Case Report

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Primary Actinomycosis Masquerading as a Soft Tissue Tumour of the Abdominal Wall: A Rare Case Report

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Abstract

Actinomycosis is a sub-acute-to-chronic bacterial infection caused by filamentous, gram-positive, non–acid-fast, anaerobic to microaerophilic bacteria Actinomyces israeli. Clinically, it presents, in the descending order, over cervicofacial, abdominal and thoracic regions. Abdominal wall actinomycosis is known to involve pelvic or intraperitoneal regions but abdominal wall involvement primarily is rare. Hereby, we report a case of primary abdominal wall actinomycosis in a 43-year-old male who presented with right-sided abdominal wall mass of 6 months duration. CT abdomen done was suggestive of heterogeneous enhancement of rectus abdominis muscle. True cut biopsy revealed radiating filamentous colony positive morphologically suggesting actinomycosis. The main treatment is antibiotics to which he responded well, and thus it is essential to diagnose accurately and avoid unnecessary surgery.

Keywords: Actinomycosis; Abdominal Wall

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Introduction

Actinomycosis is a chronic suppurative and granulomatous infectious disease caused by actinomyces species, usually Actinomyces israeli.[1] Actinomyces israeli is a gram-positive anaerobic organism that is normally present throughout the gastrointestinal tract, female urogenital tract and the bronchus. Actinomycosis occurs most frequently in the cervical facial (50%-65%), abdominal (20%) and thoracic (15%) regions.[2] Abdominal wall actinomycosis without pelvic and intraperitoneal involvement is extremely rare and can mimic multiple disease processes including malignancy.[3] We report an isolated case of abdominal wall actinomycosis involving the right abdominal wall in a 43-year-old male. Long-term administration of penicillin resulted in a cure. Hereby, the clinical and pathological spectrum of abdominal wall actinomycosis is assessed and primary involvement of the abdominal wall is characterized taking into account the available literature on this rare presentation. The importance of obtaining tissues for histopathology and culture in all inflammatory lesions is foregrounded.

Case Report

A 43-year-old diabetic male with a past surgical history of exploratory laparotomy in the childhood, details of which were unavailable, came with the

complaint of abdominal lump in right lower abdomen for 6 months duration. The lump was often painful relieved with analgesics, associated with on and off discharge since 1 month. There was no history of trauma, fever, weight loss and transit disorders. On examination, vertical midline scar mark of previous surgery was noted along with large painless, non-pulsatile and fixed extraperitoneal extra-abdominal lump measuring 15 x 8 cm in the right lower quadrant. There were multiple healed and discharging sinuses which were associated with intermittent seropurulent discharge (Fig. 1). No lymph nodes were palpable. Laboratory investigations done showed total leukocyte count of 9800/mm^3 with neutrophilic predominance. CECT abdomen showed a heterogeneously enhancing lesion of 6.1 X 3.2 cm in the right lower abdomen involving rectus abdominis muscle, adjacent fascia and anterior abdominal wall muscle extending towards the perivesical sheath (Fig. 2). The patient underwent TRUCUT biopsy of the lump tissue which showed skin covered tissue with ulcer, granulation and sinus tract with radiating filamentous colony, morphologically suggestive of actinomycosis (Fig. 3). The discharge was subjected to Gram stain and Zeil Nelson stain which came out to be positive and negative respectively, thereby ruling out Nocardia. Based on morphology and staining characteristics, a diagnosis of actinomycosis was made. The patient was treated for 10 days with injectable Amoxicillin-Clavulanic Acid 1.2 grams thrice a day along with injectable Metronidazole 500 mg thrice a day to which he showed improvement. Because of the rapid amelioration clinically, antibiotic therapy was prescribed orally with the dose of Amoxicillin-Clavulanic acid of 500+125 mg for three months. At five months, the patient was asymptomatic and the mass had completely disappeared.

