Introduction

Spine TB is a destructive form of tuberculosis [1]. There is a report that suggest the incidence is increasing in developed countries primarily from immigrants from endemic nations. The exact prevalence of spine TB however is not known. About 10% of patient with extra pulmonary TB have skeletal involvement and spine TB accounts for 50% out of this number followed by hip and knee [2]. Spinal TB is a very dangerous type of skeletal TB as it can be associated with neurological deficit due to compression of the adjacent neural structures and significant spine deformity [3]. Therefore, early detection of spine TB is very crucial. Data on childhood musculoskeletal TB however is very rare. The minimum time required for osteoarticular tuberculosis to manifest is postulated as one year after the primary infection hence it is extremely unusual to present before one year of age [4,5].

Case Report

A two months old female infant presented to us with persistent fever and cough. This patient was initially suspected to have pneumonia with MRSA bacteremia. She was treated with IV Azithromycin and IV Vancomycin for one week. Serial chest X ray was done and showed persistent unresolved right upper lobe consolidation which is highly suspicious of complicated pneumonia or abscesses (Figures 1 & 2). On examination gibbus deformity was noted at the back of the patient (Figure 1). An urgent MRI was done to distinguish diagnosis between spondylodiscitis or TB spine. Clinical examination and radiology investigation strongly suggest for TB spine as destructive bone changes were noted involving T7, T8 and T9 vertebra body (Figure 3). Further history reveals that the patient was taken care by an Indonesian caretaker since birth. However, further investigations and history are needed to confirm the source of TB contact.
The destruction of the intervertebral cancellous bone of the vertebral bodies [2]. Infection which is often unknown into the dense vasculature of hematogenous spread of M. tuberculosis from a primary site of spread of the disease is usually secondary to the spread of infection, as primary and metastatic spinal tumours because only clinical and radiographic findings are available. Other test like tuberculin skin test, acid fast bacilli along with clear background history play an important role in diagnosing spine TB however it was unable to perform in this case.

X-ray images might be normal in an early disease [1, 2]. More than 50% of bone loss is required before it becomes evident on X-ray. At later stage of the disease, collapse of the intervertebral disc space can be seen when disc involvement happens. At this stage, the disease is often at a very advanced stage with patients having neurological presentations. Common characteristic radiographic findings on x-rays include rarefaction of the vertebral end plates, loss of disk height, osseous destruction, new-bone formation and soft-tissue abscess [2, 3]. Often, multiple vertebrae are involved and late fusion or collapse of vertebrae is not uncommon. CT scan might help us to detect TB spine earlier than X-ray. The pattern of bone destruction may be fragmentary in 47% of the cases; osteolytic in 34%, localized and sclerotic in 10%, and sub peristeal in 30% cases [2]. CT scan is good in demonstrating any calcification within the cold abscess or visualizing epidural lesions containing bone fragments as well as delineation of encroachment of the spinal canal by posterior extension of inflammatory tissue, bone or disk material, and a great value in the CT-guided biopsy.

In this case, MRI was performed because it is the gold standard for the diagnosis of spine TB in this age group [8]. It is more sensitive than x-ray and more specific than CT in the diagnosis of this disease. MRI allows for the rapid determination of the mechanism for neurologic involvement. The insidious onset of the disease, the smooth margins of the para spinal mass and the rim enhancement of this mass in MRI are the main criteria for distinguishing vertebral tuberculosis from pyogenic spondylitis [2]. As for treatment for spine TB, our main goal is to eradicate the infection, to ensure a good recovery from any neurological deficits and to cure the disease with minimum residual spinal deformity. Anti-tuberculous should be started as early as possible [8]. Majority of patients (about 85-95%) of spinal tuberculosis respond very well to medical treatment. The treatment response is apparent in form of pain relief, decrease in neurological deficit, and even correction of spinal deformity.

Perinatal TB is usually fatal if untreated. This is our greatest challenge in this case, the infant was empirically commenced on treatment as per national guidelines. Since this is not a common
disease, no therapeutic trials have determined the optimal treatment regimen and length. Complete recovery has been described following a standard treatment course of 2 months of 4 drugs (isoniazid, rifampicin, pyrazinamide and streptomycin), followed by 4 months of 2 drugs (isoniazid and rifampicin) according to World Health Organization (WHO) [8]. However other regimens for up to 18 months have been described and clinicians should seek expert advice. Treatment length should be determined by clinical condition and response to treatment. We started anti-tuberculous regime according to WHO guidelines in this case. Surgical drainage is indicated when large abscesses are present, especially in the psoas muscle or patient developing neurological deficit on follow-up must undergo surgery to prevent irreversible paraplegia or worsening deformity [5]. Almost 3% of children with spine TB develops severe kyphosis of more than 60° [5]. Factors increasing the risk of severe kyphotic deformity are children being below 10 years of age, involvement of three or more vertebral bodies and localization of the lesion in the thoracic spine [3,7,8] as presented in our case. Therefore, long term follows up for this patient is mandatory.

Conclusion

In summary, the therapeutic goal in children is to heal the tuberculosis with minimum residual deformity and without neurologic sequelae. Therefore, the treatment should be aimed not only at the healing, but also at the maintenance of stability, normal spinal growth, and sagittal alignment of spine by preventing the additional progressive bone destruction and or by hastening the neurological recovery during the treatment period and afterwards. Hence, the children should remain under surveillance follow up until growth phase is complete in this case.

Consent Disclaimer

As per international standard or university standard, patient’s written consent has been collected and preserved by the author(s).

Ethical Disclaimer

As per international standard or university standard ethical permission has been collected and preserved by the authors.

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