Clinical History:

A 50-year-old female patient went to the emergency department with complaints of an increase in the frequency of defecation (more than ten times per day), without presence of blood or pus. She reported constant pain in the left lower quadrant, asthenia, anorexia and weight loss (ten pounds) during the past four weeks.

Imaging Findings:

An abdominopelvic CT (Computed Tomography) was performed, which demonstrated a mass in the left iliac fossa, in the region of the left adnexa. It showed a heterogeneous enhancement following intravenous contrast, with cystic/necrotic areas. This mass was locally infiltrative and extended to the sigmoid colon, which showed parietal thickening and hyperenhancement. An intra-uterine device (IUD) was visualised. Left mild hydronephrosis was present, with the ureter dilated upstream to the mass described and showing a “stop” in that region. The thickness of the renal parenchyma was preserved.

Because of the suspicion of a possible ovarian tumour, the patient underwent MR (Magnetic Resonance) in the following days, which confirmed the presence of a heterogeneous mass, with central areas of T2-hyperintensity, corresponding to cystic/necrotic components. With this technique, also a thickening of the sigmoid colon wall that appeared adherent to the tumour was visualised, as well as stranding of the surrounding fat.

Discussion:

In the presence of a mass located in the region of the left adnexa and signs/symptoms typical for a malignant disease, such as heavy weight loss, asthenia and anorexia, the patient underwent surgery. A total hysterectomy with bilateral salpingo-oophorectomy and a Hartmann’s procedure were performed. Pre-operatively, bilateral renal stents were placed because of hydronephrosis. The histopathological analysis revealed inflammatory changes associated with Actinomyces.

Actinomycosis is a chronic suppurative infection that is caused by Actinomyces species [1], which are gram-positive anaerobic bacteria commonly present in the human body, namely in the oropharynx and bowel [2]. Abdominopelvic actinomycosis can present as fistula, sinus, inflammatory pseudo-tumour, abscess formation and dense fibrosis [1, 3]. Pelvic actinomycosis is associated with the use of IUDs [1]. In fact, in 25% of women, IUDs become infected by Actinomyces, although only 2%-4% of them suffer from serious actinomycotic infections [4]. The clinical presentation is usually indolent [5] and the most commonly involved organs are ovary and fallopian tube. However, it can also spread to the uterus, urinary bladder, rectal area, urachus, abdominal wall and peritoneum [1].

The most common findings on CT are the presence of an abscess or mass with heterogeneous contrast enhancement and associated bowel wall thickening [4]. The lesions are usually very infiltrative and show extension.
across tissue planes [6]. As the disease progresses, it can produce a frozen pelvis that resembles pelvic malignancy or endometriosis [1]. On MR imaging, the actinomycotic mass may show cystic spaces with high signal intensity on T2-weighted images [5]. Because of the presence of abundant fibrotic tissue, the remaining inflammatory stranding usually demonstrates intermediate-to-low signal intensity on T2-weighted images [1].

Removal of the IUD is fundamental in patients with actinomycosis. Although open surgical resection makes possible a definite diagnosis and facilitates the cure, the first line of treatment is antibiotic therapy with intravenous high doses of beta-lactam, followed by oral therapy for two to six months [7]. The prognosis is good, and even in the presence of extensive infection, combined surgical and antibiotic therapy can establish the cure in the majority of cases.

Our patient remained asymptomatic after surgery and adequate antibiotic therapy. The principal message we would like to transmit is that when a woman with an IUD presents with a pelvic mass that is locally infiltrative and associated to insidious clinical symptoms and laboratory data are suggestive of an infection, pelvic actinomycosis should be suspected.

**Differential Diagnosis List:** Pelvic actinomycosis, Left ovarian cancer, Left ovarian metastasis, Gastrointestinal stromal tumour (GIST) of the sigmoid colon, Pelvic inflammatory disease with a tubo-ovarian abscess, Endometriosis, Inflammatory bowel disease with abscess formation, Diverticulitis with abscess

**Final Diagnosis:** Pelvic actinomycosis

**References:**


**Figure 1**

Description: Axial CT showing an intra-uterine device (IUD) inside the endometrial cavity. Origin: Department of Radiology, Centro Hospitalar de Lisboa Central - Lisbon, Portugal
Figure 2

**a**

*Description:* Pre-contrast axial CT showing a left pelvic mass (circle). *Origin:* Department of Radiology, Centro Hospitalar de Lisboa Central, Lisbon, Portugal

**b**

*Description:* Post-contrast axial CT showing a left pelvic mass, which is heterogeneous, with central cystic/necrotic areas (circle). *Origin:* Department of Radiology, Centro Hospitalar de Lisboa Central, Lisbon, Portugal
Description: Post-contrast coronal CT showing a left pelvic mass, which is heterogeneous, with central cystic/necrotic areas (circle). Origin: Department of Radiology, Centro Hospitalar de Lisboa Central, Lisbon, Portugal
**Description:** Post-contrast coronal CT showing a left pelvic mass, which is heterogeneous, with central cystic/necrotic areas (circle). **Origin:** CT scan postcontrast in the coronal plan showing a left pelvic mass, which is heterogeneous, with central cystic/necrotic areas.
**Figure 4**