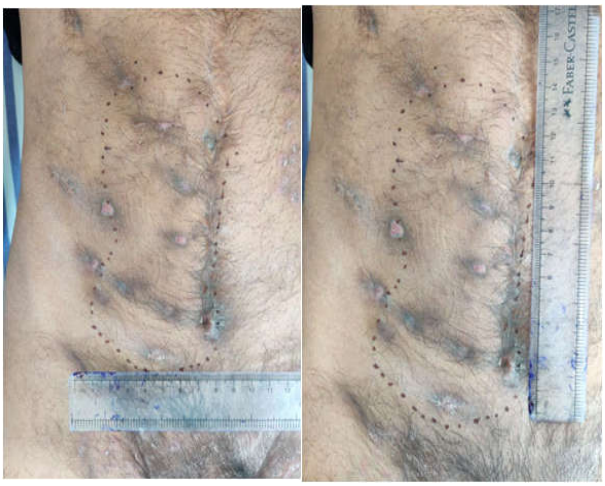

Fig. 1: 15 x 8 cm lump noted with discharging sinuses from the anterior abdominal wall.

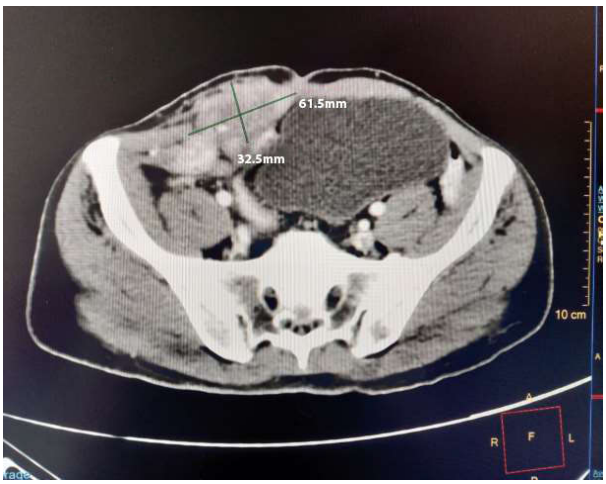

Fig. 2: Computer tomography showing about 5 cm x 3 cm mass projecting from the right abdominal wall.

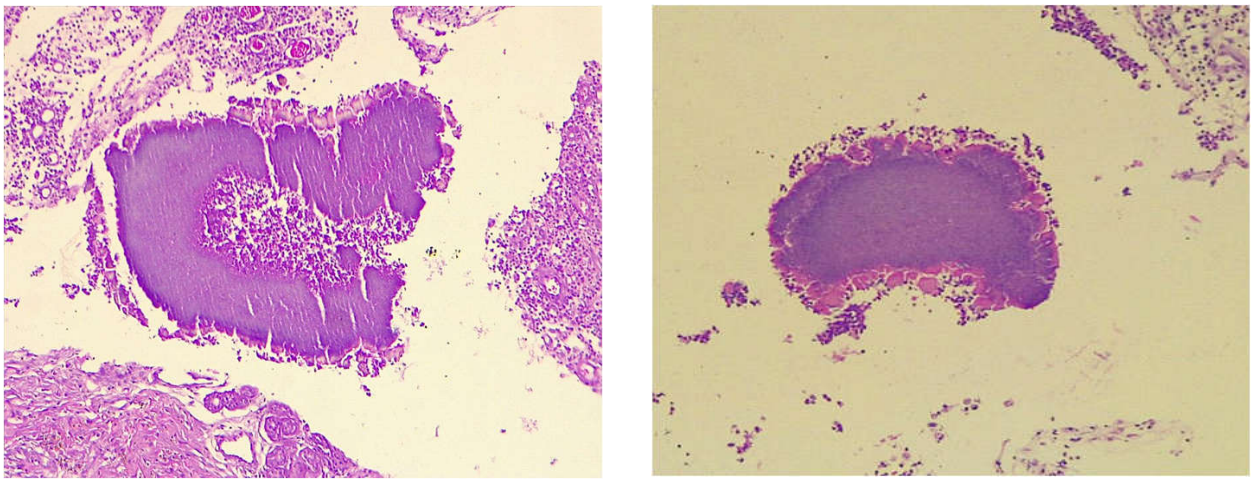

Fig. 3: Microscopic appearance of the resected specimen-tangled lump of filamentous organisms in the abscess morphologically suggestive of actinomycosis.

