Disseminated tuberculosis with symptoms of decreased consciousness: A rare case in Indonesian male

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ABSTRACT

Background: Disseminated tuberculosis is a rare case that causes high mortality and morbidity.
Case presentation: A 59-year-old man with a glasgow coma scale of 12, cerebrospinal fluid was found to have dominant mononuclear, high protein level, low glucose level and shortness of breath. A chest X-ray revealed a right pleural effusion with infiltrates in both lung parenchyma and a pleural fluid adenosine deaminase (ADA) test showed 66.1 U/L. Thoracolumbar MRI revealed a compression fracture in the 6th thoracic vertebral body. The patient was given category 1 anti-tuberculosis drug (ATD) therapy plus streptomycin and dexamethasone and water seal drainage (WSD) was installed. The patient experienced improvement after taking ATD after 4 months in which the patient could stand and walk by using an object in front of him.
Discussion: Accurate and prompt diagnosis of disseminated tuberculosis minimizes patient’s mortality and morbidity. Suspicion of tuberculosis can be raised if the patient is experiencing health problems in endemic tuberculosis.
Conclusion: Disseminated tuberculosis (pulmonary tuberculosis, tuberculous pleurisy, tuberculous meningitis, and tuberculous spondylitis) can be managed properly using ATD category 1.

1. Introduction

Tuberculosis (TB) is an infectious disease caused by a microorganism called Mycobacterium Tuberculosis (MTB) [1]. Disseminated tuberculosis is a very rare TB case because the organs infected with MTB consist of 2 or more organs that are not closely located [2]. The number of disseminated tuberculosis cases globally is still unclear, but recent reports suggest that >2–20% of pulmonary TB patients have disseminated tuberculosis [3]. The challenge in managing disseminated tuberculosis is the process of establishing an early diagnosis because it does not have specific symptoms [4]. We would like to report a case of disseminated tuberculosis in an Indonesian male who had symptoms of decreased consciousness. We report our case based on the Surgical Case Report (SCARE) 2020 guidelines [5].

2. Case Presentation

A 59-year-old Javanese man had decreased consciousness, can’t lift both legs (paraplegia), stiff neck, shortness of breath, coughing up phlegm, and intermittent fever. The patient experienced decreased appetite, weight loss of 5 kg in 1 month and night sweats. The patient also had difficulty of urinating and defecating since 1 week. The patient had no history of high blood pressure, diabetes mellitus, heart disease, chronic liver disease, and asthma. The patient had never received an anti-tuberculosis drug (ATD).

The general condition of the patient was weak and the glasgow coma scale (GCS) was 12. Laboratory examination revealed an increase in neutrophils (81.6%) and a decrease in lymphocytes (6.7%). Radiographic examination of the AP chest X-ray revealed an homogenous
opacity in the lower 1/3 of the right hemithorax which supported a right pleural effusion with infiltrates in both lung parenchyma which matched the picture of active pulmonary TB (Fig. 1). Examination of cerebrospinal fluid (CSF) analysis showed dominant mononuclear results, high protein levels, and low glucose levels, supporting the diagnosis of tuberculous meningitis. The patient was given ATD category 1 therapy plus streptomycin for the initial 2 months of treatment and dexamethasone for the initial 6 weeks of treatment with periodic tapering off every week.

On the fourth day, the adenosine deaminase (ADA) test showed 66.1 U/L which supported the diagnosis of tuberculous pleurisy. Since a pleural effusion is known, serial thoracentesis has been performed. The patient’s consciousness was comatose, CT-Scan with contrast in head area showed no abnormalities. Both legs can be moved but cannot stand. On the next day, the sputum GeneXpert MTB/RIF examination showed that MTB was detected low, and rifampicin was sensitive. An x-ray of the thoracolumbar spine revealed a collapse of the 6th thoracic vertebrae, leading to tuberculous spondylitis.

After several days of treatment, the patient did not improve with thoracentesis. The patient and family were willing to do water seal drainage (WSD) installation. The results of thoracolumbar magnetic resonance imaging (MRI) revealed a wedge fracture/compression fracture in the 6th thoracic vertebrae that led to tuberculous spondylitis (Fig. 2). The patient was advised to use a thoracolumbosacral orthosis. After the second day of WSD installation, the x-ray results showed it was expanding although it was not perfect. After 1 month of treatment, the pleural fluid production in WSD was only ±50 cc/24 hours, so WSD was removed. The patient was still unable to stand up properly, but it was acknowledged that the pain in his back has reduced. The patient was advised to continue outpatient with ATD category 1 and was advised for surgery on the 6th thoracic vertebral body but the patient refused. Four months post treatment, the patient could stand and walk by using the support from the object in front of him.

3. Discussion

Disseminated tuberculosis is a rare case and has the potential to increase the mortality of tuberculosis patients, which is estimated that 5.4% of tuberculosis patients who develop disseminated tuberculosis [4]. Management of disseminated tuberculosis is tailored to the organ infected with Mycobacterium tuberculosis (MTB), in which the problems arise in our case are meningitis tuberculosis, pulmonary tuberculosis, tuberculous pleurisy, and tuberculous spondylitis. This condition is caused by a decrease in CD4 and CD8 that leads to a weak body condition and makes it easier for MTB to spread to several organs [6,7]. In our case, the patient had a decreased level of consciousness and a CT scan showed no abnormalities. Suspicion of tuberculous meningitis can be considered when the patient lives in the territory of countries with endemic tuberculosis such as Indonesia [8,9]. The diagnosis of tuberculosis can be made using GeneXpert MTB/RIF for fast and efficient confirmation [10,11].

In the case of disseminated tuberculosis, it is important to pay attention to the speed and accuracy in making the diagnosis to minimize morbidity and mortality [12]. Management of disseminated tuberculosis is generally similar to new cases of tuberculosis, which is providing ATD category 1 for 12 months according to the management of extrapulmonary tuberculosis. The ATD category 1 consists of 2 months treatment with rifampin, isoniazid, pyrazinamide, and ethambutol, and 10 months with rifampin and isoniazid [11,13]. In our case, streptomycin was added because streptomycin has stronger ability to penetrate the blood brain barrier where the patient also had tuberculous meningitis. In addition, steroids can be used to minimize the occurrence of neurological deficit disorders [14,15]. In this case, pleural effusion was also found where the installation of WSD was effective to restore lung expansion [16].

Tuberculous spondylitis in our case was not treated with surgery considering minimum destruction and deformity of the spine. In addition, an earlier diagnosis of tuberculosis makes category 1 ATD effective [17,18]. Immobilization measures are taken to minimize further compression of the spine [19]. Management of disseminated tuberculosis using ATD category 1 is effective if the diagnosis is made early by considering the tuberculosis endemic area.
Fig. 2. Contrast thoracolumbar MRI shows wedge fracture of the 6th thoracic vertebrae.
Fig. 2. (continued).
4. Conclusion

A 59-year-old man with disseminated tuberculosis has been confirmed to have pulmonary tuberculosis, tuberculous pleurisy, tuberculous meningitis, and tuberculous spondylitis. The patient is given ATD category 1 plus streptomycin and steroids followed by thoracentesis which then replaced with WSD. The use of ATD category 1 which should have been 6 months is extended to 12 months (2 months of intensive phase and 10 months of continuation phase). The patient’s prognosis has improved with sequelae in the form of decreased function of the lower extremities.

Ethical approval

We have conducted an ethical approval base on the Declaration of Helsinki at Ethical Committee in Dr. Soetomo General Academic Hospital, Surabaya, Indonesia.

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Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

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