

CASE REPORT

Tuberculous Lymphadenitis in Immunocompromised Patients: A Case Report

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ARTICLE INFO	ABSTRACT
<p><i>Article history:</i> Received 21 October 2021 Received in revised form 18 January 2022 Accepted 28 January 2022 Available online 30 January 2022</p> <hr/> <p><i>Keywords:</i> Diabetes mellitus, Immunocompromised, Human immunodeficiency virus, Tuberculosis, Tuberculous lymphadenitis.</p>	<p>Introduction: Tuberculous lymphadenitis (TBLN) is a form of extra-pulmonary TB with clinical features ranging from lumps to abscesses. Human Immunodeficiency Virus (HIV) co-infection and diabetes mellitus alongside TBLN made the diagnosis and management exceptionally challenging. We reported 3 cases of TBLN, 2 among them had an existing HIV co-infection, and 1 had preexisting diabetes mellitus.</p> <p>Case: The first case, a 28-year-old man, previously diagnosed with HIV, complained of a lump in the neck; biopsy results suggested TBLN. The second case was a 36-year-old man with a neck abscess and HIV co-infection. Acid Fast Bacilli (AFB) pus was positive & Human Immunodeficiency Virus Enzyme-Linked Immunosorbent Assay (HIV ELISA) was reactive. The third case was a patient with a neck abscess with preexisting diabetes mellitus (DM) underwent wound debridement and was given anti-tuberculosis drugs.</p> <p>Conclusion: TBLN with HIV co-infection or diabetes had clinical features ranging from a painful lump to an abscess. The definitive diagnosis was taken by examining AFB from pus. If the abscess was more extensive than or equal to 3 cm, wound debridement was necessary. The primary treatment for TBLN was anti-tuberculosis drugs and required even greater attention if a patient had any preexisting comorbidities such as HIV and diabetes.</p>

INTRODUCTION

Tuberculosis (TB) is one of the top 10 causes worldwide, and 208,000 deaths were among Human Immunodeficiency Virus (HIV)-positive people. TB can affect the lungs and outside the lungs. Extrapulmonary TB represented 16% of all cases notified in 2019.¹ Extrapulmonary TB sites include the pleura, lymph nodes, bone, meninges, and other.²

Peripheral tuberculous lymphadenitis (TBLN) in non-HIV individuals often manifests as a swelling of a single group of lymph nodes at a single place, primarily in the cervical, submandibular, or supraclavicular regions, which progresses over 1–2 months with no constitutional symptoms. The lymph nodes are painless when palpated, hard, and fixed on physical examination, and the overlying skin may be

swollen or red. Ulceration, fistula, or abscess development are all possible complications. It is unusual to have active pulmonary involvement at the same time. Immunocompromised individuals, on the other hand, typically have a fever, night sweats, and weight loss, have several lymph node sites implicated, and frequently have concurrent pulmonary TB.³

Multiplex PCR was proven useful for speeding and accurately identifying individuals suspected of having a mycobacterial illness in recent research on diverse TB patients in Makassar, Indonesia. Despite advancements in TB diagnosis, some instances of the disease may still be misdiagnosed or ignored due to its vague presentation.⁴ We reported 3 cases of TBLN, consisted of 2 patients with an HIV co-infection and 1 patient with a preexisting diabetes mellitus (DM).

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CASE 1

A 28-year-old man, previously diagnosed with HIV, came to the polyclinic with a lump in his left neck 1 month prior. The swelling was painless. The patient also experienced other respiratory complaints for the past 1 months, including cough with phlegm, especially in the morning, night sweats, decreased appetite, and weight loss of 5 kg in the last 2 months. According to the Brinkman index, the patient was a heavy smoker (started 17 years ago and smoked 12 cigarettes daily). Contact history with a TB patient was denied. His weight was 45 kg, his body height was 173 cm, and his body mass index (BMI) was 15.0 kg/cm² (malnourished).

There was an enlarged lymph node in the left neck, solitary, 3 x 2 cm in size, fixed, no tenderness, no external wound (Figure 1). Lung physical examination was within normal limits. The result of Acid Fast Bacillus (AFB) was negative. Molecular Rapid Test (GeneXpert) *M. tuberculosis* (M.Tb) was low with rifampicin confirmed positive. Chest X-ray found fibro infiltrates in the supra-hillary of the right lung (Figure 2A). The biopsy result was positive for TB (Figure 2B). Fine-needle aspiration (FNA) examination revealed suppurative granulomatous lymphadenitis due to a specific process (Figure 2C). CD4 values at the time of the study were 110 cells/ μ L. The patient had received an antiretroviral therapy (ARV) regimen consisting of Zidovudine, Lamivudine, and Efavirenz. The patient was also given opportunistic infection prophylaxis with cotrimoxazole 960 mg single dose.