**a**

*Description:* Post-contrast axial CT showing left mild hydronephrosis. *Origin:* Department of Radiology, Centro Hospitalar de Lisboa Central, Lisbon, Portugal

**b**

*Description:* Post-contrast axial CT showing dilation of the left ureter. *Origin:* Department of Radiology, Centro Hospitalar de Lisboa Central, Lisbon, Portugal
Figure 5

**a**

**Description:** Post-contrast coronal CT that demonstrates left hydronephrosis, with the left ureter dilated upstream to the left pelvic mass and showing a “stop” in that region (ellipse). **Origin:** Department of Radiology, Centro Hospitalar de Lisboa Central, Lisbon, Portugal

**b**

**Description:** Post-contrast coronal CT that demonstrates left hydronephrosis. Note the asymmetry of renal excretion. **Origin:** Department of Radiology, Centro Hospitalar de Lisboa Central, Lisbon, Portugal
Figure 6

a

Description: MR axial T1 weighted-image without fat saturation showing a left pelvic mass (circle).
Origin: Department of Radiology, Centro Hospitalar de Lisboa Central, Lisbon, Portugal

b

Description: MR axial T1 weighted-image with fat saturation showing a left pelvic mass (circle).
Origin: Department of Radiology, Centro Hospitalar de Lisboa Central, Lisbon, Portugal
Description: MR coronal T1-weighted image post-gadolinium showing a pelvic heterogeneous mass, with central cystic/necrotic areas (circle). It is associated with stranding of the surrounding fat. Origin: Department of Radiology, Centro Hospitalar de Lisboa Central, Lisbon, Portugal
Description: CT examination (10 months after surgery) showing a densification area in the region where there was the pelvic mass, which probably corresponds to post-surgical fibrosis. We can also see the presence of bilateral ureteral stents. **Origin:** Department of Radiology, Centro Hospitalar de Lisboa Central, Lisbon, Portugal

Description: CT examination (10 months after surgery) showing the presence of bilateral ureteral stents. **Origin:** Department of Radiology, Centro Hospitalar de Lisboa Central, Lisbon, Portugal
Figure 9

a

Description: MR axial T1-weighted image post-gadolinium showing a pelvic heterogeneous mass, with central cystic/necrotic areas (circle). There is stranding of the surrounding fat (arrowhead) and parietal thickening and hyperenhancement of the sigmoid colon (arrow). Origin: Department of Radiology, Centro Hospitalar de Lisboa Central, Lisbon, Portugal

b

Description: MR axial T1-weighted image post-gadolinium showing a heterogeneous mass (circle). There is stranding of the surrounding fat that extends to the pre-sacral fat (arrowhead) and parietal thickening and hyperenhancement of the sigmoid colon (arrows). Origin: Department of Radiology, Centro Hospitalar de Lisboa Central, Lisbon, Portugal
**Figure 10**

**a**

Description: MR axial T2-weighted image showing a left pelvic mass (circle), which is heterogeneous, with hyperintense areas (cystic/necrotic). There is stranding of the surrounding fat (white arrowhead).

Origin: Department of Radiology, Centro Hospitalar de Lisboa Central, Lisbon, Portugal

**b**

Description: MR axial T2-weighted image showing a left heterogeneous pelvic mass (circle), with hyperintense areas (cystic/necrotic). There is stranding of the surrounding fat (white arrowhead) that extends to the pre-sacral fat (blue arrowhead). Origin: Department of Radiology, Centro Hospitalar de Lisboa Central, Lisbon, Portugal
Description: MR axial T2-weighted image showing a left heterogeneous pelvic mass, with hyperintense areas (circle). There is parietal thickening of the sigmoid colon (arrows) and stranding of the pre-sacral fat (arrowhead). Origin: Department of Radiology, Centro Hospitalar de Lisboa Central, Lisbon, Portugal
**Figure 11**

*Description:* MR sagittal T1-weighted image post-gadolinium showing a pelvic heterogeneous mass (circle), with central cystic/necrotic areas. There is important stranding of the surrounding fat that extends to the pre-sacral fat (arrowhead). **Origin:** Department of Radiology, Centro Hospitalar de Lisboa Central, Lisbon, Portugal
Figure 12

Description: Post-contrast axial CT showing a left heterogeneous pelvic mass (circle) that is locally invasive and extends to the sigmoid colon, which shows parietal thickening and enhancement (arrow).

Origin: Department of Radiology, Centro Hospitalar de Lisboa Central, Lisbon, Portugal
Description: MR sagittal T2-weighted image showing an heterogeneous left pelvic mass, with central areas of T2-hyperintensity (circle) and stranding of the surrounding fat that extends to the pre-sacral fat (arrowhead). Origin: Department of Radiology, Centro Hospitalar de Lisboa Central, Lisbon, Portugal