

Actinomyces in urachal remnants: A rare cause of pseudotumor

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ABSTRACT

Actinomyces is a chronic inflammatory condition caused by *Actinomyces israeli*, a gram positive anaerobic bacterium. It can have a variety of clinical manifestations and can mimic a malignancy. We present one such case of urachal actinomyces that mimicked a tumor. A 28-year-old man presented with abdominal pain of 20 days duration. Per abdominal palpation revealed a firm mass with ill-defined borders in the suprapubic region. Computed tomography and magnetic resonance imaging scans of the pelvis showed an irregular lesion in the urinary bladder extending to the umbilicus, giving the impression of urachal remnants with inflammation. Peroperatively, an irregular, hard mass measuring 6 x 5 cm, involving the anterior and posterior bladder walls, the appendix, the terminal ileum and sigmoid colon, was seen, which was suspicious for a malignancy. Frozen sections from the mass showed extensive inflammation and a florid fibroblastic proliferation, giving the impression of an inflammatory pseudotumor. The tissue was extensively sampled for paraffin sections and only one of them revealed a colony of Gram, PAS and GMS- positive organisms, conclusive for Actinomyces. It is important to be aware of this uncommon, yet significant, presentation of a common infectious disease in order to avoid misdiagnosis and over-treatment as a malignancy.

Key words: Actinomyces, pseudotumor, urachal remnants.

INTRODUCTION

Actinomyces is a chronic inflammatory condition caused by *Actinomyces israeli*, a gram positive anaerobic bacterium. Various clinical forms have been identified, with cervicofacial actinomyces being the most common, followed by abdominal actinomyces.^[1] Risk factors for abdominal actinomyces are the use of intrauterine contraceptive devices in females and patent urachal remnants.^[2] They have a variety of clinical manifestations and can mimic a tumor clinically.^[3] It is necessary to be aware of this presentation. We report one such case of urachal actinomyces that mimicked a tumor.

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CASE REPORT

A 28-year-old man presented with abdominal pain of 20 days duration, which was localized to the groin. The pain increased on passing urine, the peak being after voiding. The pain was occasional colicky. There was history of fever and burning micturition. Per abdominal palpation revealed a 4 cm x 3 cm firm mass with ill-defined borders in the suprapubic region. Urine examination showed a few white blood cells and epithelial cells, but no microorganisms. His hematologic investigations renal and liver function tests were within normal limits.

An irregular soft tissue intensity lesion was noted on magnetic resonance imaging (MRI), extending from the superior aspect of the urinary bladder to the anterior abdominal wall at the level of the umbilicus. The lesion measured 5 cm x 3.8 cm x 6 cm. The fat adjacent to the lesion showed heterogeneous signal intensity, suggestive of inflammatory changes [Figure 1a]. The superior wall of the urinary bladder was thickened, possibly secondary to inflammation. There was no free fluid in the pelvis. The prostate and seminal vesicle were normal [Figure 1b].

The patient was taken up for surgery. Peroperatively, an irregular hard mass measuring 6 cm x 5 cm, involving the anterior and posterior bladder walls and extending

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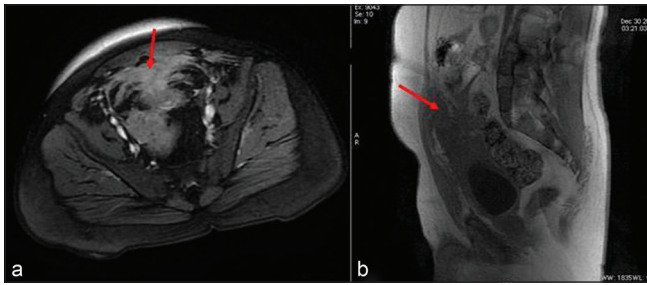


