

## Psoas Abscess Secondary To Pott's Spine: A Case Report.

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**Abstract:** Tuberculosis is an ancient disease. Skeletal system involvement is seen in 1%-10% tuberculosis patients. Vertebral tuberculosis is the most common form of bone involvement and amounts for 50% cases of skeletal tuberculosis. About 5% cases of Pott's disease develop psoas abscess. Psoas abscess secondary to Pott's spine is rare entity. Here we are reporting a case of psoas abscess secondary to Pott's spine. A 28 year old female was brought to outpatient department of surgery with complaints of swelling over the left lower back since one month along with back pain and fever since 6-7 months. On local examination, swelling was noticed over the left lumbar and gluteal region, non-tender and soft in consistency. On ultrasound abdomen, a well defined cystic, thick walled lesion was noticed. On CT scan of abdomen and pelvis a well defined hypodense fluid involving the left psoas muscle was observed suggestive of psoas abscess. Under antibiotic coverage, incision and drainage of the abscess was done & sample was sent to microbiology department. On ZN staining, acid fast bacilli were seen. The patient was started on Category 1 of anti-tubercular treatment. Growth on LJ medium was seen after 25-30 days of incubation. By 4 weeks the patient showed improvement in her condition and was discharged.

**Key words:** Anti-tubercular treatment, Pott's disease, Psoas abscess.

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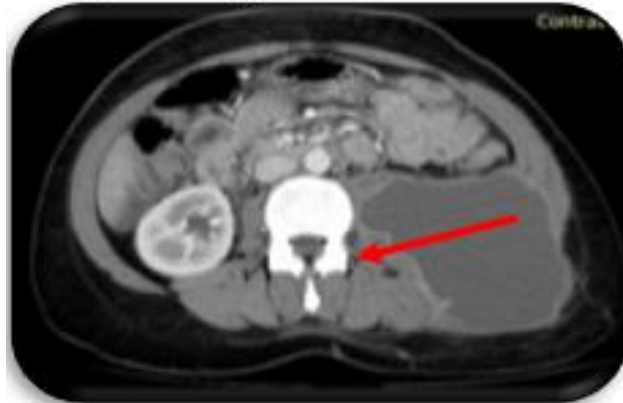
### I. Introduction

Tuberculosis is an ancient disease, India being one of the hardest hit areas<sup>1,2</sup>. Skeletal system involvement is seen in 1%-10% tuberculosis patients, which is considered as the most common extra-pulmonary site in tuberculosis infection<sup>3</sup>. It is also known to contribute to morbid spinal conditions in both developed and developing countries<sup>4</sup>. Vertebral Tuberculosis is the most common form of bone involvement and amounts for 50% cases of skeletal tuberculosis. It was first described by Pott in 1779, and so the term 'Pott's spine' or 'Pott's disease' was coined<sup>4</sup>. About 5% cases of Pott's disease develop psoas abscess, i.e. collection of pus in iliopsoas compartment and was first described by Mynter in 1881. He referred to it as psoitis<sup>3</sup>. An accumulated abscess called abscessus frigidus is formed around the infective focus, which descends alongside the greater psoas muscle in thoraco-lumbar or lumbar region<sup>5</sup>. Before the discovery of modern antituberculosis treatment psoas abscess was a well recognised complication of tuberculosis of the spine. The psoas major muscle arises from the transverse processes of T12 and the five lumbar vertebrae and passes downwards across the pelvic brim and gets inserted on the lesser trochanter of femur bone. It is covered by psoas fascia which is attached to the spine above and to the pelvic brim below. This makes it to lie in direct proximity to the spine and results into extension of vertebral infection to the psoas muscle and fascia. A psoas abscess may destroy parts of psoas muscle but it usually remains confined to the psoas fascia<sup>6</sup>. Psoas abscess secondary to Pott's spine is rare entity. Here we are reporting a case of psoas abscess secondary to Potts spine.

