

# A young man with spinal tuberculosis: Managed conservatively with Pig tail catheter drainage: Case Reports and Study Protocols

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## Abstract

**Background:** A case report of a young man with spinal tuberculosis: managed conservatively with pigtail catheter drainage. Spinal tuberculosis (TB) is one of the rare form of TB in young patient. This can result in serious complications if left untreated or treated inadequately. A different rehabilitation approach is needed for this spinal condition without which there is a chance of poor prognosis. Our patient, 39 years old man, presented with complaints of upper back pain for 3 month and occasional fever for 1-month. This chronic upper back pain was mild to moderate in nature and shared both mechanical and inflammatory features. Fever was occasional, low grade and evening rise of temperature was present. he had anaemia, tender upper thoracic area and normal neurological findings. He was diagnosed as tubercular spine from history, examination, MRI and biochemical evidence. He was treated with anti TB chemotherapies for 3 years {started on 12/2/20 and completed for 6 month started 2nd course from January 2021 completed course of 18 month} with inadequate response and continued long after further evaluation. managed conservatively with ultrasonographical guided percutaneous drainage of the psoas abscesses with Pig Tail Catheter. Duration of anti TB drugs in extra pulmonary TB is a debate. Medical diagnosis and rehabilitation both are equally necessary for improving quality of life. Early diagnosis, proper drug treatment and customized rehabilitation can give nearly full remedy.

**Keywords:** Pott's disease conservative management; spinal TB rehabilitation

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## INTRODUCTION

Pott disease or Spinal TB is a very dangerous type of skeletal TB. It can be associated with neurologic deficit due to compression of adjacent neural structures and significant spinal deformity. Although spinal tuberculosis affects nearly half of skeletal tuberculosis patients, psoas abscess develops in only 5% of spinal tuberculosis cases.

Two types of psoas abscesses exist, the primary and secondary abscess. Primary abscess is caused by spread of pathogen by haematogenous route. On the other hand, secondary abscess result from a direct extension of an infectious process into psoas muscle. Therefore, early diagnosis, management and complication prevention should be done meticulously.<sup>1</sup>

Pott disease usually presents with chronic back pain which usually involves the lower thoracic and lumbar spine. The infection starts as a discitis and then spreads along the spinal ligaments to involve the adjacent anterior vertebral bodies, causing angulation of the vertebrae may result in kyphosis. Paravertebral and psoas abscess formation is common. CT or MRI is valuable in determining the extent of disease and the amount of cord compression.<sup>2</sup>

## CASE HISTORY

Our patient, 39 years old, Hindu, married, Labourer, normotensive, nondiabetic, non-smoker, right-handed, hailing from Dharamshala, Kangra. presented with complaints of upper back pain for 3-months, occasional fever for 1-months, anorexia for 15 days. This chronic “dull aching” upper back pain is mild to moderate in nature, aggravated on both rest and movements; specially with bending forward, twisting and relieved partially with analgesics. Pain was associated with morning stiffness, lasting for 30–40 minutes and night pain, causing sleep hindrance. Fever was occasional, low grade, associated with evening rise of temperature and night sweat. Patient also complained about anorexia. On query, Patient had taken 2 course of ATT intake, 1<sup>st</sup> 6 month completed course started 12-2-2020. And 2<sup>nd</sup> course completed of 18 month started from January 2023 and gave history of weight loss, but was not documented. Her bowel bladder habit was normal.

There was no history of cough, chest pain, chest tightness, blood mixed sputum, breathlessness, abnormal sensation to limbs, limb weakness, red eye, burning micturition, abdominal pain, recent trauma, malar rash, photosensitivity, oral ulcer, blood loss, heat or cold intolerance, recent traveling to any specific fever endemic zone and promiscuity.

For these she visited to several physicians, took drug management leading to partial response. He was admitted to a tertiary hospital for better management.

He was immunized as per schedule, with Bacillus Calmette-Guerin (BCG) vaccine mark presence over left arm. He had no relevant past medical, hospitalization or transfusion history.