Discussion

Actinomycosis, a subacute to chronic, suppurative and granulomatous inflammation is caused by an anaerobic, gram-positive, filamentous bacterium Actinomyces israeli, previously which was misdiagnosed as a fungus.[4]

Actinomyces israeli is known to be the commensal the respiratory, gastrointestinal and genitourinary tracts. Due to its low virulence potential, it causes the pathology only when the normal mucosal barrier is hampered, leading to multiple abscess formation, fistula or mass lesions.[5]

Actinomycosis infects, in the decreasing order, cervicofacial area, which accounts for 50%-65% of cases, followed by abdominopelvic region holding for 20%, and the remainder 15% occurs in the thorax.[5] Abdominopelvic actinomycosis is increasing in frequency nowadays.[6] The most common sites of abdominal actinomycosis are the appendix and the ileocaecal region. Other abdominal organs like intestines, stomach, liver, pancreas, anorectal region and abdominal wall may also be involved. A patient with abdominal actinomycosis usually presents with non-specific symptoms including fever, abdominal pain, nausea, weight loss and a palpable mass.[5] These clinical features increase the suspicion of malignancy. Predisposing factors for abdominal actinomycosis include recent abdominal surgeries or trauma, endoscopic procedures, the presence of intra-abdominal malignancy and hollow viscous perforation. In women of childbearing age, prolonged use of IUCDs has been suggested as the primary colonisation site of actinomycosis in pelvic involvement.[7] Any age group can be affected by actinomycosis, but it is rare at ages younger than 10 years.[5] Male patients are affected more commonly than female patients, with a reported ratio of 3:1. The reported annual incidence of actinomycosis is 1/300 000.[5]

Establishing a preoperative diagnosis of actinomycosis is arduous and has been reported in only 10% of all cases. Laboratory and radiological investigations are sketchy in differentiating between abdominal actinomycosis and other inflammatory or neoplastic processes.[7] However, CT scans can guide with the site and content of the lesions, in addition to their relation to adjacent tissue before any intervention.

Surgical intervention in the form of diagnostic biopsy or total excision is essential. Definitive diagnosis is based on histopathological & microbiological examination of the surgical specimens, which illustrate the characteristic sulfur granules and filament aggregates in almost 50% of cases. However, it is important to note that the sulfur granules are not pathognomonic for actinomycosis as other organisms such as Nocardia and Streptomyces may aggregate the granules resembling this infection.[5,6]

A combination of histopathology and microbiology cultures gives the best result in establishing the diagnosis. However, due to the anaerobic characteristic and slow growth of these actinomyces species, it takes a minimum of to 2 weeks to develop.[6] Following the confirmation of the diagnosis of abdominal actinomycosis, a systemic application of a high dose of intravenous penicillin (penicillin G 10–20 units daily) is the initial treatment of choice. In case of allergy to penicillin, tetracycline, erythromycin and clindamycin are acceptable alternatives. After intravenous treatment for 4–6 weeks, oral penicillin (2–4 g/day) or amoxicillin should be administered for 6–12 months.[5-7]

Establishing the diagnosis of abdominal actinomycosis is a challenge for every medical practitioner, as the clinical scenario is highly non-specific and laboratory investigations are only suggestive of an inflammatory process. However, in patients who presents with previous abdominal surgery or trauma, the presence of intra-abdominal malignancy, viscous perforation and prolonged use of IUCDs, actinomycosis should always be a part of the differential diagnosis. A CT scan of the affected area is recommended and the final diagnosis could be determined by the combination of histopathology of the surgical specimen and cultures.

The combination of surgical intervention and antibiotics results in complete recovery in most of the cases.

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