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Vesical And Urachal Actinomycosis - Mimicking Urachal Malignancy: A Case Report

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Abstract

Actinomycosis, a pyogenic granulomatous subacute to chronic infection caused by Actinomyces israelii, may affect any organ of the body, rarely the bladder. We present a case of vesical actinomycosis that mimicked as a urachal tumour. A 55-year-old perimenopausal lady presented with an eight month suprapubic painful firm mass. Computed Tomography showed an 8.5 x 3.5cm ill-defined heterogeneously enhancing solid-cystic mass extending from the bladder dome to the umbilicus with lymphadenopathy suggestive of urachal malignancy. Cystoscopy showed broad base mass in the bladder dome, hence she underwent partial cystectomy with bilateral iliac lymph node dissection. Histopathological examination showed Actinomycosis surrounded by Chronic inflammatory cells. Case reports like this emphasizes the need for a high degree of suspicion and thorough sampling of the specimen if diagnosis is in doubt. And surgery as a primary treatment will contribute to a good prognosis

Keywords: Actinomycosis, India, Rare, vesical

Abstract

Actinomycosis, a pyogenic granulomatous subacute to chronic infection caused by Actinomyces israelii, may affect any organ of the body, rarely the bladder. We present a case of vesical actinomycosis that mimicked as a urachal tumour. A 55-year-old perimenopausal lady presented with an eight month suprapubic painful firm mass. Computed Tomography showed an 8.5 x 3.5cm ill-defined heterogeneously enhancing solid-cystic mass extending from the bladder dome to the umbilicus with lymphadenopathy suggestive of urachal malignancy. Cystoscopy showed broad base mass in the bladder dome, hence she underwent partial cystectomy with bilateral iliac lymph node dissection. Thorough sampling with multiple rebits in Histopathological examination showed Actinomycosis surrounded by Chronic inflammatory cells. Case reports like this emphasizes the need for a high degree of suspicion and thorough sampling of the specimen if diagnosis is in doubt, And surgery as a primary treatment which contributes to a good prognosis

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Introduction

Vesical Actinomycosis is a rare chronic granulomatous infection caused by Actinomycosis israelii[1]. In 1878, James Israel first observed yellow granules while studying pathological material from pyaemia and suppuration in the neck and named them Actinomycosis. Actinomycosis can

affect any organ in the body forming ulcers, granulomas, and multiple abscesses. Also, being anaerobic, they can survive and multiply in low oxygen forming sinus and fistulas which discharge sulpha granules[4](Figure 2A). The exact mechanism of formation of these infections is unknown. Actinomycosis is non-contagious. It invades the body through microfissures[4] affecting commonly the head, neck, thorax, abdomen and pelvic organs in that order. Among pelvic actinomycosis ovarian actinomycosis is the commonest[2]. Vesical actinomycosis is very rare with only a few cases reported. Beta–lactamase derivatives like penicillin is the drug of choice after complete excision of the mass[3][5]. Tetracyclins, macrolides, linezolid are other options which are equally effective[4]. Here we discuss a case of a perimenopausal woman presenting with primary vesical Actinomycosis and its management where the diagnosis was made with a high degree of suspicision with a thorough sampling of the speciment. She was managed surgically primarily leading to a good prognosis.