### Clinical findings

On general physical examination, He was anaemic, pulse 88/min, BP 122/82, BMI (body mass index) 20, temperature 98.2°F.

Musculoskeletal system examination revealed mild thoracic kyphosis, with globular swelling over back, tender T6-T8 area, palpable gibbus on previously mentioned area, pain VAS (visual analogue scale) -6/10, active forward bending and rotation were painful but not restricted, cervical spine movement was normal in all direction. No other joint or musculoskeletal problem were found.

Nervous system examination revealed Intact higher psychic function; normal bulk, tone, power of both lower limbs, intact all reflexes, bilaterally flexor planter response; intact all modalities of sensation (pain, touch, temperature, vibration, position) on both side of body.

Respiratory system, cardiovascular system, gastrointestinal system examination revealed no abnormality.

### 1. 3. Investigation

Patient came with some previous lab findings of Dec 29, 2022. We repeated some, and added some more investigations on basis of previous findings. Table 1 expressed higher ESR, CRP with Anaemia. Figure 1 was his Xray chest.

**Table 1: Investigation findings.**

	29-12-2022	4-1-2023
Hemoglobin (g/dl)	9.3	9.0
ESR (at 1 hour)	40	62
Rbc count (million/mm <sup>3</sup> )	39	
Wbc count (/mm <sup>3</sup> )	7000	8500
Mcv (fl)	85.5	80.6
Mch (pg)	26.3	25.2
SGPT (u/l)	8	8
CRP (mg/l)	2.4	9.6
S.Creatinine (mg/dl)	0.53	0.9
RBS (mmol/l)	90	90
USG of whole abdomen	110cc collection on rt side of paraspinal region in lower back	
Pus c/s	E.coli	No aerobic growth
Gram stain/Zn stain	Not Detected	
Sputum AFB	Negative	
CBNAAT	Not Detected	
Pus smear		Necrotic debris along with scattered neutrophils and lymphocytes
PUS adenosine Deaminase	188	

CRP = C reactive protein, ESR = erythrocyte sedimentation rate, MCH = mean corpuscular haemoglobin, MCV = mean corpuscular volume, RBC = red blood cell, RBS = random blood sugar, , USG = ultrasonogram, WBC = white blood cell.

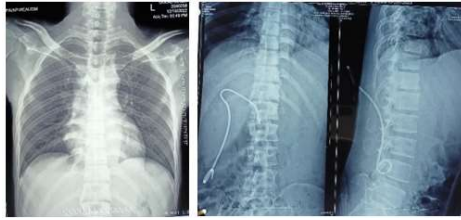


Figure 1

Figure 2

Xray chest P/A view. There was suspicious narrowing of D6–8 area. No abnormality was noted in lung field., X ray L-S Spine show Pig Tail Catheter in situ.



Figure 3

Ultrasonography-guided aspiration was undertaken on left sides using pigtail catheters and the drains were kept in situ. MRI of dorsal spine with screening of whole spine with contrast report summary was suggestive of Pott disease involving D7-L1 vertebrae; with pre, para vertebral right side psoas abscess. On post contrast lesion showed heterogenous and marginal enhancement (Figs. 2, 3).



Figure 4

MRI screening of whole spine, T2 weighted sagittal view. e/o degenerative changes in the form of bridging osteophytes at D11-D12 level. patchy sclerosis seen at D7-L1 Vertebrae.

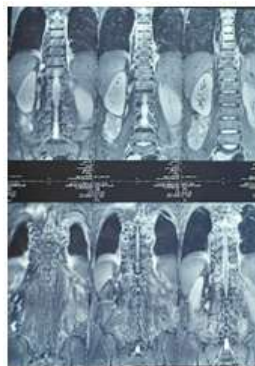


Figure 5

MRI of Dorsal Lumbar spine, T1 weighted sagittal view. Show hypodense area in paravertebral location ? collection.

### Clinical diagnosis

Tubercular spondylodiscitis (Pott disease) at D7-L1 with anaemia.