Figure 1: (a) Axial T2 fat-suppressed magnetic resonance imaging shows an irregular, mixed-intensity lesion superior to the urinary bladder with adjacent fat stranding, suggesting inflammatory changes. (b) Sagittal T1 MRI shows an irregular, hypointense lesion superior to the urinary bladder, extending to the umbilicus

up to the anterior abdominal wall, involving the rectus sheath was seen. These findings raised a suspicion of malignancy. A portion of the mass was sent for frozen section, which revealed a florid fibroblastic response with a mixed inflammatory cell infiltrate. A diagnosis of inflammatory myofibroblastic tumor was suggested. Later, the entire mass was sent for histopathology. Multiple sections showed a similar histology as the frozen sections, along with a dense inflammatory cell infiltrate inclusive of many eosinophils. Neutrophilic abscesses and scattered multinucleate histiocytic giant cells were present. One of the sections showed colonies of filamentous, slender organisms surrounded by the Splendore–Hoeppli zone, morphologically resembling actinomyces [Figure 2]. They stained positively with Periodic Acid-Schiff (PAS), Gomori's Methenamine Silver (GMS) and Grams stains. A final diagnosis of abdominopelvic actinomycosis was made.

FOLLOW-UP

The patient was started on intravenous penicillin. After completion of the course of medication, he is asymptomatic 1 year after surgery. A repeat MRI scan showed no residual disease.

DISCUSSION

Actinomycosis is a chronic suppurative infection caused by *A. israeli*. Various clinical forms have been identified, which include cervicofacial (60%), thoracic (15%) and abdominal/pelvic (25%).^[4] *A. israeli* is a common flora residing in the tonsil and along the gastrointestinal tract,^[1] rarely causing significant infections. Certain risk factors have been identified for abdominopelvic actinomycosis, the most common being intrauterine contraceptive devices. Other rare factors include urachal remnants, horseshoe kidney, renocolic or renoduodenal fistulas.^[4] Very few cases of actinomycosis of urachal remnants have been reported.^[5] These are apparent radiologically as suprapubic masses extending to the abdominal wall, as in the current case.

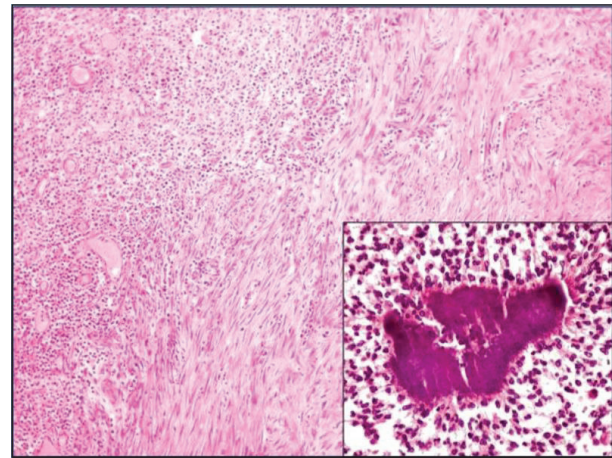


Figure 2: Section from the mass showing marked fibroblastic proliferation accompanied by a dense inflammatory cell infiltrate (H and E, ×40). Inset shows a colony of filamentous organisms surrounded by a Splendore–Hoeppli zone and neutrophils (H and E, ×400)

Pelvic actinomycosis is known to present as a hard mass with infiltration into the surrounding structures, mimicking malignancy. Patients present with abdominal pain, burning micturition and increased frequency. Demonstration of organisms by histopathologic examination is the only way to make a diagnosis, as cultures may not always grow the organisms or this may not be feasible once the tissue is fixed. The differential diagnoses to be considered are inflammatory pseudotumor, carcinomatosis and soft tissue sarcomas. The first of these is the closest mimic if organisms are not demonstrated. Neutrophilic abscesses, eosinophils and granulomas are clues to a possible infectious nature. Finding the organism in the sections is totally dependent on the adequacy of sampling and, therefore, it is imperative that enough sections are submitted and scanned carefully. This will avoid misdiagnosis and overtreatment as a malignancy. It is important to be aware of this uncommon, yet significant, presentation of this disease, which is curable with antibiotics.

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