AANHS Journal
Journal homepage: http://aanhsj.usu.ac.id

A Rare Case of Pleural Tuberculosis with Tuberculous Pyomyositis

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ARTICLE INFO
Article history:
Received : Aug, 27th 2023
Revised : Nov, 11st 2023
Accepted : Dec, 13rd 2023
Available : Dec, 20th 2023

E-ISSN: 2686-0848

How to cite:
Lubis PP, Nugroho GMS. A Rare Case of Pleural Tuberculosis with Tuberculous Pyomyositis. Asian Australasian Neuro and Health Science Journal. 2023 Dec 05(03); 20-7

DOI: 10.32734/aanhsj.v5i03.13465

ABSTRACT
Introduction: Tuberculosis (TB) gained recognition throughout the 19th century as it inflicted significant mortality rates upon a vast number of individuals across the globe. Pleural tuberculosis and tuberculous pyomyositis are infrequently documented extra-pulmonary manifestations, with limited coverage in the medical literature, and their underlying pathophysiological mechanisms remain unclear. There is a scarcity of published evidence about the management of pleural tuberculosis with tuberculous pyomyositis.
Case report: We reported a case of 51 years old female patient presented with progressive exacerbation of dyspnea, elevated body temperature, nocturnal diaphoresis, active cough, and pleuritic chest discomfort localized to the right side for twelve weeks duration. This patient also had multiple bulging in left lumbal, left upper chest, and both axillary regions. Several people living near the patient's home were diagnosed with tuberculosis. During the examination, the patient exhibited decreased breath sounds and a dull percussion note in the right lung field. The chest radiograph revealed a substantial pleural effusion in the right hemithorax. She was subsequently started on four-drug daily anti-tuberculosis therapy and pleural fluid drainage. On the fifth month of follow-up, the patient showed improvement in symptoms and the bulging has reduced in size.
Discussion: Pyomyositis is a suppurative infection of skeletal muscle that typically arises from the dissemination of pathogens through the bloodstream. The infection is commonly observed in tropical regions among persons who have significant underlying comorbidities or are immunocompromised.
Conclusion: Pleural tuberculosis accompanied with tuberculous pyomyositis is an uncommon manifestation outside of the lungs, nevertheless it is crucial to maintain vigilance regarding this condition. The timely identification of a disease is crucial for the implementation of appropriate treatment and subsequent resolution.
Keyword*:* Pleural tuberculosis; Pyomyositis, Anti-tuberculosis therapy, Chest Pain

1. Introduction

The disease tuberculosis (TB) gained recognition throughout the 19th century as it inflicted significant mortality onto a vast number of individuals globally. During the early 1980s, there was a notable worldwide increase in tuberculosis (TB) cases, and it has been recognized as a re-emerging disease since 2015.(1) The predominant manifestation of this condition typically occurs in the pulmonary system, with approximately 20% of confirmed instances presenting as extra-pulmonary variants. Pleural tuberculosis and tuberculous pyomyositis are infrequently documented extra-pulmonary manifestations, with limited coverage

in the medical literature, and their underlying pathophysiology remains unclear. There is a scarcity of published data about the management of pleural tuberculosis accompanied by tuberculous pyomyositis. [2]

2. Case Presentation

We reported a case of a female patient aged 51 years who exhibited a progressive deterioration in respiratory function, accompanied by symptoms such as elevated body temperature, excessive sweating during sleep, a cough producing phlegm, and localized chest pain on the right side. These symptoms persisted for a duration of twelve weeks. The patient exhibited multiple bulging in the left lumbar, left upper chest, and both axillary regions. A number of individuals residing in close proximity to the patient's residence were found to have been diagnosed with tuberculosis.

During the examination, the patient exhibited reduced breath sounds and a dull percussion sound in the right lung field. The radiographic examination of the chest revealed the presence of a substantial pleural effusion in the right hemithorax. The leukocyte count was measured to be 8.8 × 10^3/µL, consisting of 76% segmented neutrophils, 3% band neutrophils, 16% lymphocytes, 4% monocytes, and 1% eosinophils.

