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Case Report Open Access

Concomitant Pyogenic Spondylodiscitis with Large Psoas Abcess in Known Case of Tuberculosis Spine; Presenting as Refractory Tuberculosis

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Introduction

Spinal tuberculosis is the commonest form of skeletal tuberculosis and is most dangerous because of involvement of spinal cord. In adults, lower thoracic and upper lumbar vertebrae are common sites of spine involvement with cervical spine being rare. Concomitant bacterial infection is very rare, only few cases of bacterial infection in setting of Tuberculosis spine have been documented in literature [1]. We present a case of tuberculosis spine in a middle aged man with superadded bacterial infection, presenting as refractory tuberculosis [2].

Case Presentation

A 35 year old male, cook by occupation presented with pain lower back and bilateral flanks, with bilateral limb discomfort for about two months not relieved by usual analgesics and bed rest. There was associated hyperalgesia around buttocks, difficulty in walking and patient preferred to remain in bed. The associated features were night cries, night sweats, loss of weight and appetite along with evening rise of temperature. There was no history of cough, hemoptysis, chest discomfort, headache, convulsions, visual disturbances, and bowel bladder disturbances. Patient was smoker, nonalcoholic, non-diabetic, normotensive and negates any history of contact with cattle and with person having tuberculosis.

On examination patient was afebrile with vital signs stable, no lymphadenopathy. There was a knuckle at 12th thoracic vertebra, tender paravertebral area with weakness of hip flexors and knee extensors bilaterally. Deep tendon reflexes were exaggerated with up going plantar response and ankle clonus bilaterally. Sensations were normal on both lower limbs and trunk.

Laboratory investigations were within normal limits with ESR (Erythrocyte Sedimentation Rate) 40 and CRP (Creactive protein) positive 1:4. Radiograph of dorsolumbar spine (Figure 1A) revealed thoracic 11th and 12th vertebral involvement with disc space diminished and paradiscal vertebral involvement, further Magnetic Resonance Imaging (MRI) showed spondylodiscitis at thoracic 11th and 12th vertebral level (Figure 1B).

Patient was put to the bed rest with thoracolumbar sacral orthosis and anti-tubercular medication started. After 2 months patient had improvement in weakness and general condition. Antitubercular treatment continued and after 9 months on treatment, patient again complained of pain back and difficulty in ambulation. Patient was again admitted and investigated with MRI showing improvement of spondylodiscitis, thus patient continued with bed rest and antitubercular treatment as per regimen (Figures 2-4).

After 18 months patient developed pain abdomen, severe jaundice and was febrile for 2 weeks. Patient was admitted with impression of antitubercular drugs induced hepatitis. On evaluation, revealed echogenic foci in right Psoas muscle with altered echo- texture of liver, spleenomegaly and grade 1 portal gastropathy on ultrasonography (USG). Antitubercular therapy was stopped; ascitic tap performed which showed predominant lymphocytes. Adenosine deaminase activity of right sided psoas collection was 82. Liver function test were grossly deranged (bilirubin 12, protein 5.5, albumin 2.8, SGPT 184, SGOT 81). Other investigations were ESR 32, CRP positive, urea 68 and creatinine 1.8. USG, MRI and CT scan revealed chronic liver disease with ascitis and bilateral psoas abcess. USG guided psoas abcess aspiration was done and sent for analysis and culture sensitivity. The reports revealed raised adenosine deaminase levels, negative for MTB PCR (*Mycobacterium tuberculosis* Polymerase Chain Reaction). Patient improved with antibiotics for general bacteria and culture report was no growth of bacteria.

After 6 months patient again developed fever with pain in right sided abdomen. Examination revealed tenderness in spine around knuckle, right hip fixed flexion deformity of 30° and free hip rotations. USG abdomen and MRI spine and pelvis confirmed large septate psoas abscess and spondylodiscitis at 11th and 12th thoracic vertebrae. Again patient was thoroughly evaluated and multidrug resistant tuberculosis (MDR-TB) suspected. With no clinical improvement surgical drainage of abscess with evaluation for MDR TB was planned, ultrasonography, endoscopy and Liver function tests with PT INR (prothrombin time with international standard normalized control) of 17.6/1.33 patient was labeled Child Pugh (score of ascitis) GRADE C, with extreme risk for anesthesia and surgery. USG guided Pig tail catheter was inserted under local anaesthesia and 800 ml purulent pus was drained immediately. Sample was sent for acid fast staining, MDR-TB

Figure 1A: Initial thoracolumbar radiograph.

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Figure 1B: Initial MRI confirming tubercular spondylodiscitis showing paradiscal involvement.

Figure 2: MRI at 9 months showing resolving pathology.

(multidrug resistant tuberculosis) culture, Gram staining and pyogenic culture and sensitivity. Pig tail was kept for couple of days till drainage stopped and patency of catheter was maintained with intermittent flushing.

The results were surprising, negative for AFB, negative for MTB PCR and MDR-TB. Negative mycobacterium culture. Gram staining showed gram positive cocci and culture sensitivity report showing methicilin resistant *staphylococcus aureus*. After culture sensitivity report, patient was put on parenteral antibiotics. Antibiotics were continued for about 6 weeks when patient became symptom free, and discarded thorocolumbar sacral orthosis. Patient returned to previous activity level after 6 months and is symptom free.

