IDCases xxx (2019) xxx–xxx

Contents lists available at ScienceDirect

IDCases

journal homepage: www.elsevier.com/locate/idcr

Case report

Breast tuberculosis, a rare entity

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ARTICLE INFO

Article history:
Received 31 January 2019
Received in revised form 24 March 2019
Accepted 24 March 2019

Keywords:
Breast
Tuberculosis
Abscess
Carcinoma

ABSTRACT

Breast tuberculosis is a rare form of extra-pulmonary tuberculosis. It is rare in western countries, usually occurs in multiparous and lactating women but rare in male and older women. It has a varied clinical, radiological and pathological presentation that can be similar to that of a breast abscess or carcinoma. Constitutional symptoms are not usually present making it even harder to diagnose clinically. Here we present a case of a young Nepalese woman with tubercular mastitis who was initially misdiagnosed as breast abscess.

Introduction

Breast tuberculosis (TB) was first defined by Sir Astley Cooper in 1829 as the "scrofulous swelling in the bosom of young women" and is a rare form of extra pulmonary TB [1,2]. It is more frequently encountered in developing countries like Africa and Asia, where TB is common [2]. Breast TB is of increasing clinical relevance in the western countries due to immigration and lack of awareness is very likely to both delay diagnosis and may result in unnecessary and/or disfiguring surgery pursuing a diagnosis of carcinoma [3].

Breast tuberculosis commonly affects women of reproductive age, usually between 21 and 30 years and can present either as an abscess or as a unilateral, painless breast mass [1]. From few months to few years duration, breast tuberculosis usually presents as a solitary breast lump in the central or upper outer quadrant due to frequent extension from axillary lymph node to the breast. Presentation with multiple or bilateral breast masses is uncommon. The lump is usually irregular, ill-defined and hard, mimicking carcinoma. It may be painful, mobile or fixed to skin or underlying muscle and chest wall and can also present with ulceration of the overlying skin, breast abscess, nipple retraction, peau d'orange and breast edema. Diagnosis of breast tuberculosis is even harder to make and less likely to be considered in men [4].

Differential diagnosis of breast tuberculosis is bacterial breast abscess and mastitis, carcinoma of breast, sarcoidosis, fungal infection and other granulomatous diseases. Mammography and ultrasound of the breast are not specific enough to aid in the diagnosis of breast tuberculosis. Tuberculin skin test, interferon gamma release assay, chest radiography, computed tomography (CT) scan, fine needle aspiration cytology (FNAC), open biopsy, tuberculosis polymerase chain reaction (TB PCR) can help in accurate diagnosis of such cases. The mainstay of treatment is anti-tubercular treatment for at least six months. Surgical management is usually limited to drainage of abscess, resection of sinuses, excisional biopsy, segmentectomy or rarely simple mastectomy [5–7].

Here we present the initial presentation, pathological diagnosis and management of a case of breast tuberculosis in a 34 year old Nepalese female who was primarily diagnosed as a breast abscess.

Case report

A 34 year old non-lactating female presented with complaints of intermittent fever, right breast pain and swelling for 25 days. There was no history of tuberculosis or breast carcinoma in the family members. She was initially treated with antimicrobials (flucloxacillin) in another health care center but her symptoms were not relieved.

On examination, there was a firm lump of 2×2 cm at the lateral margin of the areola of the right breast. It was slightly tender and overlying skin was red without any discharge. On ultrasonography, there was a cystic lesion in the right breast at 9 o'clock position measuring 4×5 mm. Surrounding the lesion was echogenic and edematous breast tissue likely to be focal mastitis. Ultrasound-guided FNAC of right breast lump was done. It showed moderately cellular benign ductal epithelial cells arranged in clusters and sheets, as well as in staghorn pattern intermingled by myoepithelial cells. Ill-defined granulomas along with multinucleated giant cells were also

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https://doi.org/10.1016/j.idcr.2019.e00530

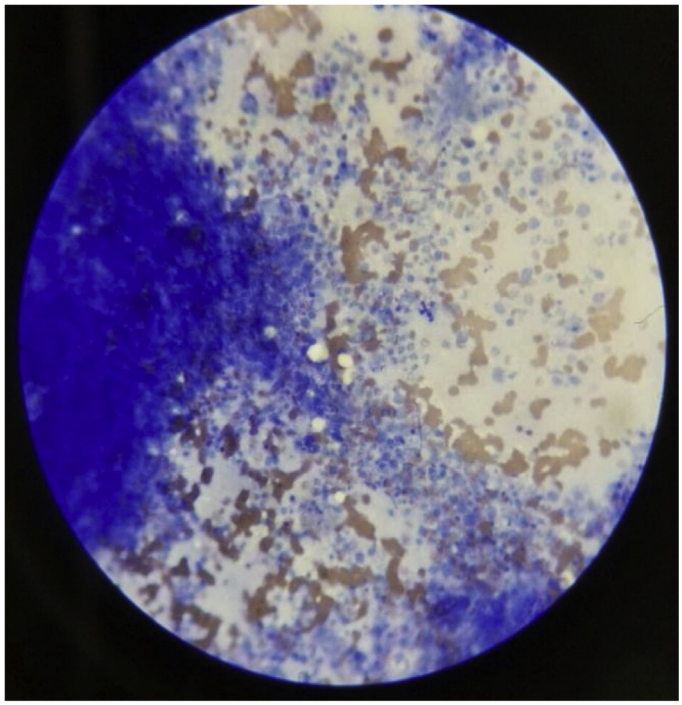

Fig. 1. Wright stain on low power field (4×) showing breast tissue with neutrophilic inflammation in the background.

