin:** Department of Diagnostic and Interventional Radiology, University Hospital of Pisa, Italy
Description: Axial venous phase. Origin: Department of Diagnostic and Interventional Radiology, University Hospital of Pisa, Italy
Figure 2

Description: Axial CT shows pleural effusion. Origin: Department of Diagnostic and Interventional Radiology, University Hospital of Pisa, Italy
**Description:** Baseline CT shows free abdominal air. **Origin:** Department of Diagnostic and Interventional Radiology, University Hospital of Pisa, Italy

**Description:** Baseline CT shows the site of perforation. **Origin:** Department of Diagnostic and Interventional Radiology, University Hospital of Pisa, Italy
Description: Baseline CT shows abdominal air in peritonaeum. Origin: Department of Diagnostic and Interventional Radiology, University Hospital of Pisa, Italy
Description: Axial arterial phase shows air-fluid level in an abdominal collection. Origin: Department of Diagnostic and Interventional Radiology, University Hospital of Pisa, Italy
Description: Axial arterial phase shows a nodule of approximately 3cm with the same characteristics of the main lesion, suspicion of localization of disease. Origin: Department of Diagnostic and Interventional Radiology, University Hospital of Pisa, Italy
Description: Sagittal venous phase shows relationship between nodule and other abdominal structures.
Origin: Department of Diagnostic and Interventional Radiology, University Hospital of Pisa, Italy
Figure 3

Description: Axial arterial phase. The image shows persistent disease. Origin: Department of Diagnostic and Interventional Radiology, University Hospital of Pisa, Italy
Description: Axial arterial phase. The image shows persistent disease at a lower level. Origin: Department of Diagnostic and Interventional Radiology, University Hospital of Pisa, Italy
Description: Sagittal venous phase shows the massive involvement of peritoneum. Origin: Department of Diagnostic and Interventional Radiology, University Hospital of Pisa, Italy
Description: Coronal venous phase shows the massive involvement of peritoneum. Origin: Department of Diagnostic and Interventional Radiology, University Hospital of Pisa, Italy