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## Case Report

# A follow-up case of relapsing tuberculous spondylodiscitis, complicated with soft-tissues abscess and percutaneous fistula <sup>☆</sup>

Serbeze Kabashi-Mučaj, MD, PhD<sup>a,b</sup>, Sefedin Mučaj, MD, PhD<sup>c,\*</sup>, Xhavid Gashi, MD<sup>d</sup>, Kreshnike Dedushi-Hoti, MD, PhD<sup>a,b</sup>, Jeton Shatri, MD, PhD<sup>b</sup>, Dardan Dreshaj, MD<sup>e</sup>, Flaka Pasha, MD<sup>b,f</sup>

<sup>a</sup>Department of Radiology, University of Prishtina “Hasan Prishtina”, Prishtine, Republic of Kosovo

<sup>b</sup>Clinic of Radiology, University Clinical Center of Kosovo, Prishtine, Republic of Kosovo

<sup>c</sup>National Institute of Public Health Str. Bulevardi i Dëshmorëve, nn 10000, Prishtine, Republic of Kosovo

<sup>d</sup>Department of Spinal Surgery, Clinic of Orthopedics, University Clinical Center of Kosovo, Prishtine, Republic of Kosovo

<sup>e</sup>Head and Neck Surgery Clinic, University Clinical Center of Kosovo, Prishtine, Republic of Kosovo

<sup>f</sup>Department of Pharmacology and Toxicology and Clinical Pharmacology, University of Prishtina “Hasan Prishtina”, Prishtine, Republic of Kosovo

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## ABSTRACT

Spinal tuberculosis (Pott's disease) is a frequent manifestation of Mycobacterium tuberculosis infection. It manifests as destruction of 2 or more adjacent vertebral bodies followed with destruction of the intervertebral disc, leading to a condition known as spondylodiscitis. Tuberculous spondylodiscitis represents with back pain, fever, joint stiffness, loss of spinal mobility, neurological symptoms, vertebral body collapse, gibbus formation and kyphosis. Persistent Pott's disease might lead to soft tissues abscesses, frequently involving iliopsoas muscle.

We, herein, present a 20 years long follow-up case of a Pott's disease patient. The patient got diagnosed as tuberculous spondylodiscitis, almost 10 years after first symptoms onset. She underwent frequent computed tomography and magnetic resonance scanning, with spinal spondylodiscitis being its only significant finding, while lung parenchyma and other organs were not infected. Patient got treated with multidrug anti-tubercular regimen for 18 months in 2 different periods of time; nonetheless she complicated with iliopsoas muscle abscess and percutaneous fistula.

Early diagnosis and treatment of spinal tuberculosis (TB) are of great importance in ensuring a good clinical outcome. Delaying the diagnosis and proper management can lead to spinal cord compression, deformity and irreversible neurological complications. Thus, mul-

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\* Corresponding author. S. Mučaj: Boulevard "Deshmoret e Kombit" nn. 10000, Prishtine, Kosovo  
E-mail address: [sefedin.mucaj@uni-pr.edu](mailto:sefedin.mucaj@uni-pr.edu) (S. Mučaj).

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tidrug anti-tubercular therapy must be started timely and the duration of anti-tubercular therapy needs to be individualized. The decision to terminate anti-tubercular therapy should be based on clinical, radiological, pathological and microbiological indices, rather than being based on specific guidelines.

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## Introduction

Spinal tuberculosis (TB), also known as Pott's disease, is a frequent manifestation of Mycobacterium TB infection. Extrapulmonary TB incidence is continuously increasing as a consequence of higher immigration rates, intravenous drug abuse, healthcare-associated infections, spinal surgeries, increase of immunosuppressed patients and ageing of population. Pott's disease has a bimodal age of distribution, with its peaks at 20-years-old and in 50-70 years-old groups.

Spinal TB manifests as destruction of 2 or more adjacent vertebral bodies, beginning in their metaphysis, involving their opposing end plates, and following with destruction of the intervertebral disc, thus leading to a condition known as spondylodiscitis. Preferentially, spondylodiscitis affects the lumbar spine on 58% of the cases, followed by thoracic and cervical spine in decreasing frequency. When the spinal TB infections persists and relapses, tuberculous abscesses may form in soft tissues, commonly involving iliopsoas muscle, or spreading posteriorly into the spinal canal, thus forming epidural abscesses with mayor risk of paraplegia, subdural abscess and meningitis [1,2].

