International Journal of Reproduction, Contraception, Obstetrics and Gynecology
Moukit M et al. Int J Reprod Contracept Obstet Gynecol. 2024 Mar;13(3):726-728
www.ijrcog.org
pISSN 2320-1770 | eISSN 2320-1789

DOI: https://dx.doi.org/10.18203/2320-1770.ijrcog20240485

Case Report

Atypical presentation of breast tuberculosis: a case report

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Received: 19 January 2024
Revised: 08 February 2024
Accepted: 09 February 2024

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ABSTRACT

Breast tuberculosis is a rare disease even in endemic regions. It often presents in young females as a breast lump and is confused with other benign and malignant lesions. We presented a case of 47-year-old woman, initially diagnosed with a breast carcinoma based on clinical examination and radiological imaging. However, breast biopsy with histopathological analysis revealed breast tuberculosis. Anti-tubercular chemotherapy was used during six months with good evolution. Given low specificity of clinical and radiological findings of mammary tuberculosis, histopathological study of any breast nodule is mandatory to exclude this rare entity and avoid unnecessary surgical procedure.

Keywords: Breast, *Mycobacterium tuberculosis*, Malignancy, Histopathology

INTRODUCTION

Tuberculosis is a major global health problem caused by Mycobacterium tuberculosis and responsible for approximately 1.3 million deaths in 2012.[1] Lungs are the most common organ affected. However, other systems may be involved including lymph nodes, central nervous system, bones, genito-urinary tract, bowel, and rarely breast. The last localization was described firstly in 1829 with an estimated incidence of 0.1% of all breast lesions.[2,3] The rarity of mammary tuberculosis and the overlap of features with other breast diseases makes the diagnosis challenging. Our aim through this case report and recent literature review was to discuss diagnoses and treatment modalities.

CASE REPORT

A 47-year-old woman, with an unremarkable medical history, was admitted in our department for a palpable nodule located in her right breast. Physical examination revealed a firm lump in the upper internal quadrant of the right breast, mobile and measuring 2 cm. Skin, right axillary region, and left breast were normal. All vital signs were normal. Breast ultrasound and bilateral mammography objectified the presence of a suspected right nodule, measuring 1.5 cm in diameter, located in the upper internal quadrant without axillary lymph nodes, and classified category 5 according to the American College of Radiology (Figures 1 and 2).

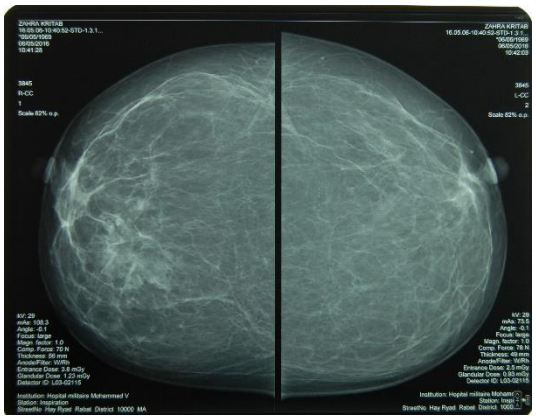

Figure 1: Mammography revealed right suspected nodule located in the upper internal quadrant.

Breast magnetic resonance imaging (MRI) confirmed also the suspected character of the right breast lump in addition

of another suspected small lesion localized inferiorly (Figure 3). Based on the physical and radiological data, a preliminary diagnosis of breast cancer was made. Biopsy of the palpable nodule with histopathological analysis revealed the presence of a multinodular mass which microscopically consisted of fibrous and lymphoid tissue infiltrated by large epithelioid granulomas with central necrosis and giant cells suggesting mammary tuberculosis. Chest X-ray, to rule out other foci of tuberculosis, was normal. Anti-tubercular chemotherapy was started immediately, during six months, with good evolution, and no side effects or any complications have been reported to date.

Figure 2: Large nodule with irregular borders in ultrasonography.

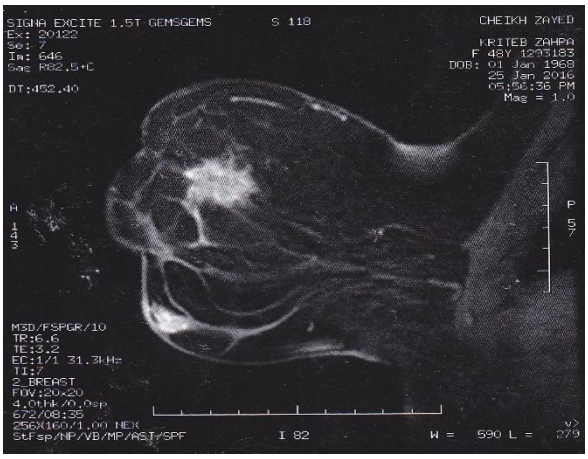

Figure 3: Breast MRI confirmed the suspected character of the right breast lump in addition of another suspected small lesion localized inferiorly.

