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PHOTO QUIZ

An abdominal mass: not a 'clear cut' case!

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CASE REPORT

A 52-year-old woman, previously healthy, was referred with progressive pain in the right inguinal region, after a fall two weeks before. She mentioned no other complaints. Physical examination was normal. Laboratory results showed: erythrocyte sedimentation rate 109 mm/h, C-reactive protein 239 mg/l and leucocytes 26.4 x 10^9/l with 83% granulocytes. Kidney and liver functions were normal. Ultrasound (*figure 1*) and CT scan (*figure 2*) revealed a large solid mass in the small pelvis with multiple abscesses extending into the right tubo-ovarian region and iliopsoas muscle, causing obstruction of the urether and hydronephrosis of the right kidney. In the cavum uteri a small hyperdense structure was visible, consistent with an intra-uterine contraceptive device (IUD). It turned out to have been in place for almost 30 years! The consulted gynaecologist proposed an exploratory laparotomy for diagnostic purposes as a malignancy was suspected.

Figure 1. *Ultrasound. Panel A shows hydronephrosis of the right kidney (arrow) with diffuse loss of cortex, suggesting the existence of a long-term obstruction (1. liver; 2. inferior vena cava; 3. aorta; 4. vertebra). Panel B shows a fluid collection in the right fossa iliaca (arrow) next to the right iliopsoas muscle (1) and above the ileum wing (2)*

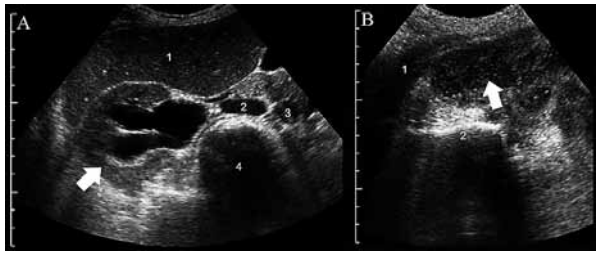
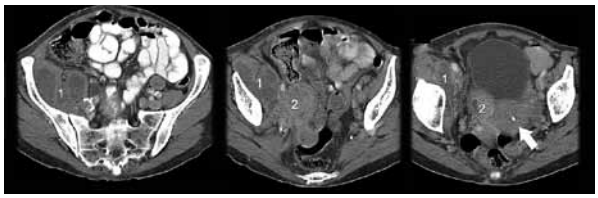


Figure 2. *CT scan after oral and intravenous contrast administration. Multiple abscesses (1), originating from a solid mass in the small pelvis (2), extending into the right iliopsoas muscle and tubo-ovarian region. In the cavum uteri a small hyperdense structure is visible, matching the outline of an IUD (arrow)*



WHAT IS YOUR DIAGNOSIS?

See page 320 for the answer to this photo quiz.

DIAGNOSIS

The presence of the IUD in combination with the elevated inflammatory markers gave rise to the suspicion of actinomycosis. To avoid unnecessary surgery we aspirated fluid from the psoas abscess. A Gram stain showed Gram-positive branching rods, suggestive of *Actinomyces* (*figure 3*). The IUD was removed, treatment with intravenous penicillin (6 million U/day) was started and a double-J-catheter was inserted to prevent deterioration of the right kidney function. Initially the patient developed a 'psoas sign' (*figure 4*), which improved after percutaneous drainage of the psoas abscess. Twenty days after admission the diagnosis was confirmed: *Actinomyces israelii* was cultured from the abscess fluid. After four weeks of intravenous penicillin she was discharged in a good clinical condition. Treatment was continued with oral feneticillin (4 dd 1 gram). Eight months after initiation of the antibiotic regimen, a CT scan no longer showed the extensive abnormalities previously observed. The feneticillin was stopped and the double-J-catheter was removed. There have been no signs of relapse.

Figure 3. *Gram stain showing the typical Gram-positive branching rod shaped bacteria, suggestive of Actinomyces*

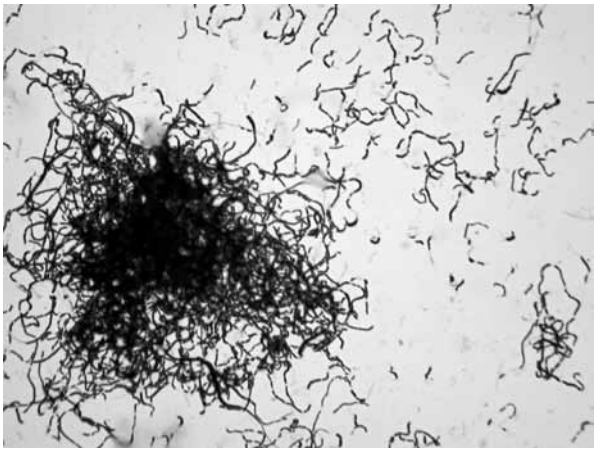


Figure 4. *Our patient with her right leg bent in a preferred position, suggestive of a 'psoas sign' (photograph taken with patient's permission)*

Infections with *Actinomyces* are rare, with an estimated yearly incidence of 1 per 100,000.[1] *Actinomyces* can be found as part of the commensal flora.[2] Actinomycosis can occur in immunocompetent individuals and most frequently involves the head/neck region and the pelvis. Actinomycosis of the pelvis originates from the female internal genital organs and is associated with presence of an IUD; the occurrence significantly increases with the use of copper-containing IUDs and the length of IUD use.[3-8] Actinomycosis is often mistaken for malignancies, due to chronic granulomatous disease with abscesses, fistulas and fibrotic masses.[9-13] This tumour-like behaviour frequently results in unnecessary surgery. To ensure early diagnosis a Gram stain should be performed, which shows typical Gram-positive branching rods (*figure 3*). Microscopic examination can reveal the characteristic yellow or brown 'sulphur granules', which consist of *Actinomyces* micro-organisms, tissue debris and calcium phosphate.[3,14] Because it concerns slow-growing anaerobic bacteria, cultures should be held for a long time and under strict anaerobic conditions. They should preferably be with abscess content.[9] For initial treatment high-dose intravenous penicillin is preferred, because the minimal inhibitory concentration for *Actinomyces* is high and antibiotics poorly penetrate the fibrotic masses and abscesses. After two to six weeks, intravenous penicillin can be switched to oral feneticillin, after an oral absorption assay is performed to ensure adequate feneticillin serum levels. Prolonged antibiotic treatment, varying from 6 up to 12 months, is necessary to prevent relapse.

This case illustrates the importance of including actinomycosis in the differential diagnosis of an abdominal mass, particularly in the presence of an IUD. Timely diagnosis with a Gram stain can prevent unnecessary surgery. Complete cure of the often extensive abnormalities can be achieved by antibiotic treatment and drainage of abscesses. Surgery is only justified in case of specific complications such as mechanical ileus.

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