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Mammary Tuberculosis: A Case Report

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ABSTRACT

Introduction: Mammary tuberculosis is a rare form of extrapulmonary tuberculosis, accounting for less than 0.1% of all tuberculosis cases. It often presents as a painless breast mass, clinically mimicking breast cancer, and poses significant diagnostic challenges, both clinically and paraclinically. This article presents a case of primary mammary tuberculosis.

Case: We report the case of Mrs. O.S., a 40-year-old single, nulliparous woman with no significant medical history or known exposure to tuberculosis. She presented with left breast pain and induration, accompanied by redness and warmth. After an ineffective course of antibiotics, further examination revealed an abscess in the anterointernal quadrant of the left breast, with nipple retraction and multiple fistulization points. A biopsy confirmed the diagnosis of mammary tuberculosis. The patient was treated with standard antituberculous therapy and responded well to treatment.

Discussion: Mammary tuberculosis is an extremely rare manifestation of extrapulmonary tuberculosis, representing less than 0.1% of cases. Its rarity may be attributed to the unfavorable environment of breast tissue for the survival of the tubercle bacillus. The disease often presents as a painless mass that is easily mistaken for breast cancer. Diagnosis is frequently delayed due to its nonspecific clinical presentation, leading to confusion with more common pathologies like breast cancer. Treatment is primarily medical, relying on standard antituberculous therapy, although surgery may be necessary in cases of poor response.

Conclusion: Mammary tuberculosis, despite its rarity, poses a significant diagnostic challenge due to its resemblance to breast cancer. Accurate diagnosis requires careful consideration, particularly in tuberculosis-endemic regions. Early intervention is crucial to prevent complications and ensure a favorable prognosis.

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Introduction

Mammary tuberculosis is a rare form of extrapulmonary tuberculosis, accounting for less than 0.1% of tuberculosis cases [1,2]. It frequently presents as a painless mass in the breast, clinically mimicking breast cancer [2,3]. Whether primary or secondary, this mammary localization often poses diagnostic challenges both clinical and paraclinical [3,4,5]. In this article, we present a case of primary mammary tuberculosis.

Case

This is the case of Mrs. O.S., a 40-year-old single, nulliparous woman with no significant medical history and no known exposure to tuberculosis. She presented with left breast pain and induration for one month, accompanied by inflammatory signs such as redness and warmth (Figure 1). These symptoms prompted her to consult a general practitioner, who prescribed antibiotics. However, as the symptoms did not improve, the patient sought care in our emergency department. Upon admission, the examination revealed an abscess in the anterointernal quadrant of the left breast, with nipple retraction and multiple fistulization points discharging pus, along with the presence of a left axillary lymph node (Figure 2). The patient underwent a breast ultrasound, which showed a hypoechoic lesion with irregular contours. A pus sample was taken for cyto bacterial analysis, followed by a biopsy, the histological study of which revealed granulomatous mastitis with epithelioid and giant cells, along with caseous necrosis, confirming the diagnosis of mammary tuberculosis. The tuberculin skin test was strongly positive, and the search for other sites of infection was negative. The patient was started on antituberculous treatment: Rifampicin, Isoniazid, and Pyrazinamide six days a week for two months, followed by Rifampicin and Isoniazid six days a week for four months, with a good clinical outcome.