#### 1.1 Case Report

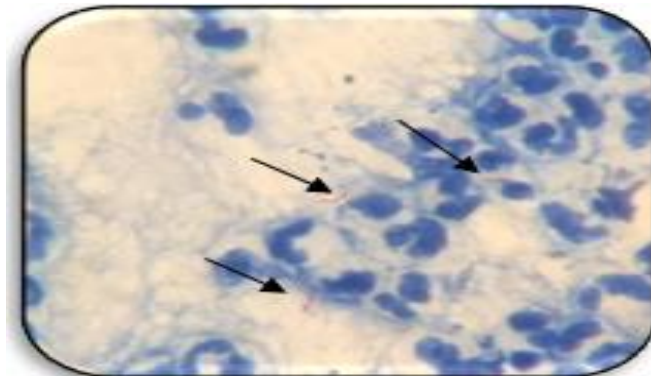
A 28 year old female was brought to outpatient department of surgery with chief complaints of swelling over the left lower back region since one month. Initially the swelling was of smaller size which was gradually increasing in size since a month. Patient also complained of back pain and fever on and off, since 6-7 months. There was no history of trauma. There were no complaints related to respiratory system or gastrointestinal tract. On examination, the general condition of the patient was moderate. She was afebrile. Pulse rate was 90 per minute and blood pressure 110/90 mmHg. Patient was pale and anaemic. On local examination, swelling was noticed over the left lumbar and gluteal region of size approximately 10X8X2 cm. It was non tender and soft in consistency. On complete blood count, hemoglobin level was 9.7 g/dL and white blood cell count was raised (8.2 X 10<sup>3</sup>/μl). Microcytosis with hypochromia were noted. Random blood sugar level was in normal limit. Liver and kidney function tests were normal.

On ultrasound abdomen, a well defined cystic, thick walled, hypoechoic lobulated lesion was noticed, suggestive of left retroperitoneal cystic lesion. The patient was started on broad spectrum antibiotics for pyogenic abscess. A CT scan of abdomen and pelvis was done using intravenous and oral contrast. There was evidence of altered marrow density with bony sclerosis involving D10-D11 vertebral bodies with mild erosion of inferior endplate and body of L1 vertebra. This was associated with reduced disc space between D10 and D11. In soft tissues, a well defined hypodense fluid collection with thin enhancing walls of approximate size 11.8 X 4.2 X 3.7 cm was noted, involving the left psoas muscle, suggestive of psoas abscess (Figure 1). Under antibiotic coverage, incision and drainage of the abscess was done. The drained sample was sent to microbiology department for mycobacterium processing.



**Fig 1:** A well defined hypodense fluid collection involving left psoas muscle s/o Left Psoas abscess.

On ZN staining, acid fast bacilli were seen (Figure 2). The patient was immediately started on anti-tubercular drugs category 1 of RNTCP as soon as the report of ZN stain was received. The category 1 included the drugs Isoniazide, rifampicin, pyrazinamide, ethambutol. The sample was then inoculated on LJ medium and was observed daily for any visible growth. Growth was obtained on 35 day which was confirmed by acid fast staining (Figure 3). By 4 weeks the patient showed improvement in her condition and was discharged.



**Fig 2:** ZN Stain showing Acid Fast bacilli



**Fig 3:** M. tuberculosis growth on LJ medium

## II. Discussion

Tuberculosis has been reported in all bones of the body, the spine being the most common site involved<sup>7</sup>. Vertebral tuberculosis is most frequently seen in first three decades of life and it most commonly affects the lower thoracic and lumbar spine<sup>8</sup>. The earliest and most common presentation in this is chronic back pain, which is highly non specific and may result in delay in diagnosis<sup>8</sup>. A high level of clinical suspicion forms the basis of early diagnosis, since the presentation is subacute and non specific<sup>3</sup>. Delay in diagnosis may result in severe and irreversible sequelae like paraplegia. Such neurological complications are more common in cases with upper and mid-thoracic spine involvement since the spinal canal is narrowest at T3-T10<sup>8</sup>. Psoas abscesses can be divided into two types, primary and secondary, depending on the underlying cause. Primary psoas abscess is usually caused by lymphatic or hematogenous spread from an occult source<sup>4,6,9,10</sup>. It usually occurs in patients with some predisposing conditions like diabetes mellitus, HIV infection, kidney failures and other conditions leading to immunosuppression<sup>6, 11</sup>. The common organisms involved in this type include *Staphylococcus aureus* (88%), followed by *Streptococci* and *Escherichia coli*<sup>4,6,9,10,12</sup>.