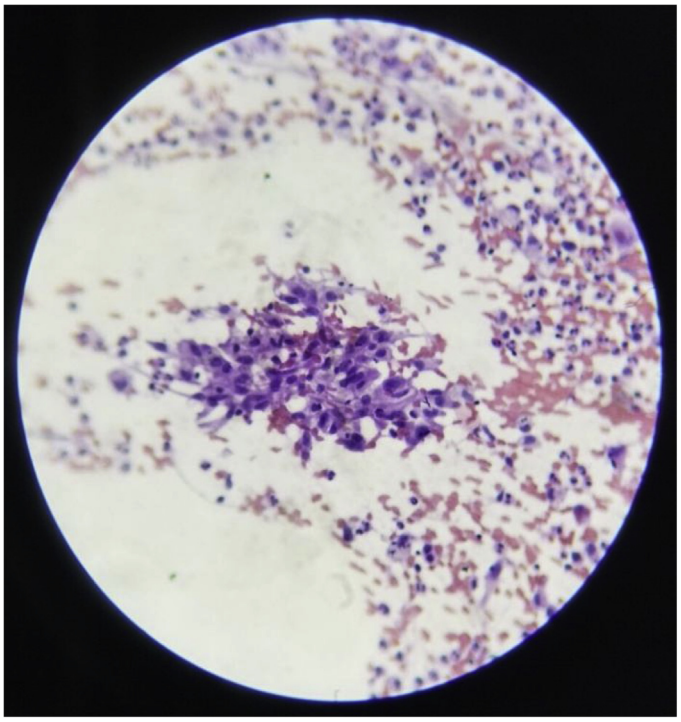

Fig. 3. Pap stain in high power field (40×) showing epithelioid cell granulomas.

observed against a background of numerous neutrophils and epithelioid histiocytes (Figs. 1–3). Acid fast bacilli (AFB) stain of the specimen showed numerous AFB in clusters (Fig. 3).

The pathological diagnosis was given as Granumolatous mastitis, probably tuberculosis (Fig. 4). Polymerase Chain Reaction (PCR), Mantoux test and interferon gamma release (IGR) assay for *Mycobacterium tuberculosis* were advised to rule out other mycobacterial infection. *Mycobacterium tuberculosis* was detected on PCR and IGR assay (QuantiFERON-TB Gold test). She was then started with anti-tubercular treatment according to national protocol. Four drugs including rifampin, isoniazid, pyrazinamide and ethambutol were prescribed for four months which was

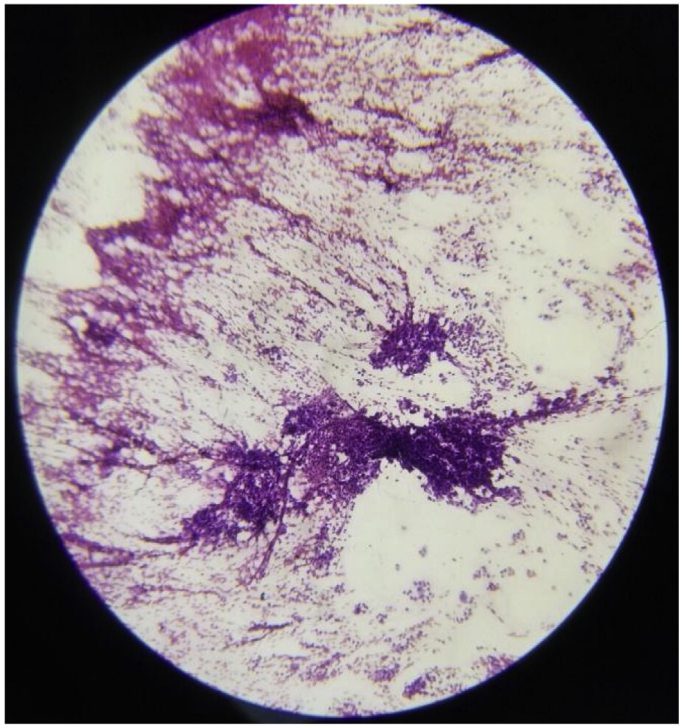

Fig. 2. Pap stain in low power field (4×) showing ductal epithelial cells along with granulation tissue with neutrophilic inflammatory background.