CASE 2

A 36-year-old man complained of a painful lump in his left neck two weeks prior. During the last 3 days, the swelling began to accumulate pus. The patient also complained of coughing during the previous 2 months, accompanied by loss of appetite, weight loss, and night sweats. According to the Brinkman index, the patient was a heavy smoker (started 19 years ago and smoked 12 cigarettes daily). He has had a history of unprotected sex for the last five years. History of drug abuse was denied. History of contact with TB patient was dismissed. His weight was 44 kg, his body height was 173 cm, and his BMI was 15.0 kg/cm² (malnourished). Examination of the tongue revealed a white spot indicating candidiasis. Physical examination of the left neck showed ulceration, minimal pus, and oedema (Figure 3A). Chest examination found no abnormalities.



Figure 1. Clinical appearance of the first case (arrow: lump)

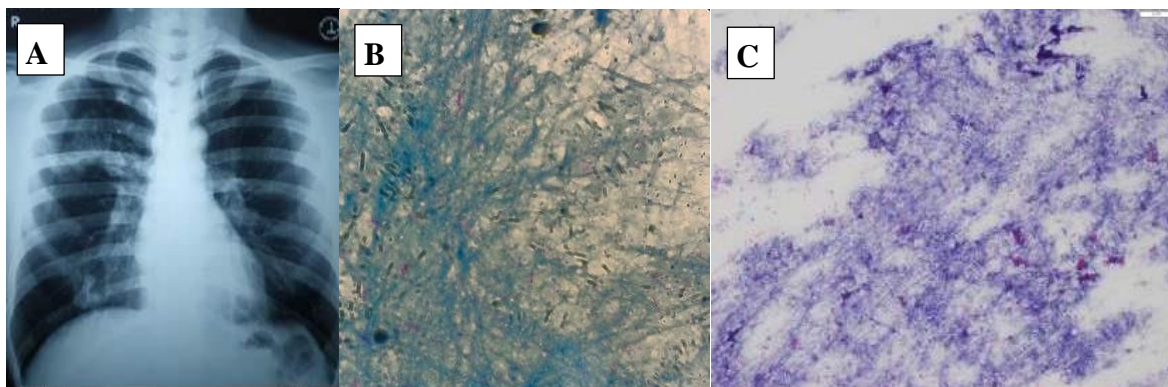


Figure 2. A) Chest X-Ray of the first case; B) AFB smear of the first case; FNA of the first case

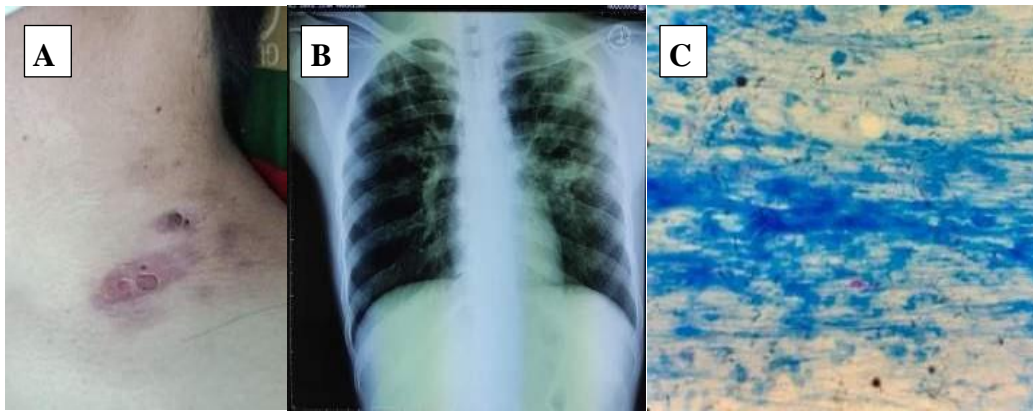


Figure 3. A) Clinical appearance of the second case; B) Chest X-Ray of the second case; C) AFB pus smear of the second case

