



CASE REPORT

Pelvic actinomycosis masquerading as sarcoma in a hysterectomized woman: A comprehensive case study

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ABSTRACT

Pelvic actinomycosis, a chronic and invasive condition caused by *Actinomyces* spp., often mimics malignancies, creating diagnostic challenges. This report details the case of a hysterectomized woman presenting with vaginal bleeding, intense pelvic pain, constipation, and weight loss. Initial assessments suggested sarcoma due to a firm, fixed mass in the right pelvis with vaginal infiltration. Imaging techniques, such as contrast-enhanced Computerized Tomography (CECT) of the abdomen and pelvis, and [¹⁸F]FDG Positron Emission Tomography Computed Tomography (PET/CT scan), confirmed a solid cystic pelvic mass infiltrating surrounding structures. Cystoscopy showed bladder mucosa infiltration; however, biopsies were inconclusive for malignancy but indicated actinomycosis. Treatment with oral Penicillin G significantly alleviated pain, restored bowel function, and led to weight gain, along with radiological improvements.

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INTRODUCTION

Actinomycosis is a rare chronic granulomatous disease occurring due to Gram-positive anaerobic bacteria actinomyces [1]. It is a spore-forming bacillus and on Grocott–Gomori staining it shows sulfur granules and fungus-like hyphae leading to the name Actinomyces or ‘ray fungus’ [2]. Pelvic actinomycosis is extremely rare presenting 3% of all human actinomycosis [3]. Actinomyces is generally a benign condition but if it erodes weakened or damaged epithelium, it invades local structures and mimics malignancy [4].

The diagnosis of pelvic actinomycosis poses challenges due to its non-specific presentation and radiological findings [5]. Differential diagnosis is crucial, particularly in patients with predisposing factors such as long-term intrauterine contraceptive use or persistent urachal remnants, the association IUD-Actinomycosis is well established in reports [6, 7].

CASE PRESENTATION

A 44-year-old immunocompetent woman, post-hysterectomy, presented with vaginal bleeding, severe pelvic pain, constipation, and weight loss. A physical examination revealed a suspicious right pelvic mass with vaginal infiltration. Lab Investigations including hemogram and biochemistry were within normal limits and tumour markers like CA125 and CA19.9 were inconclusive. A contrast-enhanced Computerized Tomography (CECT) of the abdomen revealed a lobulated, heterogeneously enhancing solid cystic lesion in the pelvis, involving the vaginal vault, urinary bladder, and rectum (Figure 1).

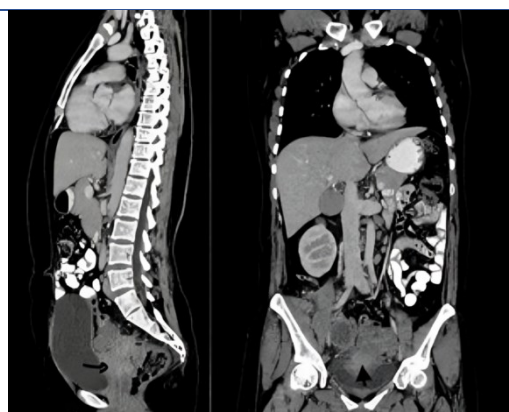


Figure 1. Contrast-Enhanced Computed Tomography (CECT) Image: A lobulated, heterogeneously enhancing predominantly solid lesion with few cystic components seen in the pelvis with involvement of vaginal vault inferiorly, urinary bladder anteriorly, and part of rectum posteriorly

An [¹⁸F]FDG PET/CT scan displayed a large, metabolically active, irregular soft tissue density lesion in the right lower abdomen and pelvis, involving the ileocolic junction, ascending colon, and adjacent mesentery (Figure 2).

Despite the observed bladder mucosa infiltration during cystoscopy, biopsies were inconclusive for malignancy. An open biopsy revealed clumps of basophilic filamentous organisms in a vaguely rosette-like configuration surrounded by acute inflammatory cells (Figure 3). Eosinophilic clubs were found at the periphery (Splendore-Hoeppli phenomenon). The organisms were Gram-positive, PAS-positive, and negative for ZN stain, indicative of actinomycosis.

