Urachal Actinomycosis Mimicking Malignancy: A Case Report

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Actinomycosis 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 actinomycosis that mimicked a tumor. A 17-year-old female presented with abdominal pain of 1 month duration. Per abdominal palpation revealed a firm mass with ill-defined borders in the supraumbilical region. Computed tomography imaging scans of the pelvis showed plaque like thickening involving superior border of urinary bladder predominantly in its middle portion, with maximum thickness measuring upto 13mm, heterogenous enhancement in post contrast study with lobulated inferior portion, no calcification or necrosis and surrounding stranding in the peritoneum and adjacent bowel loops. Initial impression of urinary bladder tumor was made with differential diagnosis of urachal carcinoma, localized abscess or tuberculosis. FNAC showed suppurative inflammatory lesion. Diagnostic peritoneoscopy showed dense adhesions between anterior abdominal wall, urinary bladder, omentum and small bowel. Pockets of abscess over right side of the pelvis were seen. Because of the dense adhesions, laparoscopy was not possible and hence converted to laparotomy. With the idea of infective pathology intraoperatively, adhesiolysis and drainage of pus was made. Biopsy showed remnant of urachus and multiple actinomyceal colonies with surrounding suppurative inflammation.
Keywords: actinomycosis, urachal remnant, urachal tumor.

Actinomycosis is a chronic inflammatory condition caused by *Actinomyces israeli*, a gram positive anaerobic bacterium. Various clinical forms have been identified, with cervicofacial actinomycosis being the most common, followed by abdominal actinomycosis.[1] Primary urachus actinomycosis is rarely reported in English literature and is usually mistaken with urachus malignancy.[2] We report one such case of urachal actinomycosis in a young female.

Case Report

A 17-year-old female presented with

abdominal pain of 1 month duration, which was localized to supra pubic region, dull aching associated with poor appetite. There was history of fever and loss of weight.

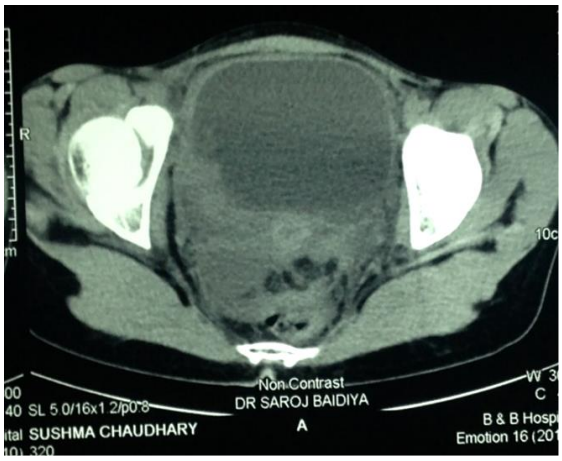

Figure 1: CECT Pelvis showing heterogenous enhancement at the bladder dome

The patient had no remarkable past, familial, or personal history. Per abdominal palpation revealed a 7cm x 7cm firm mass with ill-defined borders in the supraumbilical region. Umbilicus was normal with no discharging sinuses. Fothergil test (the mass is better tangible when the feet were above) was positive. Complete blood count showed a notable white blood cell count of 15,500/cumm. Her other hematologic investigations renal and liver function tests were within normal limits. Urine examination revealed plenty of pus cells and few RBCs but no microorganisms. Urine culture showed no growth of organisms.

Irregular lobulated mass in posterior wall of urinary bladder with minimal vascularity & clumping of omentum was shown in ultrasonography. Computed tomography imaging scans of the pelvis showed plaque like thickening involving superior boarder of urinary bladder predominantly in its middle portion, with maximum thickness measuring upto 13mm, heterogenous enhancement in post contrast study with lobuated inferior portion, and surrounding stranding in the peritoneum and adjacent bowel loops **(Figure 1)**. The Initial impression of whether the diagnosis is urinary bladder tumor or urachal carcinoma or localized abscess or tuberculosis was made. Cystoscopy and bladder biopsy was taken. Cystoscopy revealed extravesical compression of bladder dome, edematous mucosa, no intravesical mass lesion. HPE report of bladder biopsy showed acute and chronic cystitis with no evidence of granulomatous lesion or neoplasia seen. FNAC of the mass showed suppurative inflammatory lesion. The challenges that we were facing was the diagnostic dilemma and the possibility of radical surgery for benign lesion which would increase the morbidity of the patient. We opted for Diagnostic peritoneoscopy which showed dense adhesion between anterior abdominal wall, urinary bladder, omentum and small bowel **(Figure 2)**.