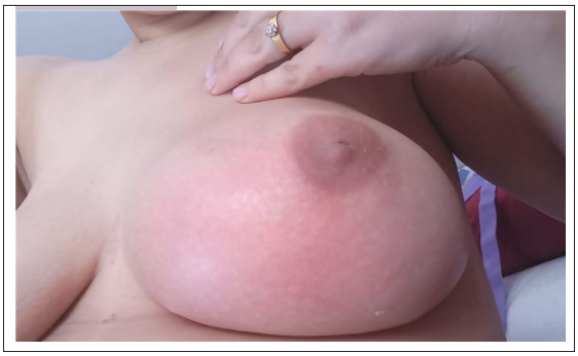

Figure N°1 : Inflammatory Mastitis of the Left Breast

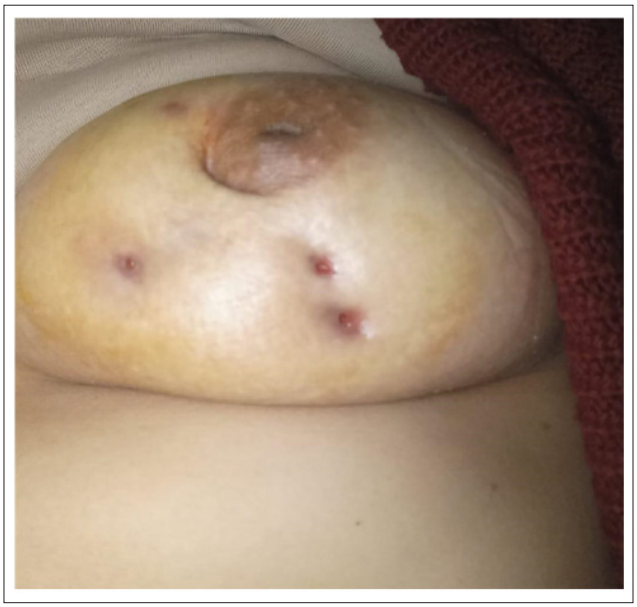

Figure N°2 : Abscess of the Left Breast with Retracted Nipple and Multiple Fistulas.

Discussion

Mammary tuberculosis is an extremely rare manifestation of extrapulmonary tuberculosis, ranking last among visceral locations [6]. This rarity could be explained by the fact that breast tissue does not provide a favorable environment for the survival and multiplication of the tubercle bacillus [6,7]. Representing less than 0.1% of tuberculosis cases, mammary tuberculosis often presents as a painless mass, easily mistaken for breast cancer [2,5-7]. Although tuberculosis is primarily associated with the lungs, this form can also result from hematogenous, lymphatic dissemination, or direct extension from a pulmonary or costal infection [8-10].

Since the first description of mammary tuberculosis by Astley Cooper in 1829, as a "cold tumor of the breast," approximately 900 other cases have been reported [11]. Asia records the highest number of cases (45.2%), followed by sub-Saharan Africa (27.4%), North Africa (17.2%), Europe (16.2%), and the Americas (4%) [6-12]. In a previous retrospective Tunisian series, involving 65 diagnosed cases, mammary tuberculosis represented 0.3% of all breast pathologies. The preferred age range is between 20 and 40 years, although other studies show a predominance among postmenopausal women over 50 years old [13].

A retrospective study conducted on 10 women with mammary tuberculosis, over an 8-year period (from January 2001 to September 2008), revealed that this pathology represented 0.3% of reported tuberculosis cases and 0.4% of breast pathologies treated in the department, with an average patient age of 32 years (ranging from 16 to 70 years) [14].

The diagnosis of mammary tuberculosis is often delayed due to its nonspecific clinical presentation, frequently leading to confusion with breast cancer [11]. Two main forms of mammary tuberculosis are described: the primary form, where the breast is the only affected organ, and the secondary form, associated with other tuberculosis sites [11,15,16]. Although the primary form is the most common (60% of cases), its existence as a distinct entity is controversial, as other tuberculosis foci, particularly pulmonary, may go unnoticed [15,16].

In the secondary form, the routes of contamination are multiple, but in 80 to 90% of cases, the infection spreads via retrograde lymphatic pathways from the axillary lymph nodes [17-19]. Contiguity involvement is less frequent and generally arises from a bone, joint, or skin focus, or from fistulization to the skin from an intercostal adenitis [18]. The hematogenous route, on the other hand, is exceptional and often manifests in the context of miliary tuberculosis [19].

Mammary tuberculosis can present in various clinical forms, such as nodular, miliary, sclerosing, or abscess, as observed in the case of our patient. Anatomopathologically, it manifests as a reddish or yellowish-gray lesion, sometimes ulcerated, which can mimic cancer [15]. The nodules, ranging from 2 to 10 cm in size, become soft in the presence of caseum [18]. In the section, the nodules reveal whitish granulations or central necrosis with a discharge of yellowish granular pus [15,18,20].