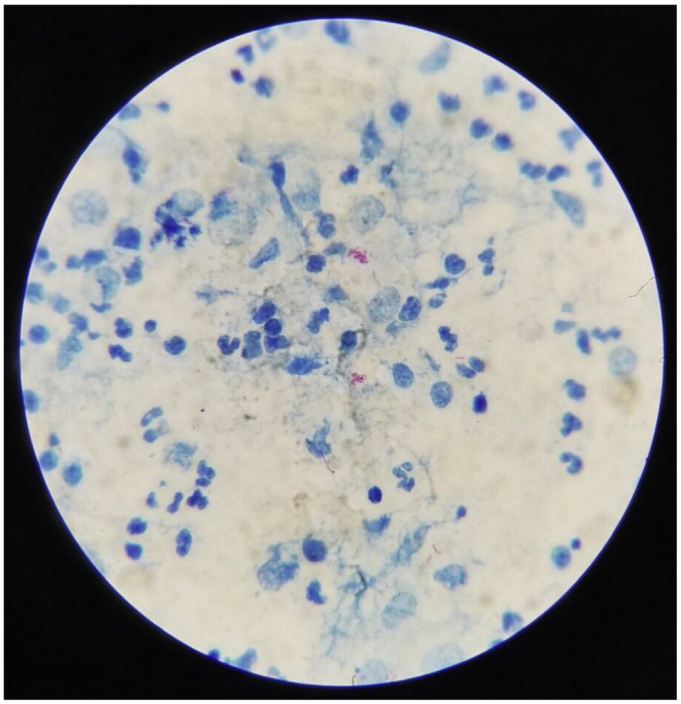

Fig. 4. Ziehl neelsen stain in 100× magnification field showing acid fast bacilli in clusters.

followed by rifampicin and isoniazid for two more months. She was also prescribed with Vitamin B6 along with this tuberculosis drug regimen. Her symptoms resolved after six months of treatment.

Discussion

Nepal as a developing nation has major incidence of tuberculosis. Majority of the cases are pulmonary, though extrapulmonary TB is also common. Tuberculosis of the breast is very rare as compared to other extra pulmonary tuberculosis. Its incidence in histological breast specimens ranges from 3 to 4.5% in developing countries to less than 0.1% in western countries. It is far more common in females than in males with peak incidence in the age group of 21 to 40 years. Multiparty, lactation, trauma and past history of suppurative mastitis are considered to be the risk factors for breast tuberculosis [1,2].

In our case, breast was the only site involved with no evidence of another tuberculous focus on physical or radiological examination as well as no prior history of tuberculosis. Primary breast tuberculosis has also been reported in case reports by Biswas et al [8], Singal et al [9] and Azorkar et al [5].

There is lack of awareness among healthcare profession of its manifestations, so it is often overlooked in many patients. It might present as tuberculous mastitis as evidenced by a breast lump which mimics carcinoma of the breast [7]. Females of reproductive age, when they are in lactation period are at risk for tuberculous mastitis. Both breasts can be involved with equal frequency [7].

A breast mass with or without ulceration of overlying skin and discharging sinuses are common manifestations of breast TB. Multiple nodules and multiple sinuses may occur, but multiple lumps are unusual. Tenderness is more commonly seen in breast TB rather than in breast carcinomas. Our patient also initially presented with breast lump and tenderness. The upper outer quadrant of breast is most commonly involved in breast TB. Nipple and areola are rarely involved. Fixation of the overlying skin is usually seen in breast cancer, but it can be seen in breast TB [7,8].Constitutional symptoms like malaise, fever, weight loss and night sweats are present in less than 20% of the cases. Depending on the clinical and radiological features, breast tuberculosis has been classified most recently into three forms: nodular, diffuse and sclerosing. The nodular form is slow growing and well circumscribed. It has an oval tumor shadow on mammography, which can hardly be differentiated from breast cancer. The disseminated form is characterized by multiple lesions associated with sinus formation. This form mimics inflammatory breast cancer on mammography. The sclerosing form of the disease is seen in elderly women and is characterized by an excessive fibrotic process [6,7].

FNAC is an important diagnostic tool to diagnose breast tuberculosis. Imaging modalities like mammography or ultrasonography are of limited value as the findings are often indistinguishable from breast carcinoma [7]. Since FNAC of the breast can yield the cells from the breast, direct visualization of the epithelioid cell granulomas, Langhans giant cells and necrosis can aid in diagnosis. We can also perform acid fast bacilli stain or TB PCR of the aspirate.

Use of ultrasound-guided breast core biopsy rather than FNAC, is advocated by some author as the first-line intervention to establish or exclude the diagnosis [10].

Conclusion

Breast tuberculosis should be considered for any patients presenting with breast problem like abscess or lump without any constitutional symptoms. FNAC and/or biopsy with detection of mycobacterium can be diagnostic. Full recovery usually occurs with antituberculous treatment alone.

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