### Management

Patient is Known case Of Tubercular spine for which he had taken 2 course of ATT intake , 1<sup>st</sup> 6 month completed course started 12-2-2020. And 2<sup>nd</sup> course completed of 18 month started from January 2023.now patient present with psoas abscess that managed conservatively with Ultrasonography-guided aspiration was undertaken on left sides using pigtail catheters and the drains were kept in situ. Thick white pus was drained (150 mL on the left side). Staining of the pus and culture for acid-fast bacilli was negative. Routine bacterial culture was show Ecoli. The patient was immobilized and continued on anti-tubercular therapy and Intravenous antibiotics ceftriaxone were also started according to Bacterial culture sensitivity. An external lumbar brace was provided to facilitate ambulation. At discharge on day 20, the patient was afebrile, and had no neurological deficit and patient to be review after 1 week.

### DISCUSSION

Among extra pulmonary tb, spine tb is a condition which may lead a person with paraparesis or paraplegia and their consequences. Usually, it is more predominant among male. Also, older age, immunosuppressed person have probability to suffer more. Majority time it affect the lower thoracic and upper lumbar region.<sup>5,6</sup> In contrast, our patient was a young healthy female, without any known co morbidity. Nevertheless he received BCG vaccine, had no history of direct contact with known TB patient. More over during the COVID era all were confined at home, so minimum chances to be exposed in front of random TB patients.

Patients with a milder form of the disease with minimal symptoms and without any neurological deficits recover well with conventional medical treatment. The patients with more severe disease of spinal TB in the form of severe disability, gross neurological deficits, spinal deformities, and autonomic involvement needs surgical debridement and fusion procedures in addition to conventional anti TB treatment.<sup>7</sup>

Despite its high frequency of long-term morbidity, there are no straightforward guidelines for the diagnosis and treatment of spinal tuberculosis.<sup>[5]</sup> The duration (6, 9, 12, or 18 months) and frequency (daily vs alternate-day regimen) of administration of drugs have been controversial.<sup>8</sup> WHO recommends 6 months of multidrug

antitubercular therapy, including 2 months of 4- or 5-drug treatment (isoniazid, rifampicin, pyrazinamide, ethambutol, and/ or streptomycin) constituting the initiation phase, followed by 4 months of continuation phase therapy with a 2-drug regimen including isoniazid and rifampicin.<sup>9</sup> The American Thoracic Spine Society recommends a regimen involving 9 months of treatment with the same drugs (continuation phase extending for a period of 7 months). The Canadian Thoracic Society recommends treatment for 9 to 12 months duration.<sup>1</sup>

Regarding rehabilitation, we had some specific plans for our patient. Complete bed rest is advised in most of case in spine TB with variable duration.<sup>12,13</sup> Those who are diagnosed and treated early are kept in bed only until pain and systemic symptoms subside, and thereafter are allowed restricted activity until the joint changes resolve (usually 6 months to a year).<sup>11</sup> So we addressed the future probable consequence of prolong bed rest and gave plans to avoid such conditions.

Protection of spine and cord was one of the major issues. So our patient was treated with orthosis. A customized Taylor brace was prepared. The thoracic spine can be divided into upper (T1–4), middle (T5–8), and lower (T9–11) segments. Taylor brace is a flexion-extension and partial rotation control orthosis. This brace limits the trunk extension, primarily in the mid-to-lower thoracic and upper lumbar areas with a compensatory increase in motion at the upper thoracic, lower lumbar, and lumbosacral junction.

ADL modifications, living environmental changes and home modification strategies were also suggested. To prevent unwanted musculoskeletal changes judicious therapeutic exercises were prescribed.

## CONCLUSIONS

Spine TB can lead to long term co morbidities and cause hindrance in personal, familial and social life. A proper anti TB drug guideline for such extrapulmonary TB is necessary. Well-designed rehabilitation strategies are also necessary to combat the potential adverse consequences. We had an endeavor to collaborate these management options.

### Author contributions

Conceptualization, data curation, investigation, writing original draft, writing review and editing done by Dr Anuj kumar.

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