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TUMOR-LIKE MASS IN PATIENT WITH TUBERCULOSIS : IS IT REALLY A MALIGNANCY? A CASE REPORT

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ABSTRACT

Tuberculosis (TB) is not all about chronic cough or hemoptysis. The clinical manifestation of TB could be pulmonary and extrapulmonary, with the later defined as any site other than the lung, affected by the TB. The global burden for tuberculosis is still heavy, standing as the second leading infectious killer after COVID-19 (above HIV/AIDS), TB holds the 13th place of the leading cause of death. The World Health Organization (WHO) predicted around 1.6 million people died from TB, and 10.6 million people fell ill with TB worldwide in 2021. Due to the various manifestations and limitations of the diagnostic tools, determining the diagnosis and treatment of TB has always been a challenge since a long time ago. To give appropriate therapy, making an accurate diagnosis is crucial. It is known that extrapulmonary tuberculosis manifestation often mimics malignancy, both clinically and radiologically. The treatment for these cases should include treatment for the infection and the affected organ or site, following the recommended therapy dose and duration. Neurological examination should be evaluated, especially for tuberculosis of the spine. Surgical approach should be considered for cases with neurological deficits, patient with spine-at-risk, progressive spinal deformity, severe pain, spinal instability, or uncertain diagnosis. Physical therapy could be considered to improve respiratory function, improving muscle strength, reducing the pain, repair/improve the range of motion, sensory function, improve quality of life, and prevent other complications.

Keywords: Extrapulmonary Manifestation, Mimics Malignancy, Tuberculosis

INTRODUCTION

Tuberculosis (TB) is not all about chronic cough or hemoptysis. The clinical manifestation of TB could be pulmonary and extrapulmonary, with the later defined as any site other than the lung, affected by the TB.(Loddenkemper et al., 2016) The global burden for tuberculosis is still heavy, standing as the second leading infectious killer after COVID-19 (above HIV/AIDS), TB holds the 13th place of the leading cause of death. The World Health Organization (WHO) predicted around 1.6 million people died from TB, and 10.6 million people fell ill with TB worldwide in 2021.((WHO) World Health Organization, 2023) Due to the various manifestations and limitations of the diagnostic tools, determining the diagnosis and treatment of TB has been a challenge since a long time

ago.(Tan et al., 2010; Tsara et al., 2009)

Tuberculosis could manifest in many different organs/site of human body. Besides the lungs, which is the most common one, the other common sites are cervical lymph nodes, bones, brain, bowel and peritoneal involvement. The caseous granulomas (product of the cell-mediated hypersensitivity) tends to mimic the image of an malignancy. This is one of the challenging problems for differentiating between cancer and tuberculosis diagnosis. Confusing image on the radiologic examination may lead to an misdiagnosis(Tan et al., 2010; Xiang et al., 2021).

In this case report, we present a 33-year-old patient female patient with tumor-like mass in her thoracic cavity from chest x-ray image, accompanied with pain shoulder pain and weight loss, without history of hemoptysis nor fever.

RESEARCH METHODOLOGY

Case Description

An 33-year-old lady patient comes with left shoulder pain since 3 months prior to admission. Pain described as throbbing pain (VAS 4-5), which felt worse when the left shoulder and arm are moved, and relieved when rested. Pain radiates through left scalps, under the left breast area, to the epigastric area, making it difficult for the patient to perform daily activities. The patient had lost concerning amount of weight lately, and had chronic cough with clear-colored sputum, with no history of hemoptysis and fever. Few months prior to admission, patient had had taken anti-tuberculosis drugs for 3 months. But she stopped the medication midway and never continue to take any other medication ever since.

RESEARCH RESULT

Bloodwork investigations revealed low level of hemoglobin (8.6g/dL), normal total and differential leukocyte counts (7000/ µL; basophils: 0%; eosinophils: 3%; neutrophils: 64%; lymphocytes: 23%; monocytes: 10%). The erythrocyte sedimentation rate was 104 mm during the 1st hour. Chest x-ray was done and a mass-like image was found. (Fig. 1 A)

