



CASE REPORT

An Unexpected Site of a Familiar Foe: A Rare Case of Nipple Tuberculosis

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Abstract

Tuberculosis is one of the most common infectious diseases encountered in low income and developing countries. Although the incidence of Tuberculosis of lung is high in these countries, tuberculosis of breast and in particular tuberculosis of nipple and areola is very rare. Constitutional symptoms are usually not present making its diagnosis even more difficult. It can be primary or secondary with tuberculosis focus present elsewhere in the body. Here we present a case of primary tuberculosis of nipple with pustular discharge.

Introduction

Tuberculosis (TB) of the breast is a rare illness, accounting for less than 0.1% of all breast disorders and mostly affecting women of reproductive age in endemic locations [1]. Even rarer is the TB of nipple, which can readily resemble more prevalent illnesses such as mastitis, abscesses, or malignancies, making diagnosis difficult. This case report illustrates a rare presentation of tuberculosis infection limited to the nipple presenting with complaints of discharge, emphasizing the significance of addressing tuberculosis in such presentations, particularly in high-prevalence areas or immunocompromised individuals [2]. Imaging, histology, and microbiological confirmation were used to make the diagnosis, with antitubercular therapy serving as the primary treatment. This case report underscores the need for enhanced awareness among practitioners regarding the risk of extrapulmonary tuberculosis in uncommon anatomical places, highlighting the

role of early diagnosis and management to prevent complications.

Case Report

A 23-year-old unmarried female presented to the dermatology outpatient department with a lump of size approximately 1.5 cm*1.5 cm₂ over nipple areola complex (NAC) of the right breast. On examination, it was tender, warm to touch with overlying smooth surface. No visible discharge was seen from the lesion. A provisional diagnosis of subsiding furuncle with post-inflammatory hyperpigmentation was made and was treated symptomatically.

The lesions recurred over a span of one month but were now associated with discharge from NAC. The discharge was scanty, thick, foul smelling, whitish-yellow in color (Figure 1). No other swelling was noticeable over the breast. Routine blood investigations including complete blood count, liver function test, kidney function test, erythrocyte sedimentation rate, C reactive protein were advised. The pus discharge was sent for gram stain, culture and sensitivity. Patient was also advised for chest X-ray and CBNAAT.

Blood investigations revealed hypochromic microcytic anemia (Ht 34%, Hb 10 g/dl), lymphocytic white blood cell type, normal liver and kidney function, C-reactive protein (CRP) < 10 mg/L, Erythrocyte Sedimentation Rate (ESR) 12 mm/h. Urine analysis revealed no pathology. Pus culture of the discharge showed evidence of *Staphylococcus epidermidis* sensitive to levofloxacin,



Figure 1: A) Fissured, eroded and retracted skin verlying the nipple; B) Presence of whitish-yellow purulent discharge on milking the breast.

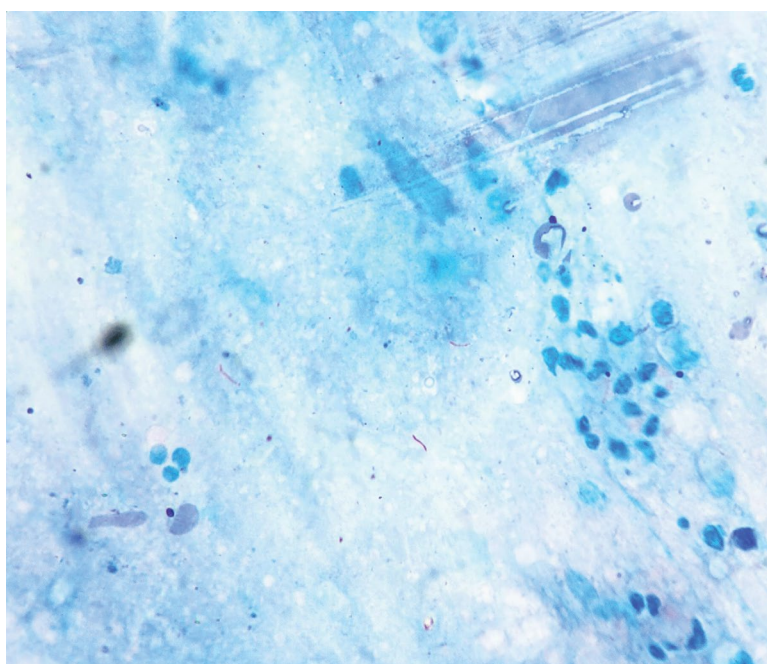


Figure 2: Acid fast bacilli present in gram stain.

gram stain revealed presence of acid fast bacilli (1-2/OIF), suggestive of mycobacterium tuberculosis or non-mycobacterium tuberculosis infection (Figure 2). Chest radiograph showed no abnormal findings (Figure 3), while CBNAAT was positive.

The patient was treated with oral anti-tuberculosis therapy for 6 months.