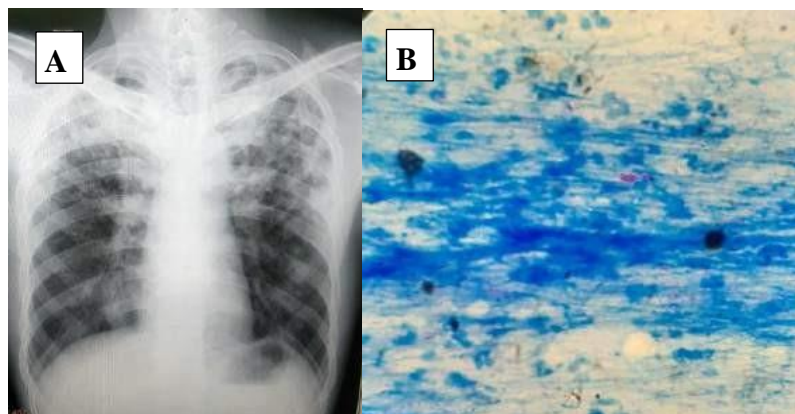


Figure 4. A) Chest X-Ray of the third case; B) AFB pus smear of the third case

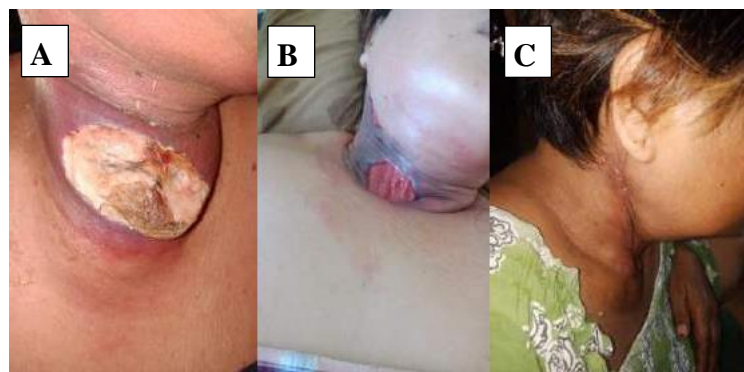


Figure 5. Third case A) Before debridement; B) After debridement; C) Wound post-3-months of anti-tuberculosis drug therapy

CD4 values at the time of examination were 90 cells/ μ L. The patient had received an ARV regimen consisting of Zidovudine, Lamivudine, and Efavirenz. The patient was also given opportunistic infection prophylaxis with Cotrimoxazole 960 mg single dose.

Chest X-ray revealed fibro-infiltrates from the paracardial to the apex of the left lung (Figure 3B). In examining pus in the neck, AFB results were positive (Figure 3C). The result of Rapid-ELISA HIV was reactive.

CASE 3

A 46-year-old woman complained of a lump in her right neck accompanied by pain 2 weeks prior. During the last 7 days, the swelling began to accumulate pus. The patient also experienced coughing with phlegm and denied a history of weight loss. The history of contact with TB patients was also rejected. The patient had a preexisting uncontrolled DM 5 years ago. Her weight was 52 kg, her body height was 168 cm, and her BMI was 18.4 kg/cm² (underweight).

A ruptured abscess was found during the physical examination of the right neck, 7 x 5 cm in size. There was tenderness and exudate. Chest physical examination was within normal limits. Chest X-ray revealed fibro-infiltrates of both lung apices (Figure 4A). Current blood glucose levels of the patient showed elevated HbA1C levels of 8%. AFB smear was obtained negative (Figure 4B). GeneXpert M.Tb was medium with rifampicin confirmed sensitive. The following treatment was wound debridement. As for the therapy history, the patient had been receiving insulin injections to treat her diabetes.

The wound was getting better in the form of granulation after 2 months of anti-tuberculosis drug therapy with 4 FDC 4 tabs (Figure 5).

DISCUSSION

TBLN is a local symptom of a systemic illness caused by TB. The most prevalent extrapulmonary sign of TB is scrofula (mycobacterium cervical lymphadenitis). Needle aspiration is a short and generally easy treatment to help diagnose.⁵ The first patient was immunocompromised due to HIV infection. The patient was presented with a painless lump and a definite diagnosis with FNA indicating TB.

Once a patient is suspected of having TBLN, lymph node samples must be considered to be taken to confirm the diagnosis. Depending on the site of lymph node enlargement, there are many methods for obtaining the sample. If the lymph node enlargement is visible, the best sampling technique is FNA, which is proven minimally invasive. Although more sensitive, excision biopsy is a more invasive procedure. Therefore, it should be reserved if the FNA is inconclusive or if the patient has persistent lymph node enlargement despite completing the treatment. FNA has been widely studied, and a 9-year study concluded that FNA is not just simple and cost-effective but can be performed as an outpatient procedure, which is particularly useful in a poor-resource setting. There is a good agreement for this evidence, and it is accepted by all countries, as advocated by World Health Organization (WHO).⁶