The main clinical features of tuberculous spondylodiscitis are back pain, fever, joint stiffness, loss of spinal mobility, gradually progressing to neurologic symptoms like paraplegia, vertebral body collapse, gibbus formation and kyphosis [1–4].

Therefore, early and accurate diagnosing of tuberculous spondylodiscitis is essential for its proper management, and encountering fewer side effects. MRI remains the golden standard for diagnosing specific spondylodiscitis, depicting anterior corner vertebral destruction, involvement of multiple vertebral bodies, sub-ligamentous spread of infection to 3 or more vertebral levels, a well-defined pre-spinal signal voids on T2WT in the presence of pre-spinal or intra-osseous abscess, a thin and smooth abscess wall, hyperintense signal on T2-weighted images, and to a lesser extent bone marrow edema [5–7].

We, herein, present a 20 years long follow-up, of a patient diagnosed with Pott's disease. The patient, a 49-years-old female, got accurately diagnosed with tuberculous spondylodiscitis almost 10 years after first symptoms onset. The patient underwent frequent computed tomography and magnetic resonance scanning, with spinal spondylodiscitis being its only clinically significant finding, while lung parenchyma and other organs were not affected by the TB infection. Patient got treated with multidrug anti-tubercular regimen for 18 months in 2 different periods of time; nonetheless spinal spondylodiscitis complicated with bilateral iliopsoas muscle abscess that ended-up with percutaneous fistula.

## Case presentation

The patient initially presented at the general practitioner with severe back pain. A lumbosacral spine radiography and myelogram were performed, suggesting of L3/L4 intervertebral disc protrusion. Myelogram had normal findings (Fig. 1).

The patient had continuously relapsing back pain, which got treated with non-steroid, steroid and opioid painkillers. Yet, the disease aggravated on 2009 with severe back pain, limited mobility, fever and muscle aches. At that time, there were no MRI machines in Kosovo, so a pelvis and lumbar spine MSCT was timely performed, depicting an ankylosing spondylodiscitis on L3/L4 vertebrae, and an oval mass of 88×56 mm, predominantly measuring pus values based on Hounsfield scale, distributed along right iliopsoas muscle, causing L3/L4 vertebral and intervertebral disc destruction. There were also bilateral massive ovarian cysts, measuring 42 mm on the right, and 43.11×21.4 mm in the left side (Figs. 2 & 3). All these findings were suggestive of a potential tubercular infection, so the patient was referred for Gold TB test, and resulted positive.

The patient started anti-tubercular drugs as Streptomycin 10mg/mL, Isoniazid 300 mg, Rifampin 600 mg, Pyrazinamid 2000 mg, and Ethambutol 1200 mg for 6 months as initial phase treatment, followed with Isoniazid and Rifampin for 1 more year. Patient's clinical state improved.

Nonetheless, patient's disease relapsed on late 2020 again, presenting with fever, malaise, severe back pain and inflamed back lump. A lumbosacral and pelvis MRI was performed, portraying hypointense lesions on T1 and hyperintense lesions in T2 and STIR, on L3/L4 and L5/S1 vertebral levels, suggesting of bilateral iliopsoas muscle abscesses, measuring 51×26 mm, respectively 31 mm (Fig. 5).

Patient was redirected for TB testing, where the PPD measured 8 mm+, and quantiferon TB gold test was negative this time.

Yet, the patient started having inflamed back lumps, where orthopedic surgeon and infectologist prescribed wide spectrum antibiotics as Clindamycin 300 mg, Ceftriaxon 2 g and Vancomycin 500 mg for almost 3 months, followed with another 18 month cycle of multidrug anti-tubercular treatment regimen. Erythrocyte sedimentation rate varied from 95–113mm/h and C-reactive protein was 35–53.7mg/L.

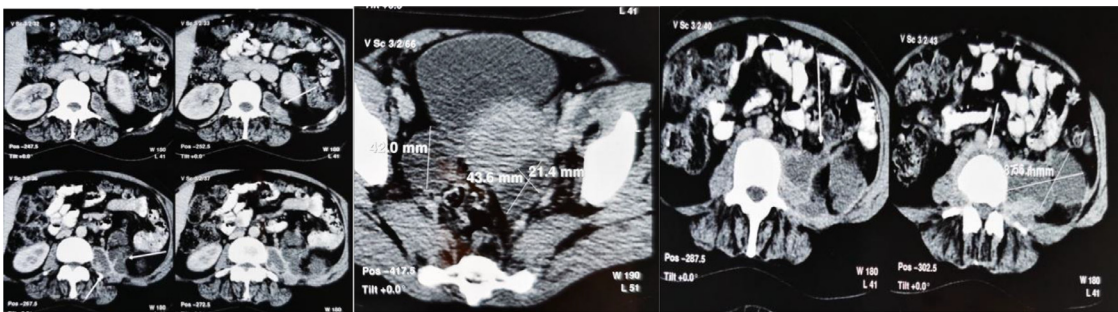
Straight after completing the treatment with antibiotics, patient's soft tissue abscess complicated with percutaneous fistula, which was documented with MRI as a hyperintense 50×38 mm mass on T2 and STIR, on L4/L5 level, which had a connecting fistula with right gluteus muscle that created a subcutaneous pool mass of 38×18 mm and numerous reactive inguinal lymph nodes (Fig. 6).



