

CASE REPORT

Paraspinal abscess secondary to tuberculous spondylitis diagnosed by Xpert MTB/RIF assay in rural Tanzania

Jerry Joseph Hella,¹ Hellen Charles Hiza,¹ Elirehema Mfinanga,¹ Klaus Reither^{1,2}

¹Ifakara Health Institute, Bagamoyo, United Republic of Tanzania

²Swiss Tropical and Public Health Institute (Swiss TPH), Basel, Switzerland

Correspondence to

Dr Klaus Reither, Klaus.Reither@unibas.ch

SUMMARY

A 31-year-old HIV-negative man presented to our clinic with a 6-month history of back pain and a swelling at the back. Radiological studies revealed lumbar vertebral destruction. Ultrasound of the mass showed a septated cystic mass with turbid fluid. Diagnostic aspiration revealed thick pus and smear microscopy detected acid-fast bacilli. Xpert MTB/RIF assay detected *Mycobacterium tuberculosis* with no rifampicin resistance.

BACKGROUND

Tuberculous spondylitis (Pott's disease) is the most common manifestation of musculoskeletal tuberculosis (TB). At rural health facilities in high-burden countries, the diagnosis of spinal TB is usually based on clinical and radiological findings. Novel automated nucleic acid amplification tests such as Xpert MTB/RIF (Cepheid, Sunnyvale, CA, USA) can help to confirm the diagnosis of tuberculous spondylitis without further delay and detect mutations associated with rifampicin resistance. Direct detection of *Mycobacterium tuberculosis* by Xpert MTB/RIF assay in a paraspinal abscess of a patient with tuberculous spondylitis has, to our knowledge, not yet been reported from rural Sub-Saharan Africa.

CASE PRESENTATION

A 31-year-old man reported a 6-month history of back pain and a swelling in the thoracolumbar region. Other symptoms included fever, night sweat, loss of weight and generalised body weakness. No respiratory symptoms were reported. He had no history of prior TB treatment. Upon examination, we saw an anguished patient in poor general condition. He was tachypnoeic with a respiratory rate of 28 breaths/min, while other vital signs were within normal limits. His body mass index was 17.2 kg/m². He had soft, matted, non-tender bilateral axillary and inguinal lymphadenopathies, the largest measuring about 1 cm in diameter. He presented with a gibbus deformity and an obvious fluctuant swelling at the back from the lower thoracic region to the mid-lumbar region measuring 20 cm×11 cm. The swelling was tender and non-pulsatile. Further systemic examination was unremarkable.

INVESTIGATIONS

The patient tested negative for HIV by both rapid tests SD Bioline HIV 1/2 3.0 (Standard Diagnostics Inc) and Determine HIV-1/2 (Alere Medical Co,

Ltd). The patient could not produce any sputum sample. x-Rays of the spinal column showed a soft tissue mass at the back, kyphosis of the lumbar spine with destruction of the inferior end plate of L2 vertebra, wedge deformity of lumbar vertebra L3, complete destruction of intervertebral disc between L2 and L3, and fracture of the anterior surface of the body of L4 vertebra (figures 1 and 2). Chest x-rays revealed small alveolar type of infiltrates at the right upper lobe suggestive of pulmonary TB (figure 3).

Ultrasound of the thoracolumbar swelling showed a septated cystic mass with turbid fluid without visible connection to the spinal cord. The smear microscopy of a fine-needle aspirate taken from the cystic mass revealed acid-fast bacilli while culturing in liquid media was contaminated. Xpert MTB/RIF assay detected *M tuberculosis* complex and no rifampicin resistance strain. Thanks to an easy procedure and the use of Xpert MTB/RIF assay, we could establish the diagnosis of tuberculous spondylitis (Pott's disease) with secondary paraspinal abscess and suspected pulmonary TB.



Figure 1 A lateral chest x-ray showing a soft tissue mass at the back and kyphosis of the lumbar spine.

To cite: Hella JJ, Hiza HC, Mfinanga E, et al. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2013-009156



Figure 2 Lateral lumbar spine x-ray showing destruction of the inferior end plate of L2 vertebra, wedge deformity of lumbar vertebra L3, complete destruction of intervertebral disc between L2 and L3 and fracture of the anterior surface of the body of L4 vertebra.



Figure 3 Posterior–anterior chest x-ray showing small alveolar type of infiltrates in the right upper lobe.

OUTCOME AND FOLLOW-UP

We initiated the admission process for the patient to start standard antituberculosis treatment (rifampicin, isoniazid, pyrazinamide and ethambutol) at Bagamoyo District Hospital, Tanzania. The patient, however, refused admission despite counselling. Instead, he was seeking help from a traditional healer without relief from the ailment. Four weeks later, he was seen at the hospital again in even poorer condition. This time he was admitted but passed away after 5 days of TB treatment in the ward.

DISCUSSION

Extrapulmonary tuberculosis (EPTB) accounts for 15–20% of TB cases.^{1 2} Nearly 1–2% of these cases have skeletal system involvement.³ Tuberculous spondylitis is the most common form of musculoskeletal tuberculosis.⁴ Diagnosis of TB should be confirmed by demonstration of tubercle bacilli in a particular lesion. Our report demonstrates that *M tuberculosis* from a paraspinal abscess in a patient with tuberculous spondylitis can be detected by smear microscopy and confirmed by Xpert MTB/RIF in a rural setting in a timely manner. Fatal outcome of our patient also highlights the need for a rapid diagnosis and treatment in a patient with TB. The Xpert MTB/RIF assay offers a potential solution for improving TB diagnosis especially in peripheral laboratories and clinics.^{5 6} The test has been endorsed by WHO on 8 December 2010 as it is not prone to cross contamination and requires only basic biosafety laboratory.^{5–8} Diagnosis can be made in less than 2 h, with knowledge of sensitivity to rifampicin which has treatment implications if found resistant.^{6 9} In regards to EPTB, studies have found the sensitivity of Xpert MTB/RIF to be between 80.4% and 81.3% whereas specificity was between 86.1% and 99.8%.^{1 10–12}

The cornerstone to fighting TB is early diagnosis and proper treatment.^{9 13} When it comes to EPTB, this can be a challenge to rural settings due to lack of rapid and accurate diagnostic tools.^{14–16} But even though fast and reliable diagnostics are on hand—as in the presented case—lack of awareness and knowledge about the illness and treatment options often pose a larger challenge. Many more lives could be saved in the fight against TB, if members of rural communities trusted modern biomedical medicine more than traditional healers and other non-specialised individuals.

Learning points

- ▶ Xpert MTB/RIF assay offers a potential solution for improving diagnosis of extrapulmonary TB in rural settings.
- ▶ Early management of extrapulmonary TB is vital for ensuring survival.
- ▶ Extrapulmonary TB can be fatal even to a HIV-negative individual.
- ▶ Health education seems critical to create understanding for biomedical management of TB in rural settings.

Contributors EM and JJH were responsible for the patient care. HCH did the laboratory testing. KR did the X-ray interpretation and is overall in charge of the TB work at the site. HCH developed the first draft and all authors contributed to the finalization of the report.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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