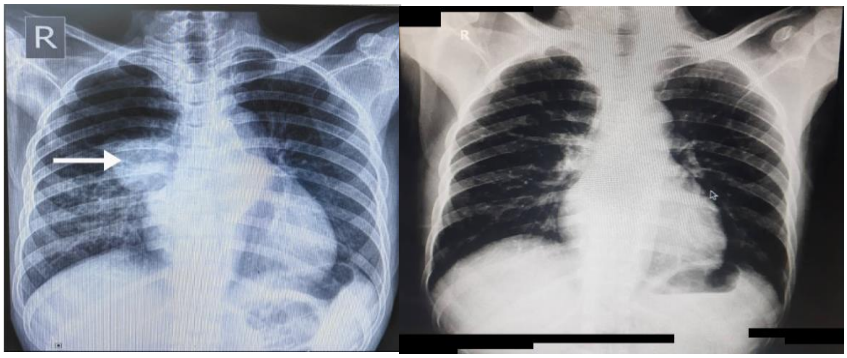

Figure 1. Chest x-rays of the patient. (A) Homogenous opacity was found on the first chest x-ray, suggesting a mediastinal mass. (B) Follow up chest x-ray after 6 months of therapy. The previous suspicious imaging is no longer apparent.

A Thorax Multi Slice Computerized Tomography (MSCT) scan with contrast was performed, with and without contrast. A paravertebral mass was found along with osteoblastic lesion. No fluid-like density image found on both of the pleural cavity. The imaging suggested a TB spondylodiscitis, but the presence of a malignancy cannot be ruled out just yet.

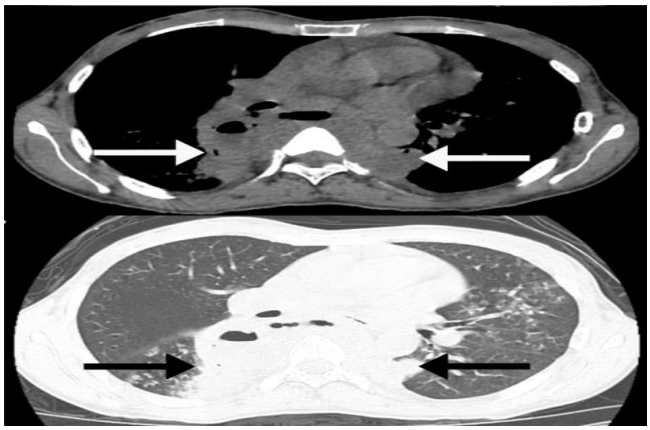

Figure 2. MSCT-Scan Of Patient's Chest, With And Without Contrast.

A paravertebral mass (VTH 5-9) was found with air component inside and ring enhancement after contrast. TB spondylodiscitis (osteo-blastic lesion in VTH 6-7) was found along with right lung (S6) collpase and micro-nodullar branching nodules in the medius-inferior lobe of the right lung and S3 of the left lung which may still be a TB process.

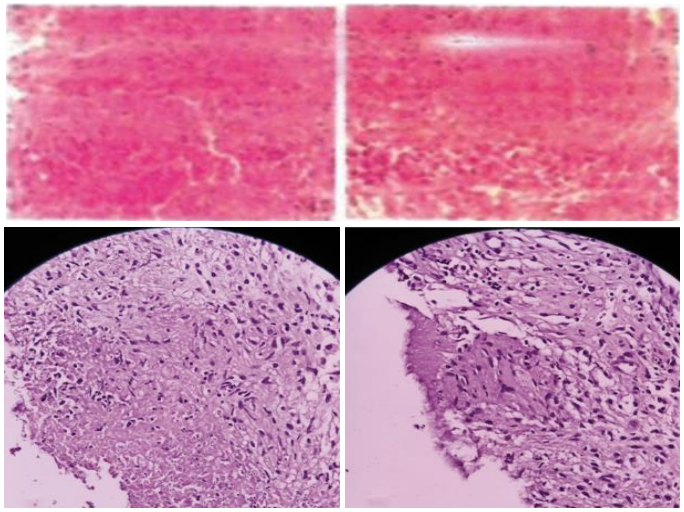

Figure 3. Histopatological Result Made From The Biopsy.

Chronic inflammatory cells, epithelioid cells and caseous necrosis were found. No signs of malignancy found in the preparation. Core biopsy examination then was carried out with the guidance of a non-contrast CT scan. Sample tissues were obtained and examined. The result suggests that this mass is

tuberculous granulomatous inflammation. There were no signs of malignancy found in the preparation.

Anti-tuberculosis therapy (ATT) was given to the patient and the patient was allowed to be discharged. After 6 month of ATT, the patient condition now has improved. The previous mass-like image is no longer apparent in the radiologic examination (Fig. 1 B). Her body weight has increased gradually, from 40 to 46 kg. The shoulder pain has improved, and she now could perform daily activities better.