**Fig. 1 – Lumbar and sacral radiography, left and right myelogram of the patient (1999)**



**Fig. 2 – Coronal, sagittal and axial images showing ankylosing spondylitis on L3/L4 level (2009)**

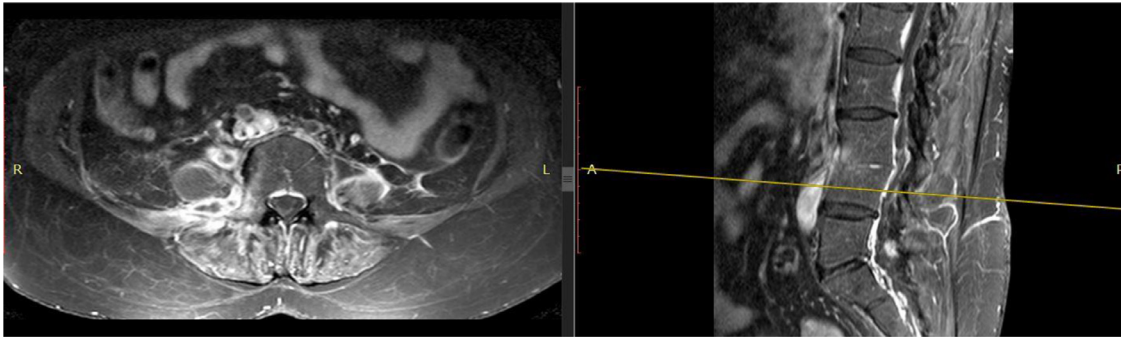


**Fig. 3 – Axial images showing iliopsoas muscle abscess, massive ovarian cysts and left adnexitis (2009) In addition, the patient underwent chest radiography and MSCT, both had normal findings (Fig. 4)**