Discussion

Tuberculosis of the spine has been documented in 5000-year old Egyptian mummies [3]. The clinical characteristics of spinal Tuberculosis were originally described by Hippocrates [4]. In the 18th century, English physician Percival Pott (1714-1788) described a syndrome of spinal deformity and paraplegia caused by spinal Tuberculosis, hence the eponym *Pott's disease* [5]. Extrapulmonary TB involving the skeletal system is not uncommon. Earlier reports have indicated an incidence of skeletal TB in 8% to 10% of extrapulmonary TB cases [6]. Weight bearing joints involved in extrapulmonary TB are the spine, hip, and knees, in order of decreasing frequency. Involvement of the spine constitutes 60% of bone Tuberculosis. In children, the upper thoracic vertebrae are commonly affected, whereas, in adults, the lower thoracic and upper lumbar vertebrae are more often affected [6].

Pyogenic spondylodiscitis mostly affects lumbar spine involving only one vertebral segment [7] the commonest causative organism being *Staphylococcus aureus*, rest being *Streptococcus*, *Pneumococcal*, *Enterococcus*, *Escherchia coli, Salmonella*, and *Pseudomonas* [8]. Due to high concentration of proteolytic enzymes intrinsic to these virulent organisms disc involvement is early and can be demonstrated in MRI. Presence of poorly defined paravertebral mass, early intervertebral disc involvement and homogeneous enhancement/alteration of signal of affected vertebral body [7].

Intrinsic scarcity of proteolytic enzymes in mycobacterium tuberculosis results in relatively late disc involvement [8]. MRI sequences suspicious of TB show multisegmental subligamentous involvement with well-defined paravertebral mass/abcesses, relatively spared disc at early stages and heterogeneous enhancement alteration of vertebral bodies [7]. Initially our patient responded well to the antitubercular regimen and later due to concomitant pyogenic infection clinical deterioration was seen. Evaluation with focus on resistant tubercular strain confirmed pyogenic infection cause of clinical deterioration of patient. Site and extent of infectious process coincided with the earlier tubercular pathology and appropriate antibiotics showed dramatic clinical improvement. Waxing and waning response to antitubercular therapy was due to underlying flare ups of pyogenic infection.

Psoas abscesses are either as primary abscesses, with source unknown or secondary abscesses, where source can be clearly defined by extension of an infectious process into the psoas compartment like from Tuberculosis of spine [9-12]. Primary psoas abscesses are more common in Asia and Africa and secondary in Europe [10]. Primary abscess is prevalent in drug users and immunocompromised patients [12]. Psoas abscesses are routinely treated by retroperitoneal surgical drainage with trend going towards percutaneous drainage under image guidance [13-17].

Conclusion

Concomitant/superadded pyogenic infection in a case of known /diagnosed case of Tuberculosis should always be kept in mind with waxing and waning response to antitubercular therapy. Suspicion

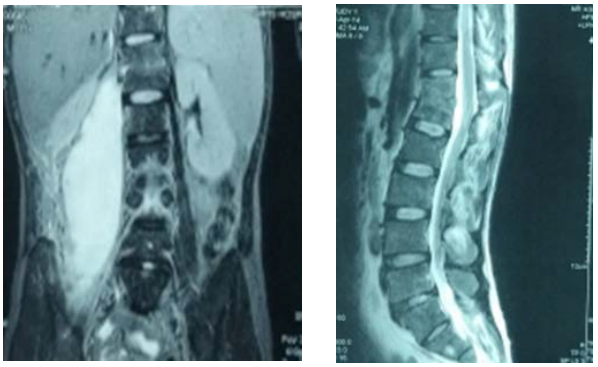

Figure 3: Final MRI showing huge psoas collection with spondylodiscitis.

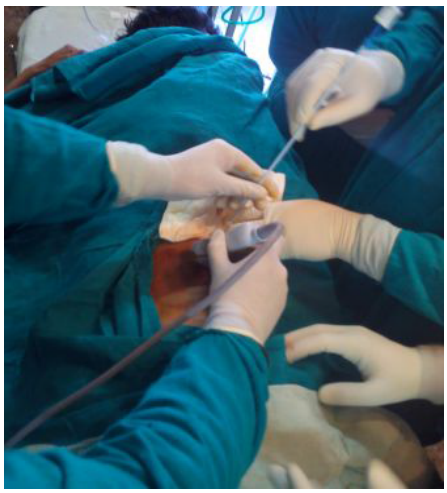

Figure 4: USG guided pigtail catheter insertion.

should be higher in intravenous drug abusers and immunocompromised patients. Minimally invasive percutaneous drainage under image guidance, with use of locally acting anesthetic agent is very effective and reliable method of drainage of large abscesses, extremely beneficial for medically unfit patient anesthesia. Pyogenic infection once diagnosed, should be dealt with appropriate antibiotic as per culture and sensitivity report and it dramatically improves condition of patient.

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