The HIV test results for the patient indicated a negative outcome. A positive result was obtained from the acid-fast bacilli test. The histopathological analysis of the protruding tissue revealed the presence of Langhans giant cells and epithelioid cells. Following the first assessment, the patient was initiated on a therapeutic regimen for tuberculosis consisting of isoniazid, ethambutol, rifampin, and pyrazinamide. Additionally, pleural fluid drainage was performed as part of the treatment plan. At the conclusion of the fifth month of observation, the patient exhibited amelioration of symptoms and a reduction in the size of the bulging

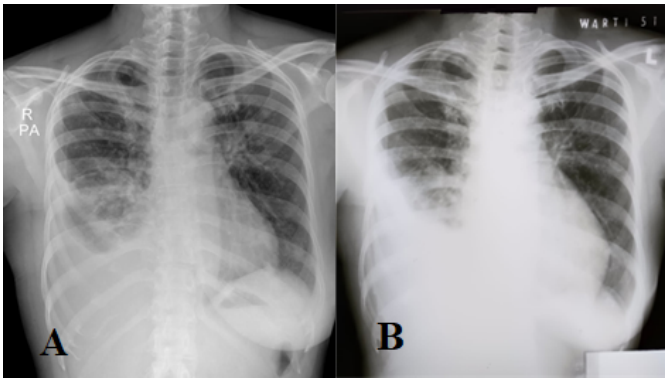

Figure 1. Chest X-Ray before (A) dan after 6 months of therapy (B)

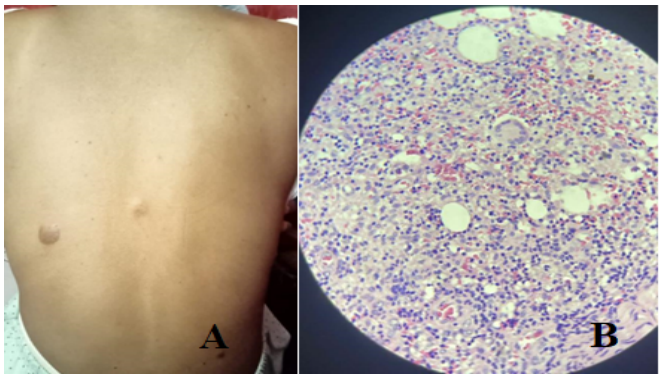

Figure 2. (A) Multiple bulging before treatment. (B) Histopathological examination of bulging tissue