The second patient also had an HIV co-infection, but a rather painful lump was accompanied by ulceration and abscess. Pus analysis confirmed the presence of AFB. Rapid-ELISA for HIV was reactive. Patients with secondary infection symptoms with candidiasis should continue to have their CD4 counts assessed for suspicion of acquired immunodeficiency syndrome (AIDS). Approximately 1 million HIV-positive persons (PLWH) get TB each year across the world. While the drug regimens used to treat TB in PLWH are the same as in HIV-negative patients, there are several challenges

with co-treatment of anti-tuberculosis and antiretroviral therapy, including the best time to start antiretroviral treatment, drug interactions, drug tolerability, and the prevention and treatment of TB-associated immune reconstitution syndrome. All patients with HIV-associated TB should begin antiretroviral therapy (ART) within 2 months after starting antiretroviral treatment, and those with CD4 counts below 50 cells/L should begin ART within 2 weeks. Starting anti-tuberculosis medication within 2 weeks after starting ART offers a survival advantage, but it raises the chance of paradoxical TB-IRIS confined to PLWH with CD4 50 cells/L. Prednisone used as a preventative has recently been found to lower the risk of infection by 30%.⁷ HIV prevalence in patients with TB was estimated to be around 5.57%, and poor TB treatment increased long-term mortality. Findings emphasize that sufficient TB treatment should be provided, the treatment success rates should be scaled up, and efforts toward early TB case-finding among people living with HIV are essential.⁸

In the third case, the patient had uncontrolled diabetes and came to the polyclinic with a neck abscess. Pus analysis confirmed the presence of AFB. Because the lump and abscess size were more significant than 3 cm, debridement was necessary. Previous studies statistically identified an association between lymphadenitis with an enlarged lymph node greater than or equal to 3 cm, TB recurrence, paradoxical upgrading reaction, anti-bacillary resistance, abscess and fistula, and need for surgical treatment in cervical lymph node TB (TBLN). Regarding TBLN recurrence, 23.1% of patients who had already been treated for TBLN required surgery after the failure of medical treatment. It is similar to a study which followed 91 patients with TBLN on medical therapy. Among these patients, 12 (13%) recurred after the end of treatment, which suggested surgical treatment to have more promising results.^{9,10}

Patients with TB and diabetes had 30% greater odds of mortality, required more extended treatment, and were longer to achieve negative M.Tb cultures. Having diabetes as comorbidity negatively affects patient outcomes. All patients aged ≥ 45 years old and all younger patients with risk factors for diabetes should be screened for diabetes at the beginning of TB treatment.¹¹ Diabetes may affect the natural history of TB in many ways, resulting in potentially increased risks of TB infection, clearly much higher chances of TB disease, and poorer TB treatment outcomes, especially mortality both during and after the end of treatment.¹²

There are various challenges and substantial evidence with gaps regarding the management of TBLN with a pre-existing condition such as HIV or diabetes and the management of TBLN only. TB treatment may

have to be intensified, and special attention is required for higher rates of drug resistance. Optimal targets and treatment algorithms for diabetes management in TB patients still need to be defined regarding glycemic control and cardiovascular disease risk.¹² Glycemic control and strategies to lower the risk of cardiovascular disease are part of DM therapy during anti-tuberculosis treatment to enhance TB treatment results and reduce DM-related morbidity and death. Metformin, the most often prescribed glucose-lowering medicine for TB patients, shows no significant interactions with rifampicin and may help to decrease TB mortality. Insulin is helpful for extreme hyperglycemia, but it has several drawbacks which prevent it from being used in TB patients.¹³ Treatments for TB should be based on medications with proven bioavailability, regardless of whether it is used in conjunction with ART. There are 2 phases to TB treatment regimens, initial and continuation phases. The initial phase lasts 2–3 months, while the continuing phase lasts 4–5 months. According to current evidence, a regimen comprising of rifampicin throughout treatment reduces TB relapse in HIV-infected individuals. ART should not be withheld because a patient is getting or about to begin TB therapy. Nonetheless, it is advisable not to simultaneously start HIV and TB treatment and postpone.

CONCLUSION

TBLN cases with pre-existing conditions such as HIV and diabetes need special attention. In addition to TBLN treatment, complete treatment for HIV and control of diabetes is required to prevent future complications.

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Conflict of Interest

The author stated there is no conflict of interest in this study.

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Authors' Contributions

Writing the manuscript, collecting data of patients: EPW and ID. Reviewing and revising: ID and ATSA. All authors contributed and have approved the final version.

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