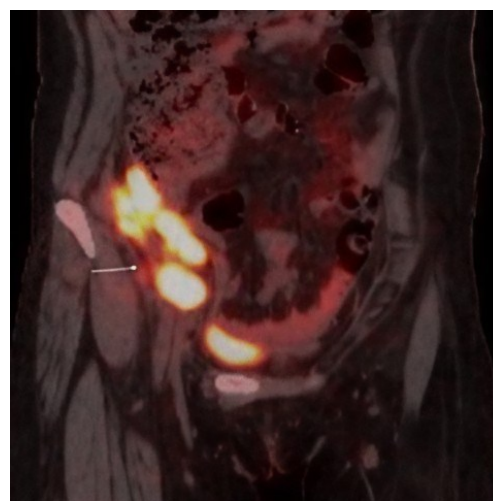


Figure 2. [¹⁸F]FDG PET/CT scan shows a large metabolic active irregular soft tissue density lesion in the right lower abdomen and pelvis involving ileocolic junction, ascending colon, and adjacent mesentery

The patient was treated with oral Penicillin G and responded well, showing significant improvement in pain, restoration of bowel habits, and progressive weight gain. Radiological improvements were evident with the mass shrinking and a decrease in [¹⁸F]FDG avidity. A post-therapy [¹⁸F]FDG PET CT scan revealed a decrease in size and metabolic activity of the previously existing lesion, indicative of a significant structural and metabolic response (Figure 4).

DISCUSSION

Diagnosing pelvic actinomycosis is complex due to its clinical and radiological resemblance to malignancy. In this case, the initial misdiagnosis as sarcoma was primarily due to the infiltrative nature of the disease. The absence of malignant

cells on biopsy, coupled with a positive response to antibiotic therapy, ultimately confirmed the diagnosis of pelvic actinomycosis.

Prolonged antibiotic therapy is the cornerstone of treatment for actinomycosis, with surgical intervention reserved for addressing acute complications or when diagnostic uncertainty persists. In this instance, the PET CT scan played a crucial role in detailing the extent of the disease and monitoring the response to treatment.

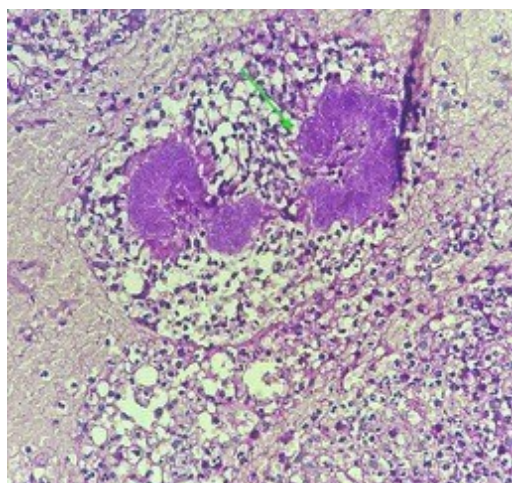


Figure 3. A few histiocytic giant cells are clumps of basophilic filamentous organisms in a vaguely rosette-like configuration surrounded by acute inflammatory cells. Eosinophilic clubs may be found at the periphery (Splendore-Hoeppli phenomena)

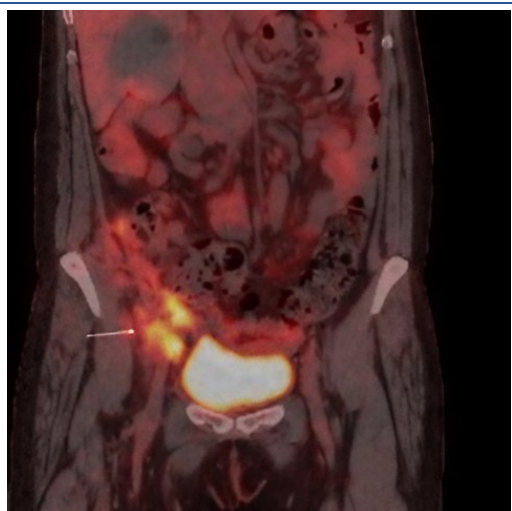


Figure 4. Post-treatment $[^{18}\text{F}]$ FDG PET/CT scan shows a decrease in size and metabolic activity of pre-existing lesion, suggestive of significant structural and metabolic response

predisposing factors such as a history of intrauterine device usage or chronic pelvic inflammatory disease. Early recognition and appropriate antibiotic treatment can lead to favourable outcomes, potentially avoiding the need for extensive surgical interventions.

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CONCLUSION

Pelvic actinomycosis, although rare, should be considered in patients presenting with tumor-like pelvic lesions, particularly those with