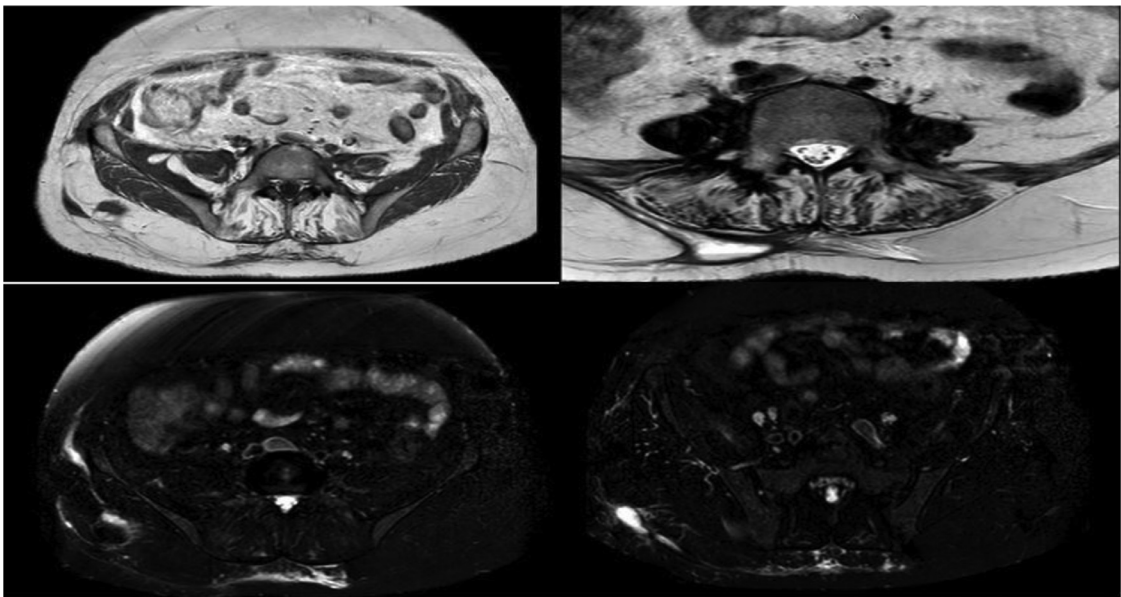


**Fig. 4 – Chest radiography and axial and coronal MSCT images representing normal lung findings (2009)**





**Fig. 5 – Axial and sagittal MRI images showing bilateral iliopsoas muscle abscesses (2020)**



**Fig. 6 – Axial T2W and T2 Spair axial images, showing right iliopsoas muscle abscess, fistula and subcutaneous puss pool (2021) The patient required surgical debridement and closure of the fistula, and right after it, the clinical state improved and remains stable to date (Fig. 7)**

In conclusion, patient had 2 severe relapsing Pott's disease attacks, exactly repeated on a 10 year interval. Such patients must carefully be monitored and treated on regards to their clinical and blood inflammatory parameters and carefully discontinue their anti-tubercular regimen only when the patient is totally healed.

## Discussion

Spinal TB is a frequent and serious infection. The diagnosis of spinal TB is made according to clinical, biological, and imaging features, where patients mostly have increased inflammatory markers, such as elevated C-reactive protein levels and erythrocyte sedimentation rate [8–10].

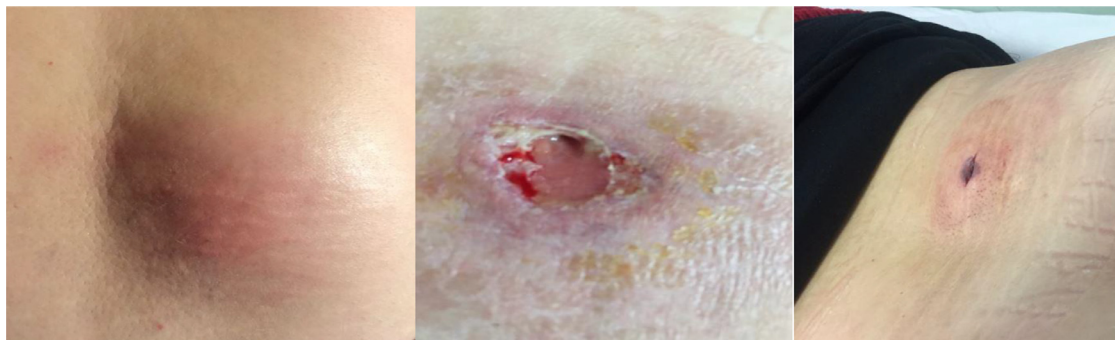
Early diagnosis and treatment of spinal TB are of utmost importance in ensuring a good outcome. Delaying the diagnosis and proper management can lead to spinal cord com-

pression, deformity and irreversible neurological complications [4].

Thus, multidrug anti-tubercular therapy must be started timely, including 2 months of 4- or 5-drug treatment (isoniazid, rifampicin, pyrazinamide, ethambutol, and/or streptomycin), followed by 4 months of "continuation" phase therapy with a 2-drug regimen including isoniazid and rifampicin, as WHO recommends. Or when there is resistance or poor tolerance to first-line medications, second-line anti-tubercular drugs such as kanamycin, capreomycin, pyrazinamide, amikacin are indicated [11].

The duration of anti-tubercular therapy needs to be individualized, and the decision to terminate therapy should be multifactorial based on clinical, radiological, pathological and microbiological indices, rather than being based on a particular guidelines [12,13].

In addition, it is essential to classify spinal TB as complicated or uncomplicated, since uncomplicated spinal TB is essentially treated with anti-tubercular drugs; while compli-



**Fig. 7 – Inflamed back lump, percutaneous fistula, surgical debridement on L3/L4 spine level (2021)**

cated spinal TB need surgical intervention, including drainage of the abscess, debridement of infected tissues, stabilization of vertebrae and deformity correction [14].

The disease prognosis depends based on the junctional vertebral levels, pan-vertebral involvement, long duration and rapidity of progression of neurodeficits, compression at spinal cord, presence of spinal cord changes, patients' compliance to chemotherapy, drug resistance and other patient-related factors such socio-economic factors, their general health and nourishment status [15,16].

Yet, vaccination remains a mainstay of long-term policies to combat and control tuberculosis followed by early diagnosis and effective treatment as other essential long-term strategies for controlling the TB infection.

### Ethics approval and consent to participate

Oral and signed consent was obtained from patients concerned. The study was conducted anonymously.

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