Discussion

In developing countries, Tuberculosis (TB) is one of the major causes of morbidity and mortality in today's world. Extrapulmonary TB accounts for around 15% of all the TB cases. The involvement of breast or NAC is a rare presentation of extrapulmonary TB. Sites like breast, spleen, skeletal muscle are more resistant to infection leading to decreased chances of survival of the tubercle bacilli. Breast TB, is mostly unilateral and seldom affects females and very rarely is men affected. Peak incidence can be around 21 to 40 years of age [2].

The incidence appears to be more in lactating

females probably due to dilated ducts and increased blood supply making it more prone to infections and macerations. Other risk factors can be multiparity, trauma to the breast and any previous history of supportive breast infections [2]. However, our patient was young and unmarried.

The spread of the TB bacilli to the breast can occur through any of the following routes: hematogenous, lymphatic or by direct extension from the thoracic wall or the axillary lymph nodes, or by inoculation through traumatized skin or ducts [3]. However, the lymphatic route is often the most frequent route for contamination [4].

There are various methods to diagnose TB but not all of them are readily available especially in the lower economic countries which are particularly more prone to the disease. The gold standard for the diagnosis of TB can be to determine the presence of *Mycobacterium tuberculosis* by acid-fast bacteria Ziehl-Neelsen stain

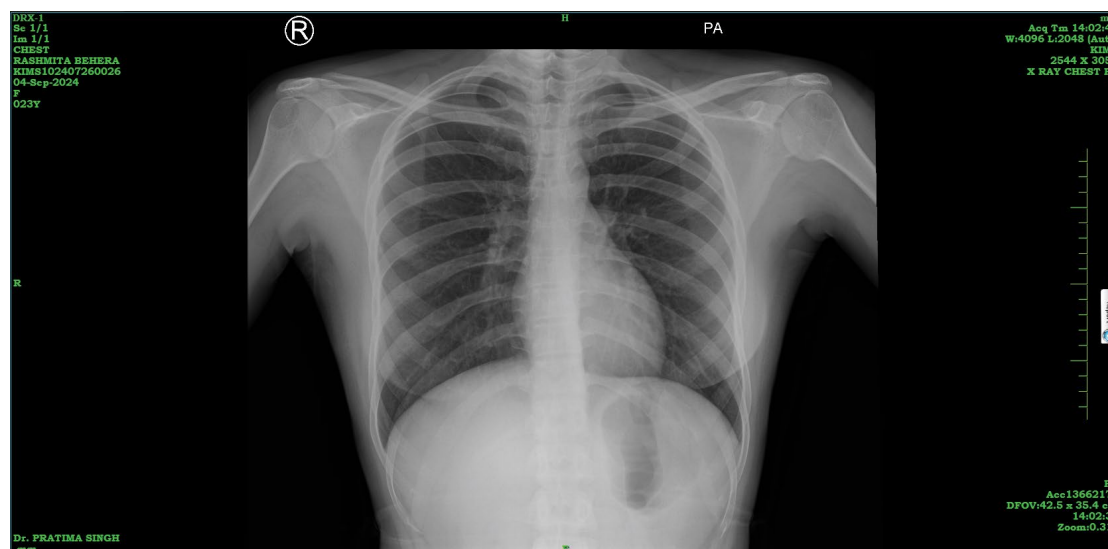


Figure 3: Chest radiograph showed no abnormal findings.

(AFB) or the isolation of the organism from the lesion on culture [1].

Other methods include polymerase chain reaction (PCR) to identify the *M. tuberculosis* genetic material, Fine-needle aspiration cytology (FNAC)-which detects the presence of epithelioid cell granulomas and necrosis FNAC is often avoided, as it is invasive.

Histopathological examination can be done to confirm the diagnosis which reveals chronic granulomatous inflammation (with caseous necrosis and Langhans-type giant cells). Treatment generally involves anti-TB medications. In severe cases having axillary lymph nodes involvement surgical options can be explored [5].

Breast TB overall has a good prognosis. There are no specific guidelines for its treatment but standard course of six months ATT is sufficient in most of the cases starting with two months of isoniazid, rifampicin, pyrazinamide, and ethambutol, followed by four months of isoniazid and rifampicin. This regimen was followed in our case, leading to complete resolution of symptoms.

Conclusion

Breast tuberculosis, though rare, should be considered a differential diagnosis in cases of persistent nipple discharge, especially in regions where tuberculosis is endemic. Its atypical presentation, often mimicking more common breast pathologies, poses a diagnostic challenge that can lead to delays in appropriate treatment. Early recognition and diagnosis of this condition is crucial to avoid further complications and spread of the disease.

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Conflicts of Interest

Nil.

Criteria for Inclusion in the Authors

Concept and design: Dr. Sibaram Panda; Collecting Data: Dr. Shini Choubey; Preparation of manuscript: Dr. Yash Dad; Finalizing the manuscript: Dr. Jeeban Jyoti Mishra.

The manuscript has been read and approved by all the authors, the requirements for authorship as stated earlier in this document have been met, and each author believes that the manuscript represents honest work, if that information is not provided in another form.

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