The presence of chronic discharge, the frequency of which varies among authors, is also possible, and this discharge can be serous, purulent, or hemorrhagic [15]. Examination of the lymph node areas reveals axillary adenopathies in 75% of cases, which can evolve into fistulization, as was the case with our patient [9,15]. Other adenopathies may appear in the cervical, supraclavicular, or contralateral axillary regions, sometimes preceding breast involvement, and constituting the only reason for consultation [9,10,15].

The main risk factors reported in the literature include multiparity, breastfeeding, breast trauma, and chronic mastitis [7,21,22]. Among the 215 cases studied by Khaiz, 80% of the women were multiparous, probably due to more frequent contamination of the galactophoric ducts during lactation, due to ductal ectasia [21].

The diagnosis generally relies on biopsy, which reveals characteristic caseous granulomas [23]. Histological criteria include the presence of epithelioid follicles and Langhans-type giant cells, with or without caseous necrosis [23]. The tuberculin skin test is usually positive in endemic areas, but it can produce false negatives [5]. There are no specific mammographic signs of mammary tuberculosis, and mammography is only a diagnostic orientation tool, often showing heterogeneous, irregular, poorly defined opacities, with sometimes calcifications suggesting a malignant etiology. On ultrasound, mammary tuberculosis appears as a hypoechoic, heterogeneous image, well or poorly defined, with minimal posterior enhancement. These aspects pose a differential diagnostic challenge with breast cancer and old, remodeled fibroadenomas. Mammography coupled with breast ultrasound offers better sensitivity and specificity. MRI, although used to assess locoregional extension, does not offer specific signs to distinguish tuberculosis from carcinomas or abscesses [24,25].

The definitive diagnosis is therefore bacteriological, based on the identification of Mycobacterium tuberculosis in cytopuncture samples, biopsy, or fistulous secretions [9].

However, the tubercle bacillus is found in only 25% of cases, and culture takes several weeks. Histopathological examination is therefore crucial for confirming the diagnosis, revealing in 95% of cases epithelioid and giant cell granulomas with central caseous necrosis [26].

A number of differential diagnoses must be ruled out before concluding mammary tuberculosis, notably breast cancer. The

literature reports cases where breast cancer and mammary tuberculosis coexist, highlighting the importance of histological examination of breast tissue to exclude an associated carcinoma [8,9]. Other pathologies to consider include mammary plasmacytosis, pyogenic abscess modified by antibiotics, actinomycosis, mammary granulomatosis, sarcoma, mastitis with foreign body reaction, and ductal ectasia [8,9].

The treatment of mammary tuberculosis is primarily medical, based on the administration of antituberculous drugs at appropriate doses, according to a precise regimen, an initial phase of two months, combining Rifampicin, Isoniazid, and Pyrazinamide, followed by a maintenance phase of four months with Rifampicin and Isoniazid, is recommended. In case of recurrence, the treatment is extended to seven months [7,10].

Surgery is reserved for cases of poor response to medical treatment. It is necessary for diagnosis (biopsy) and may involve nodule resection, abscess drainage, or, in extreme cases, segmental or total mastectomy [8]. Some authors currently recommend percutaneous abscess drainage under tomographic or ultrasound guidance [6,9].

Long-term prognosis and follow-up are important. Some studies suggest prolonged follow-up to prevent recurrences, particularly in immunocompromised patients [7,9,10].

Conclusion

Mammary tuberculosis, though rare, represents a significant diagnostic challenge due to its clinical similarity to breast cancer. Often mistaken for more common pathologies, it requires increased vigilance, especially in regions where tuberculosis is endemic [6,8,9]. Clinical presentation can vary, ranging from painless masses to draining abscesses, which further complicates the diagnosis. Biopsy and histopathological examination are essential to confirm the presence of tuberculous granulomas and exclude malignancy [7-9]. Treatment primarily relies on standard antituberculous therapy, which is generally well-tolerated and effective in eradicating the infection. However, frequent diagnostic delays can lead to local and systemic complications, underscoring the importance of early management to ensure a favorable prognosis [6,7,10].

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Availability of data and materials

Supporting material is available if further analysis is needed.

Competing interests

The authors declare that they have no competing interests.

Consent for publication

Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

Ethics approval and consent to participate

Ethics approval has been obtained to proceed with the current study. Written informed consent was obtained from the patient for participation in this publication

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