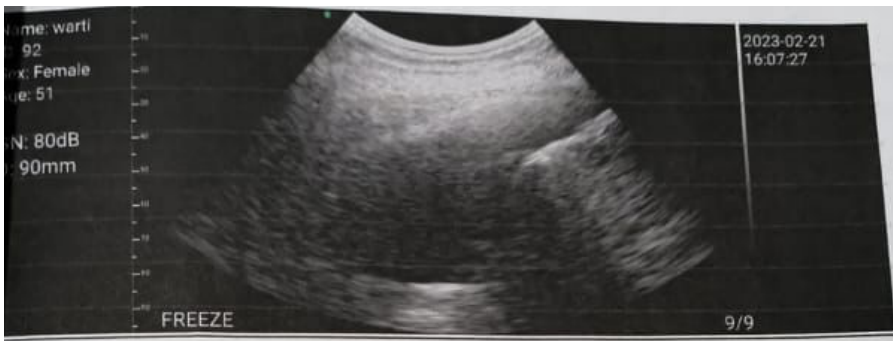

Figure 3. Patient's thorax ultrasonography showed massive right pleural effusion

3. Discussion

Extrapulmonary tuberculosis (TB) has the potential to manifest as either primary TB or as a reactivation of latent TB infection. Pleural tuberculosis arises as a consequence of direct pleural and lymph node infection resulting from the rupture of a sub-pleural caseous region within the lung.[1] Pleural tuberculosis (PT) is a prevalent manifestation of extra-pulmonary tuberculosis, ranking second in frequency. It is also a significant contributor to the occurrence of pleural effusions in regions where tuberculosis is widespread. Physical therapy (PT) typically manifests unilaterally and may vary in size.[2] In the examination of a substantial population, it was shown that pleural fluid was present exclusively on the left side in 38.1% of cases, exclusively on the right side in 48.4% of cases, and both sides were affected in 13.5% of cases. The most commonly observed symptoms include a non-productive cough, occurring in around 70% of cases, and pleuritic chest pain, also reported in approximately 70% of cases. The majority of patients exhibit fever and may further have dyspnea in cases where the effusion is of significant size.[3]

The individual under observation exhibited a progressive exacerbation of dyspnea, elevated body temperature, nocturnal perspiration, a cough with expectoration, and pleuritic chest pain localized to the right side.[4] Additionally, they had been in touch with individuals who were potentially infectious. According to the guidelines set forth by the American Thoracic Society, the recommended treatment for pleural tuberculosis is a six-month regimen. This regimen entails a two-month phase where isoniazid (INH), rifampin (RIF), pyrazinamide (PZA), and ethambutol (EMB) are administered, followed by a four-month phase where INH and RIF are taken daily. The use of corticosteroids has not demonstrated efficacy in reducing residual pleural thickening and so is not suggested. The guidelines do not address therapeutic thoracentesis, which is a topic of controversy. Nevertheless, it is typically conducted when a patient exhibits symptoms above mild severity.[5]

Pyomyositis is a suppurative infection of skeletal muscle that typically arises from the dissemination of pathogens through the bloodstream.[6] The infection is commonly observed in tropical regions among persons who have significant underlying comorbidities or are immunocompromised. The customary manifestations of pyomyositis encompass the presence of elevated body temperature and localized discomfort within a specific set of muscles. Various musculoskeletal groups can potentially be affected, either individually or simultaneously.[7] The most prevalent areas of impact often include the thigh muscles, gluteal muscles, and the trunk.[8]

The precise location of the infection is often uncertain, and only speculative conclusions can be drawn regarding a traumatic introduction of pathogens into the skeletal muscles.[9] The identification of tuberculous pyomyositis continues to mostly rely on clinical suspicion, which is determined by its gradual onset, gradual advancement, lack of response to different antibiotics, and subsequent success of retroactive anti-tubercular chemotherapy. There is a lack of established protocols or standards pertaining to the management of tuberculous pyomyositis.[10] This patient received antituberculosis regiment and experienced significant bulging reduction.

The patient was initiated on a pharmacological treatment plan for tuberculosis, consisting of isoniazid (INH) at a dosage of 300 mg, ethambutol (EMB) at a dosage of 800 mg, rifampin (RIF) at a dosage of 450 mg, and pyrazinamide (PZA) at a dosage of 1000 mg. This regimen was administered for a duration of two months, and the patient exhibited good tolerance during the initial follow-up examination. The subsequent stage of the treatment involved the administration of isoniazid (INH) and rifampin for a duration of four months. The utilization of Directly Observed Therapy (DOT) is highly recommended.[6] The administration of therapy comprising isoniazid, ethambutol, rifampin, and pyrazinamide, in conjunction with pleural fluid drainage, yielded a favorable outcome in this particular patient.

4. Conclusion

Pleural tuberculosis accompanied with tuberculous pyomyositis is an uncommon manifestation outside of the lungs, nevertheless it is crucial to maintain vigilance regarding this condition. The timely identification of a disease is crucial for the implementation of appropriate treatment and subsequent resolution.

Acknowledgements

None.

Conflict of Interest

The authors declare no conflicts of interest in preparing this article.

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