Secondary psoas abscess occurs as a result of extension from infective focus in close proximity of the psoas muscle. It most commonly results from two conditions, namely, peritoneal inflammatory process and spinal pathology<sup>6,9</sup>. According to studies conducted, the most common cause of secondary psoas abscess is considered to be Crohn's disease<sup>4,12</sup>. But in developing countries like India, Pott's disease forms the most common cause of secondary psoas abscess, following rupture of thoraco-lumbar abscess<sup>4,6</sup>. The psoas abscess in the present case was of secondary type. Psoas abscess secondary to Pott's spine is rare, insidious in onset and has a non-specific presentation<sup>4</sup>. This was also observed in the present case. These features do not warrant clinical suspicion and lead to delay in diagnosis. The classical triad of fever, flank pain and limitation of hip movements is seen only in 35% cases<sup>4,12</sup>. Progressive back pain for weeks together, with or without associated muscle spasms or rigidity may prompt the clinician to suspect a spinal cause of abscess<sup>4</sup>.

On investigation, complete blood count shows leucocytosis and neutrophilia<sup>6</sup>. The patient in this case also had elevated counts of white blood cells. C-reactive protein and ESR level are often raised. Plain radiographs may show lytic destruction of anterior portion of vertebral body, increased anterior wedging, and enlarged psoas shadow with or without calcification. Fusiform paravertebral shadows may be seen which is suggestive of abscess formation<sup>8</sup>. Underlying ascitis or osteomyelitis may be seen on radiographs in case of chronic lesions. But the disadvantage of radiograph is it cannot differentiate between tuberculous and pyogenic abscesses<sup>4</sup>. Ultrasound abdomen may show hypoechoic lesions in 60% cases<sup>4</sup>. But CT scan is considered as the gold standard investigation<sup>4,12</sup>. Intravenous contrast enhanced spiral CT scan is diagnostic in 91% cases showing hypodense mass in psoas region<sup>4,6,13</sup>. Similar type of findings was noted in the ultrasound and CT scan reports of present case. Also CT-guided biopsy specimens can be obtained for histopathological examination which shows caseous necrosis and granuloma formation<sup>4</sup>.

Some consider MRI to be better than CT scan, since it gives better discrimination of soft tissues and visualises abscess wall and surrounding structures with or without contrast<sup>12</sup>. It gives a more complete evaluation of spinal pathology<sup>4</sup>. MRI can also differentiate between tuberculous and pyogenic abscess. Cold abscess of tuberculosis appear as irregular thick or smooth thin rim enhancement in post-contrast images while pyogenic abscess show diffuse enhancement. It also gives a clear definition of epidural and paravertebral abscesses<sup>2</sup>.

Definitive diagnosis can be done by USG-guided drainage and analysis of pus or CT-guided biopsy for histopathological examination<sup>4</sup>. Acid fast staining of the specimen is usually negative<sup>5</sup>. But in present case the smears prepared from aspirated specimen were positive on acid fast staining. Diagnosis can be based on culture which gives positive results in 50-75% cases<sup>5</sup>. Culture reports were positive in this case. PCR is a rapid and reliable test. It gives results in 6.5 hours. Fine needle aspiration cytology is another simple and safe outpatient procedure for diagnosing osseous tuberculosis and can reduce number of surgeries<sup>7</sup>.

## III. Conclusion

Psoas abscess is clinically difficult to diagnose because of its rarity and nonspecific clinical presentation. Early diagnosis of this condition is very important so that timely intervention can be initiated to reduce the associated morbidity and mortality.

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