DISCUSSION

We present this case to highlight the heterogeneous nature of tuberculosis manifestasion. Tuberculosis can manifests within pulmonary and extra-pulmonary. Extrapulmonary tuber-culosis (EPTB) was found in 10-42% adults with TB, where females and patients with conditions that impair the host's immunity are more at risk.(Loddenkemper et al., 2016) This is not limited only to adults, but the wide variety of manifestations also applies to children. Other than the usual pulmonary manifestations (weight not increasing or weight loss, malaise, profuse sweating, coughs), children might have neck swelling, restricted movement and pain in the extremities, hematuria, blurred consciousness, vomiting, headache, and growth and developmental delay.(Kaba et al., 2019; Nuriyanto, 2018) Most children with EPTB had a single extrapulmonary organ affected. The most frequent site are lymph node, skeletal organs, CNS, and abdominal organs.(Santiago-garcía et al., 2016)

Due to the wide variety of manifestations, it is known that tuberculosis, especially the extrapulmonary manifestations, can mimics malignancy both clinically and radiologically.(Tan et al., 2010) Having similar symptoms like weight loss, fever, cough, hemoptysis, and breathlessness, physician need to take history carefully and detailed examination can help clinician to differentiate TB with lung cancer.(Bhatt et al., 2012)

Lung cancers (LC) usually happens to middle aged or elderly patient. Smoking history might be present for TB patient, but usually always present in patient with LC. Fever might be present, usually happens to patient with TB (low grade with evening rise), but no specific pattern for patients with LC. Weight loss for both TB and LC patients are significant, but the weight loss for TB patients tend to have slower pace than the weight loss for LC patients (sudden). Hemoptysis might be present, but for TB patient its usually an early feature, in contrast to LC where hemoptysis tends to be a late feature. Breathlessness for LC patient tends to be vague and dull. Chest pain might be present for both TB and LC patient, but usually more severe for LC patients. Hoarseness rarely happen for TB patient. Backache and paralysis might be present and is associated with Pott's disease. Hoarseness, backache, and paralysis might be present if there are metastasis.(Bhatt et al., 2012)

In radiology examination, the chest x-ray anatomical predilection for TB patients are the upper zone. For TB, the usual radiologic findings are parenchymal infiltrates, lymphadenopathy, military, pleural effusion, and cavitation (centric). For LC, the usual radiologic findings are mass, hilar prominence, pulmonary nodule, widening of the mediastinum, total or partial

atelectasis of a segment, lobe, or lung, unersolving consolidation (pneumonia), cavitation (eccentric), elevated diaphragm, pleural effusion, and rib erosion.(Bhatt et al., 2012)

Cases of a tuberculosis presented with tumor-like mass has been reported before(Afriyie-Mensah et al., 2020; Khilnani et al., 2011), where the patients are all presented with cough, fever, anorexia, and weight loss. The symptoms are suggestive to the common tuberculosis, but when a mass was found in the radiologic examination, the presence of malignancy cannot be ruled out just yet. For special cases like these, further examination is needed to confirm the diagnosis.

To give appropriate therapy, accurate diagnosis is important. There are therapies that might be inappropriate even though it's commonly used (e.g. steroids in malignancies are cornerstone, but not in tuberculosis).(Tan et al., 2010) Radiologic findings alone cannot establish the diagnosis: diagnosis should be confirmed by histopathological and micro-biological tests.(Bhatt et al., 2012; Xiang et al., 2021) Even though a commonly used biopsy method like fine-needle aspiration cytology (FNAC) is not reliable(Bhatt et al., 2012), it can help in determining the class of the lung carcinomas, along with salient mutational changes in it.(Dey & Ghosh, 2019) For confusing masses, the best definitive diagnostic method should be excisional biopsies. However, the gold standards for diagnosis are still histopathological examination and tuberculosis cultures.(Xiang et al., 2021)

Extrapulmonal tuberculosis can affect every other organ, skeletal site included. Spine, being the most common site of TB involvement, still has very little guidance on its management. The infection of tuberculosis in skeletal tissue is different than the common infection, where despite being aerob and thrives best in high oxygen level tissue, the organism can still multiply although not to the same extent.(Pandita et al., 2020) The treatment for spinal tuberculosis are primarily to eradicate the infection and to save life, along with providing stability for the affected spine (correcting spinal deformities) and prevent or treat paralysis.(Moon, 2014)