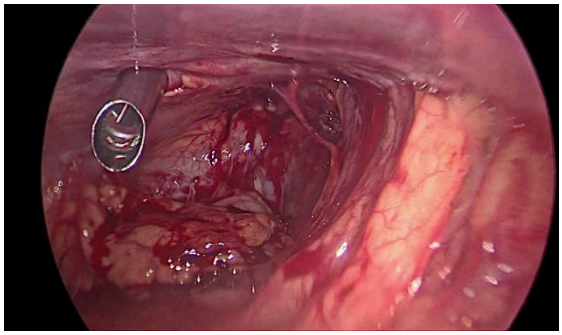

Figure 2: Laparoscopic view of dense adhesions in the abdomen

Pockets of abscess over right side of the pelvis were seen. Presence of possible enlarged urachal remnant Because of the dense adhesions, laparoscopy was not

possible and hence converted to laparotomy. With the idea of infective pathology intraoperatively, adhesiolysis and drainage of pus was made. Biopsy taken from the possible urachus showed remnant of urachus and multiple actinomyceal colonies (Sulphur granules) identified with surrounding suppurative inflammation having branching radiating filaments (sunray appearance) **(Figure 3)**. No evidence of Malignancy.

The patient was started on intravenous penicillin and recovered without complications.

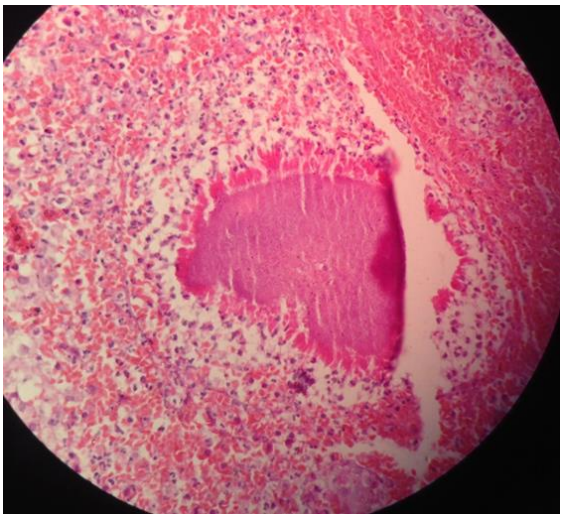

Figure 3: Multiple actinomyceal colonies (Sulphur granules) identified with surrounding suppurative inflammation

Follow Up

After completion of the course of medication, she is asymptomatic 6 months after surgery. A repeat CT scan showed no residual disease.

Discussion

Abdominal-pelvic actinomycosis accounts for 3% of all actinomycotic infections. The most common risk factor includes use of intrauterine contraceptive devices in female, and others include history of bowel surgery such as perforated acute appendicitis, perforated colonic diverticulitis, penetrating trauma to the abdomen, and persistent urachal remnant.[3] Our patient showed one of the risk factors of persistent urachal remnant. *Actinomyces israelii* is a commensal organism within the oral cavity, alimentary tract, and vagina and spreads by direct extension. It produces multiple abscesses, resulting in necrosis and fibrosis.[4] Abdominal actinomycosis has no specific symptoms. It usually presents with a palpable mass, weight loss, and anorexia.[4] Very few cases of actinomycosis of urachal remnants have been reported.[5]

Patients usually have symptoms of lower abdominal pain, palpable hard mass with induration. There are no specific radiological signs to distinguish actinomycotic lesions from malignancy due to its infiltrative nature.[2] Definite diagnosis can be made by demonstration of *Actinomyces israelii* in a needle or surgical biopsy specimen.[6]

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.[7]

We performed only adhesiolysis and drainage of pus in this case and started penicillin therapy, thus, avoided radical surgery. Medical treatment for actinomycosis is antibiotic therapy and the drug of choice is penicillin. Intravenous administration of penicillin should be

given, followed by oral penicillin or amoxicillin.[8] If the patient has penicillin allergy or resistance, ceftriaxone, doxycycline, clindamycin, or fluoroquinolone is recommended.[9]

Conclusion

Literature regarding Primary urachal actinomycosis is very few. It is important to be aware of this rare infectious disease, which is curable with antibiotics, in order to avoid misdiagnosis and over treatment as malignancy.

Conflicts of interest

There are no conflicts of interest

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