DISCUSSION

Breast tuberculosis is an uncommon entity affecting usually young multiparous women with a mean age ranging from 32 to 40 years old.[3,4] Males are exceptionally affected. In a series of 52 patients with breast TB, only two were male.[5] Increased blood supply, dilated ducts, and physiological stress during lactation are contributory factors. Past history of suppurative mastitis and trauma of the breast has also been described as risk factors. The various modes by which the breast may get involved by Mycobacterium tuberculosis are hematogenous, lymphatic, spread from contiguous structures (like an infected rib, costochondral cartilage, sternum, shoulder joint), direct inoculation through nipple skin abrasions or through lactiferous ducts and ductal infection.[6,7] Clinical presentation is similar to that of breast malignancy. The most common presentation is a breast lump with or without axillary lymph nodes.[3,8] The upper outer and the central quadrant of the breast are most commonly affected. There are a few general symptoms that should attract the clinician's intent like anorexia, weight loss, night sweats, and fever. In a case series of twelve breast tuberculosis, only one patient reported high fever and night sweats.[9] Mckeown et al classified mammary TB into five forms: nodular, disseminated, breast abscess, sclerosing type and mastitis obliterans.[6] Nodular variety of the disease is the most frequent, as was in our case. In a series of 52 breast tuberculosis, Khanna et al observed the presence of a nodular form in 62% of cases.[5] The most commonly used radiological tool for breast anomaly is ultrasound. Bilateral mammography is used for women over 35 years old.[10] In breast tuberculosis, imaging modalities are not specific. Mammography is unreliable, particularly in young women due to high tissue density. However, breast ultrasonography can be useful in distinguishing cystic from solid lesions and can guided biopsy in case of small nodule or needle aspiration in case of deep breast abscess. Chest radiographs are also useful in diagnosis. They can demonstrate active pulmonary disease or any old healed lesion. Fine needle aspiration cytology (FNAC) is the most used diagnostic method with a 73 to 100% specificity when it associates granulomatosis and caseous necrosis.[5,11] In a retrospective series of 33 patients, FNAC was able to diagnose breast tuberculosis in only 18% of cases.[12] Mycobacterial culture remains the gold standard for diagnosis of TB. However, the time required and frequent negative results in pauci-bacillary specimens are important limitations. The sample is inoculated in a Lowenstein-Jensen culture bottle and incubated aerobically. It is periodically observed and any suspicious growth is confirmed by smear preparation. Interferon gamma release assay is a new diagnostic test which detects Interferon gamma response produced by T lymphocytes after stimulation by specific antigens encoded by a genomic fragment of *Mycobacterium tuberculosis*. This is absent in most of the other *Mycobacterium* as well as BCG. However, this test is not widely available and cannot help to distinguish between latent and active infection. Major progress in the diagnosis of extrapulmonary tuberculosis has been achieved by nucleic acid amplification tests, especially the polymerase chain reaction which detects nucleotide sequences unique to *M. tuberculosis* directly in the specimens and gives results within few hours. Recently, Xpert MTB/RIF become an important rapid diagnosis tool with a sensitivity and specificity of 81% and 99% respectively [13]. Anti-tubercular drugs (ATD)

during six months is the cornerstone for treatment of breast tuberculosis. Drugs used in the intensive phase include ethambutol, pyrazinamide, rifampicin and isoniazid. This is followed by a continuation phase of four months with isoniazid and rifampicin.[3,14] At some centers, 9 months of therapy is adopted with no significant clinical benefit.[3] Surgical procedure may be required in cases not responding to ATD and indications of mastectomy remain limited to extensive disease and complete destruction of the gland.

CONCLUSION

Breast tuberculosis must be considered in any woman with breast lump or abscess, especially in endemic areas. Given low specificity of clinical and radiological findings, histopathological study of any breast nodule is mandatory to exclude this rare entity and avoid unnecessary surgical procedure.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

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Cite this article as: Moukit M, Chennana A, Rahmoune M, Allilou I, Babahabib A. Atypical presentation of breast tuberculosis: a case report. Int J Reprod Contracept Obstet Gynecol 2024;13:726-8.