The spinal TB therapeutic strategies include the holistic treatment for the tuberculosis infection and local therapy for the spine. For the common pulmonary TB, the recommended therapy duration is 6 month, where as TB infection on skeletal and joints, the therapy duration recommendation is 9-12 months.(KEMENKES RI, 2020) Surgical approach can be considered as supplementary for patients with neurological deficits and patients with "spine-at-risk" (pediatrics) or kyphosis (>60°).(Pan et al., 2021) Surgical measures include: drainage of the cold abscess; debridement of the focal tuberculous lesion and/or anterior fusion; and surgical decompression.(Moon, 2014) Besides progressive neurological deficit, there are other indications for surgery: progressive increase in spinal deformity (coronal or sagittal); failed conservative treatment including progressive neurologic deficit or increase in spinal deformity or severe pain due to abscess or spinal instability; and uncertain diagnosis (inability to obtain microbiological diagnosis from microscopy, culture, or PCR techniques).(Mak & Cheung, 2013)

If spinal TB were left unattended, complications might occur, from a solid fusion that could

include deterioration, kyphus, and even Pott's paraplegia of late onset.(Mak & Cheung, 2013) There are three mostly known causes of Pott's paraplegia: compressed cord due to abscess and granulation tissue; compressed cord due to sequestrums and kyphosis with bony protrusion from the vertebral body; and the deformed spine above the level of the kyphosis that makes bony canal stenosis.(Moon, 2014)

Physical therapy could be considered to improve respiratory function, improving the muscle strength and reducing back pain, repair/improve the range of motion (ROM) and sensory function, improve quality of life, and prevent other complications. The therapy mainly focused on alleviating the symptoms like pain, sensory deficits and muscle strength.(Chauhan et al., 2022; Mandhane et al., 2023) Being generally considered as one of the non-traumatic spinal cord injuries, it is suggested that the patients with spinal should be evaluated as having spinal cord injury.(Nas et al., 2015)

Patient's clinical status should be evaluated prior to the therapy, including the any presence of paresis or any neurologic involvement, incontinence, and cardiopulmonary and psychological. Early phase is important factor in rehabilitation and will impact on the patient's recovery. For patients with spinal tuberculous with radiologic sign of bony fusion, supporting the body with molded thermoplastic or plaster for 3 months is recommended in along with standard antituberculous drugs regimen as initial treatment. Patient should avoid pain aggravating exercise and should not be exhausted from the exercise program. Patient should have appropriate time for resting after exercise along with compatible diet regimen.(Nas et al., 2015)

Patients with mild or without neurologic findings, the exercises should include active (or assisted active) ROM and isometric exercises. In the acute phase, exercise should train all joints of the lower extremity. Isotonic exercises should be performed in subacute stage. Isotonic and strengthening exercises are recommended in the chronic stage for atrophic muscles, and mobilization training is continued. Provide a home exercise regimen and follow up evaluation at regular intervals.(Nas et al., 2015)

Patients with severe neurologic symptoms should have both surgery and medical treatments. In acute phase, exercises need to be performed at least daily to improve the functional capacity of muscles and prevent contractures, including isometric, passive, active (or assisted) exercise. In Subacute phase, active and active assisted exercises are performed. For chronic phase, patients are encouraged for mobilization to regain the previous function and improve quality of life.(Nas et al., 2015)

CONCLUSION

Radiological and clinical manifestation of tuberculosis frequently mimics malignancy. Physicians needs to be careful in making the diagnosis. The treatment should include multidisciplinary approach and should be done after the diagnosis was made with certainty.

REFERENCES

Afriyie-Mensah, J. S., Awindaogo, F. R., & Asomani, S. K. (2020). Pseudotumour presentation of pulmonary tuberculosis. *Ghana Medical Journal*, *54*(2), 126–130.https://doi.org/10.4314/gmj.v54i2.12

Bhatt, M. L. B., Kant, S., & Bhaskar, R. (2012). Pulmonary tuberculosis as differential diagnosis of lung cancer. *South Asian Journal of Cancer*, *1*(1), 3642.https://doi.org/10.4103/2278-330X.96507

Chauhan, I., Qureshi, M. I., & Kovela, R. K. (2022). Effectiveness of Physiotherapy Intervention on Functional activities of lower limbs in a patient with Pott's Spine. *Journal of Medical Pharmaceutical and Allied Sciences*, *11*(3), 4899–4900. https://doi.org/10.55522/jmpas.V11I3.1416