Case report

A 55-year-old perimenopausal woman presented with a suprapubic pain and mass along with significant weight loss of more than ten kilograms in the past eight months. Abdominal examination showed an 8 x 4cm firm mass with ill-defined borders in the suprapubic region. Computed Tomography of abdomen and pelvis showed an 8.5 x 3.5cm ill-defined solid-cystic mass with heterogeneously enhancing solid components and peripherally enhancing cystic components extending from the bladder dome to the umbilicus, invading the rectus, fascia and muscles, with bilateral iliac lymphadenopathy suggestive of urachal malignancy (Figure 1). Her urine cytology was negative for malignant cells. Her complete blood counts, renal and liver functions were within normal limits. Cystoscopy showed a broad base mass in the bladder dome. Hence in view of urachal malignancy, she underwent partial cystectomy with excision of bladder peritoneum, urachus, rectus sheath and muscle with bilateral iliac lymph node dissection. The specimen (Figure 2B), on serial sectioning, revealed a 1.5 cm long linear tract like defect in the urachal region. Histologically, sections from the urachal tract and bladder showed a lesion characterized by proliferation of spindle cells with admixed inflammatory cells and slit like vessels. The inflammatory cells were dense, comprising of sheets of foamy macrophages, lymphocytes, prominent plasma cells and eosinophils. Neutrophilic microabscesses, foci of granuloma with epithelioid cell collection and necrosis were identified. There were dense fibrosis with pseudosarcomatous fibroblastic proliferation. Morphologic differential diagnosis such as inflammatory myofibroblastic tumour, sarcomatoid carcinoma and IgG4 related sclerosing disease were considered. Immunohistochemical marker study were done. The spindle cells strongly expressed smooth muscle actin, vimentin and were negative for ALK-1,IgG4 and CK immunostains. In view of high suspicion, even though the initial bits were negative, Multiple rebits were processed simultaneously and one of the sections revealed slender filamentous organisms surrounded by dense eosinophilic material (splendore-hoeppli zone), resembling actinomyces. The organisms were highlighted with Grams(Figure 2C), PAS (Figure 2D) and Giemsa stains (Figure 2E). Hence the diagnosis of inflammatory pseudotumour secondary to actinomycosis involving the urachus and urinary bladder was made. Postoperatively she was started on intravenous beta lactam antibiotics 2 gram per day for 15 days, followed by oral amoxicillin-clavulanic acid twice a day for six weeks. On follow-up,

she was symptomatically better and post-operative imaging and cystoscopy showed no evidence of pseudotumour.

Discussion

Actinomycosis is a chronic granulomatous infection caused by gram positive anaerobic bacteria Actinomyces israelii. It is characterised by granulomatous inflammatory reaction and presence of sulfur granules[5] (Figure 2A). Sulfur granules with clusters of filaments are pathognomonic for Actinomycosis. Actinomycosis occurs most commonly in the third to fifth decade and manifests commonly as Fascio-cervical actinomycosis (about 60%). Abdominopelvic (20 to 30%) and thoracic (15%) is less common and genitourinary Actinomycosis is very rare, manifesting usually secondary to abdominopelvic infection[2][5]. Ovarian Actinomycosis is the commonest genitourinary Actinomycosis, followed by Bladder and testis. Prolonged use of intrauterine device, tubo ovarian abscess, intra-abdominal surgery are some risk factors for genitourinary Actinomycosis [3][5]. Vesical Actinomycosis usually presents with suprapubic mass and suprapubic pain[3], dysuria, hematuria, storage urinary symptoms like urgency, frequency and weight loss[5]. The diagnosis of vesical Actinomycosis is often delayed due to possibility of urothelial malignancy carrying greater indices and usually misdiagnosed as an urothelial or urachal malignancy. Histopathology plays a major role in diagnosis of actinomycosis[1][2]. High index of suspicion in many case studies is emphasised and [3] should be there, so we can avoid misdiagnosis and overtreatment. The speciment, as in our case, if doubtful, should be sampled thoroughly and searched for the organisms carefully. Frozen sections can be helpful, and if it shows inflammatory myofibroblastic tumour like morphology, the possibility of inflammatory pseudotumour secondary to actinomycosis can be considered. Computed Tomography and cystoscopy is indicated for genitourinary Actinomycosis[1]. Studies also emphasise the need for surgery for the management of actinomycosis. Example. There are reports where the kidney may also be involved by the Actinomycosis, presenting with hydronephrosis and acute on chronic renal failure where Nephrectomy is the treatment of choice for renal actinomycosis with a poorly functioning kidney. In vesical Actinomycosis, surgical management like excision of the sinus tracts, resection of the mass, drainage of the abscess cavity, or complete excision of the mass followed by long term antibiotic treatment is indicated[5]. There is a controversy regarding the role of surgery in management, but in our study, radical surgical excision contributed much to the prognosis of the patient. Penicillin is the drug of choice for vesical actinomycosis[3]. Surgical excision like partial cystectomy, followed by oral beta lactamase antibiotic for three to six months is indicated[5]. Doxycycline, Linezolid, Azithromycin is an alternative if allergic to penicillin[4]. Long term follow-up is indicated after treatment since relapse is common[1]

Conclusion

Vesical Actinomycosis is a very rare inflammatory pseudotumour which is difficult to diagnose by imaging studies alone. It needs histopathological confirmation. A high degree of suspicision and thorough sampling of the speciment is needed for diagnosis. Surgery primarily is one of the choice of treatment for vesical actinomycosis. It is then followed by long term antibiotic treatment for a good prognosis.

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