

Thoracic Spine Decompression and Posterior Stabilization of Pott's Disease with Paraparesis in a Resource-Limited Setting

Leonard C. Singjie¹⁾, Aryandhito W. Nugroho^{1,2,3)}

Pott's disease constitutes around half of the extrapulmonary skeletal tuberculosis^{1,2)}. According to the 2020 WHO Global Tuberculosis Report, extrapulmonary tuberculosis constitutes 16% of 7.1 million tuberculosis cases globally³⁾. Indonesia contributed 8.5% of global tuberculosis burden. The exact number of national extrapulmonary tuberculosis cases remains unclear.

Fusiform paravertebral cold abscess and kyphotic deformity resulting from progressive vertebral body destruction are common findings in Pott's disease, leading to paraparesis due to the spinal cord, nerve roots, and nerves compression^{4,5)}. Early management to prevent further morbidity might not be attainable in resource-limited areas³⁾.

A 44-years-old male presented with gradual weakness of the lower extremities since three months ago. He started to experience progressive middle back pain six months prior to presentation, followed by urinary and fecal incontinence. No history of trauma, weight loss, persistent cough, nor fever were reported. On examination, gibbus deformity was identified at thoracic level, along with weakness of both lower extremities (1/5), increased motor reflexes, and loss of deep sensation below the level T8. Significant laboratory results were elevated erythrocyte sedimentation rate of 54 mm/hour, other examinations were nonexistent.

Plain radiography showed destruction of T8-T9 vertebral bodies and intervertebral discs, focal erosions in T5- T7, and T10 vertebral bodies. Cobb's angle measured between the upper border of T4 and the lower border of T11 was 42° (Figure 1). Computed tomography scan revealed anterior T5-T11 paravertebral soft-tissue mass and various types of bone destruction, suggestive of Pott's disease. Magnetic resonance imaging was unavailable.

The working diagnosis of T8-T9 tuberculous spondylitis was deduced. Although enrolled in the national healthcare insurance system, enabling off-island referral to a more comprehensive facility, the patient's socioeconomic predisposition averted the option. Following a thorough explanation to the patient and his relatives, surgery was performed in the current facility.

Since neither portable fluoroscopy was available, preoperative surgical landmarks was pin-pointed by placing four 1.5" 22-gauge needles — each at T7-T10 vertebrae — via plain thoracic radiograph. To our knowledge, no previous studies have reported similar practice of preoperative needle placement as surgical landmarks.

As the first-ever decompression and posterior stabilization for Pott's disease with paraparesis in North Maluku, this case was done by free-hand technique for pedicle screw placement⁶⁾. This procedure was selected due to shorter operative time, reduced bleeding, and the absence of equipment necessary to approach the deformity anteriorly⁷⁾.

A postoperative day one plain radiography displayed reduced degree of kyphogenesis (Cobb's angle of 27.9°) and appropriate implant placement (Figure 1). Histopathological result was unattainable due to a technical issue. The patient was placed on the tuberculosis chemotherapy (isoniazid, rifampicin, pyrazinamide, and ethambutol) and discharged two weeks post-surgery with complete resolution of back pain

and autonomic function, motor strength improvements (4/5) and partial relief of the deep sensation sensory loss.

It is the authors' expectation that this could provide a real-world example for clinicians managing Pott's disease in resource-limited areas. Sagacious clinical judgment, in addition to vigilant efforts by optimizing any available tools, must be continuously applied to ensure safe management and good clinical outcome for these patients.

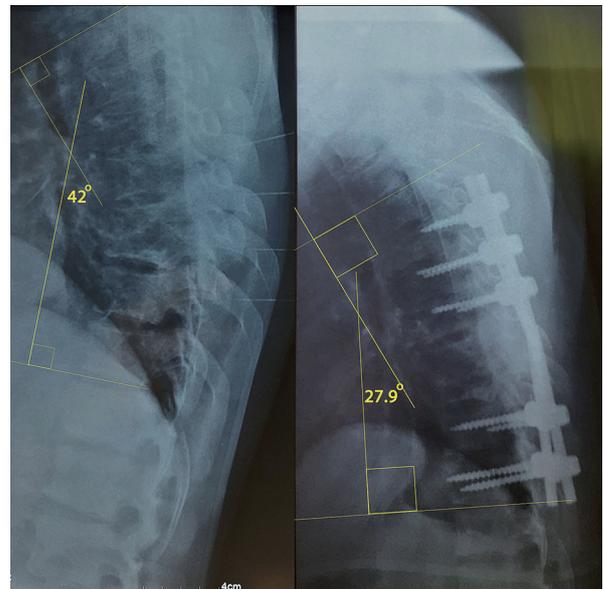


Figure 1: (Left) Lateral thoracic vertebrae plain radiography showed kyphotic deformity (Cobb's angle of 42°) due to T8-9 anterior vertebral bodies and intervertebral disc destruction. (Right) After decompression and posterior stabilization, Cobb's angle was significantly reduced (27.9°).

Received on November 12, 2021 and accepted on December 3, 2021

1) Chasan Boesoerie General Hospital
North Maluku, Indonesia

2) Department of Surgery, Faculty of Medicine, Khairun University
Indonesia

3) Department of Neurosurgery, Faculty of Medicine, University of Indonesia
Indonesia

Correspondence to: Aryandhito Widhi Nugroho
(e-mail: aryandhitowidhinugroho@gmail.com)

CONFLICTING INTEREST

nil

INFORMED CONSENT

obtained

REFERENCES

1. Rajasekaran S, Soundararajan DCR, Shetty AP, Kanna RM. Spinal Tuberculosis:

Current Concepts. *Glob Spine J*. 2018 Dec; 8(4 Suppl): 96S-108S.

2. Kulchavenya E. Extrapulmonary tuberculosis: are statistical reports accurate? *Ther Adv Infect Dis*. 2014 Apr; 2(2): 61-70.
 3. Chakaya J, Khan M, Ntoumi F, Aklillu E, Fatima R, Mwaba P, *et al*. Global Tuberculosis Report 2020 Reflections on the Global TB burden, treatment and prevention efforts. *Int J Infect Dis [Internet]*. 2021 Mar 11 [cited 2021 Sep 14]; 0(0). Available from: [https://www.ijidonline.com/article/S1201-9712\(21\)00193-4/fulltext](https://www.ijidonline.com/article/S1201-9712(21)00193-4/fulltext)
 4. Agrawal V, Patgaonkar P, Nagariya S. Tuberculosis of spine. *J Craniovertebral Junction Spine*. 2010; 1(2): 74.
 5. Garg RK, Somvanshi DS. Spinal tuberculosis: A review. *J Spinal Cord Med*. 2011 Sep; 34(5): 440-54.
 6. Rajan VV, Murugan C. Is free hand a safe technique for thoracic pedicle screw insertion? A CT based randomised study. *J Orthop*. 2019 Feb 28; 16(3): 187-90.
 7. Wu W, Li Z, Wang S, Zhang H, Lin R, Lin J. One-Stage Surgical Treatment for Consecutive Multisegment Thoracic Spinal Tuberculosis with Kyphosis by Posterior-Only Debridement, Interbody Fusion, and Instrumentation. *World Neurosurg*. 2019 Aug 1; 128: e238-44.
-