Dey, P., & Ghosh, R. K. (2019). Fine-needle aspiration cytology of non-small cell lung carcinoma: A paradigm shift. *Diagnostic Cytopathology*, *47*(4), 351–358. https://doi.org/10.1002/dc.24089

Kaba, Ö., Kara, M., Odacılar, C. A., Kamer, İ., Sütçü, M., Demir, S. Ö., Çalışkan, E., Törün, S. H., Salman, N., & Somer, A. (2019). Evaluation of cases of pediatric extrapulmonary tuberculosis: A single center experience. *Turk Pediatri Arsivi*, *54*(2), 86–92. https://doi.org/10.14744/TurkPediatriArs.2019.33239

KEMENKES RI. (2020). *Pedoman Nasional Pelayanan Kedokteran Tata Laksana Tuberkulosis*. KEMENKES RI. https://tbindonesia.or.id/pustaka_tbc/pedoman-nasional-pelayanankedokterantatalaksana-tuberkulosis/

Khilnani, G. C., Jain, N., Hadda, V., & Arava, S. K. (2011). Anterior mediastinal mass: A rare presentation of tuberculosis. *Journal of Tropical Medicine*, *2011*.https://doi.org/10.1155/2011/635385

Loddenkemper, R., Lipman, M., & Zumla, A. (2016). Clinical aspects of adult tuberculosis. *Cold Spring Harbor Perspectives in Medicine*, *6*(1), 125.https://doi.org/10.1101/cshperspect.a017848

Mak, K. C., & Cheung, K. M. C. (2013). Surgical treatment of acute TB spondylitis: Indications and outcomes. *European Spine Journal*, *22*(SUPPL.4), 603–611. https://doi.org/10.1007/s00586-012-2455-0

Mandhane, K. S., Phansopkar, P., & Chitale, N. V. (2023). Physiotherapy Rehabilitation of a Conservatively Managed Patient With Pott's Disease: A Case Report. *Cureus*, *15*(1), 1–5.https://doi.org/10.7759/cureus.33815

Moon, M. S. (2014). Tuberculosis of spine: Current views in diagnosis and management. *Asian Spine Journal*, *8*(1), 97–111.https://doi.org/10.4184/asj.2014.8.1.97

Nas, K., Karakoç, M., Aydin, A., & Öneş, K. (2015). Rehabilitation in spinal infection diseases. *World Journal of Orthopedics*, *6*(1), 1–7. https://doi.org/10.5312/wjo.v6.i1.1

Nuriyanto, A. R. (2018). Manifestasi Klinis, Penunjang Diagnosis dan Tatalaksana Tuberkulosis Paru pada Anak. *Jurnal Kedokteran Nanggroe Medika*, *1*(2), 62–70. http://jknamed.com/jknamed/article/view/70

Pan, Z., Cheng, Z., Wang, J. C., Zhang, W., Dai, M., & Zhang, B. (2021). Spinal tuberculosis: Always understand, often prevent, sometime cure. *Neurospine*, *18*(3), 648–650. https://doi.org/10.14245/NS.2142788.394

Pandita, A., Madhuripan, N., Pandita, S., & Hurtado, R. M. (2020). Challenges and controversies in the treatment of spinal tuberculosis. *Journal of Clinical Tuberculosis and Other Mycobacterial Diseases*, *19*, 100151. https://doi.org/10.1016/j.jctube.2020.100151

Santiago-garcía, B., Blázquez-gamero, D., & Baquero-artigao, F. (2016). *Pediatric Extrapulmonary Tuberculosis*. *35*(11).https://doi.org/10.1097/INF.0000000000001270

Tan, C. H., Kontoyiannis, D. P., Viswanathan, C., & Iyer, R. B. (2010). Tuberculosis: A benign impostor. *American Journal of Roentgenology*, *194*(3), 555–561.https://doi.org/10.2214/AJR.09.3055

Tsara, V., Serasli, E., & Christaki, P. (2009). Problems in diagnosis and treatment of tuberculosis infection. *Hippokratia*, *13*(1), 20–22.

Xiang, Y., Huang, C., He, Y., & Zhang, Q. (2021). Cancer or Tuberculosis: A Comprehensive Review of the Clinical and Imaging Features in Diagnosis of the Confusing Mass. *Frontiers in Oncology*, *11*, 737. https://doi.org/10.3389/FONC.2021.644150/BIBTEX

(WHO) World Health Organization. (2023). *Tuberculosis*. https://www.who.int/news-room/factsheets/detail/tuberculosis