Clinical Case

Primary Breast Tuberculosis: A Case Report

Tuberculose Primária Mamária: Um Caso Clínico

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ABSTRACT

Primary breast tuberculosis is a rare entity, especially in nonendemic areas, often mimicking carcinoma or pyogenic abscess. It represents a diagnostic challenge due to its nonspecific clinical and radiological features.

We report the case of a 69-year-old woman presenting with a painful lump in the right breast. Clinical examination and imaging were suspicious for carcinoma. Core needle biopsy revealed granulomatous inflammation with caseous necrosis and Ziehl–Neelsen staining was positive for acid-fast *bacilli*. Culture confirmed *Mycobacterium tuberculosis*. The patient was treated with standard anti-tuberculosis therapy with complete clinical resolution.

Breast tuberculosis should be included in the differential diagnosis of breast masses, particularly in endemic regions. Awareness is essential to avoid misdiagnosis and unnecessary surgical intervention.

Keywords: Breast Diseases/diagnosis; Breast Diseases/diagnostic imaging; Tuberculosis/diagnosis; Tuberculosis/diagnostic imaging

RESUMO

A tuberculose mamária primária é uma entidade rara, especialmente em áreas não endêmicas, frequentemente mimetizando carcinoma ou abscesso piogénico. Representa um desafio diagnóstico devido às suas características clínicas e radiológicas inespecíficas.

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Relatamos o caso de uma mulher de 69 anos que apresentou um nódulo doloroso na mama direita. O exame clínico e os exames de imagem levantaram suspeita de carcinoma. A biópsia por agulha grossa revelou inflamação granulomatosa com necrose caseosa e a coloração de Ziehl-Neelsen foi positiva para bacilos álcool-ácido-resistentes. A cultura confirmou *Mycobacterium tuberculosis*.
A paciente foi tratada com terapia antituberculosa padrão, com resolução clínica completa.
A tuberculose mamária deve ser incluída no diagnóstico diferencial de nódulos mamários, principalmente em regiões endémicas.
A consciencialização é essencial para evitar diagnósticos errados e intervenções cirúrgicas desnecessárias.

Palavras-chave. Neoplasias da Mama/diagnóstico; Neoplasias da Mama/diagnóstico por imagem; Tuberculose/diagnóstico; Tuberculose/diagnóstico por imagem

INTRODUCTION

Tuberculosis remains a major global health problem, but primary involvement of the breast is exceedingly uncommon, accounting for <0.1% of breast lesions and about 3%–4% of all breast diseases in endemic areas.[1,2] Primary breast tuberculosis is defined as tuberculosis localized only in the breast, in a patient with no history of pulmonary tuberculosis.[3] Clinical presentation is usually of a solitary, ill-defined, unilateral hard lump, found in the upper outer quadrant of the breast, mimicking carcinoma or breast abscess, making its diagnosis difficult.[4-6] Early recognition is essential to ensure correct treatment and to avoid unnecessary surgery. We report a rare case of primary breast tuberculosis presenting as a lump suspicious of carcinoma.

CASE REPORT

A 69-year-old female, from northern Portugal, presents at the outpatient clinic with an unpainful lump in the right breast, which has been developing for 3 months and progressive enlargement. Her past medical history included Cushing syndrome, beta-thalassemia minor, diabetes mellitus and hypertension. She had four pregnancies, one abortion, and three live births, all of whom she breastfed. She denied alcohol consumption, smoking or illicit drug use. Two years earlier, a screening mammogram had reportedly been normal.

On examination, a firm, irregular, tender mass measuring approximately 5 cm was palpated in the upper outer quadrant of the right breast. An ipsilateral axillary lymphadenopathy was detected.

Mammography (Fig. 1) and breast ultrasound (Fig. 2) showed hypoechoic formations in the upper outer quadrant and in the right axillary region, the largest measuring 6 cm.

Fine-needle aspiration yielded purulent material. Cytology was negative for malignant cells, and bacteriological analysis

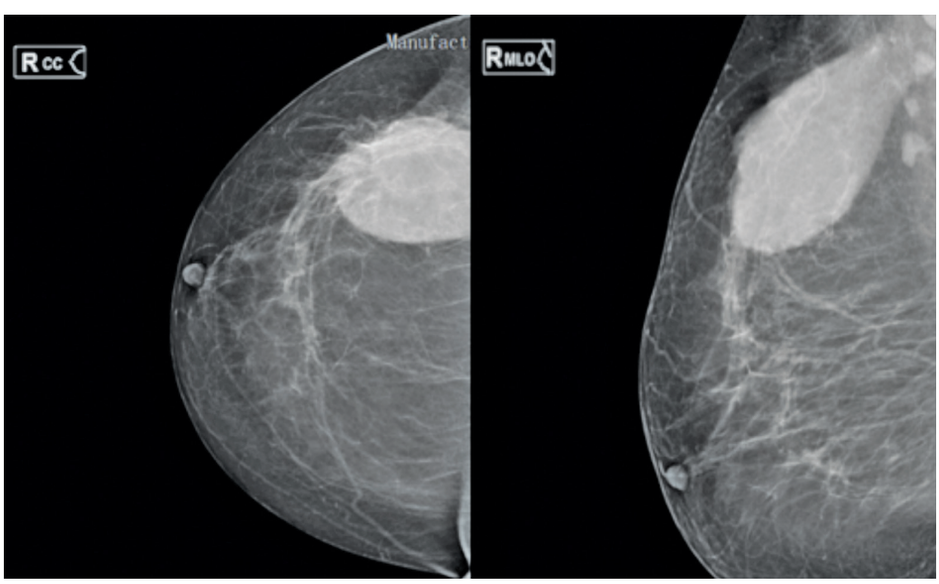

Figure 1 – Right breast mammography on initial evaluation.

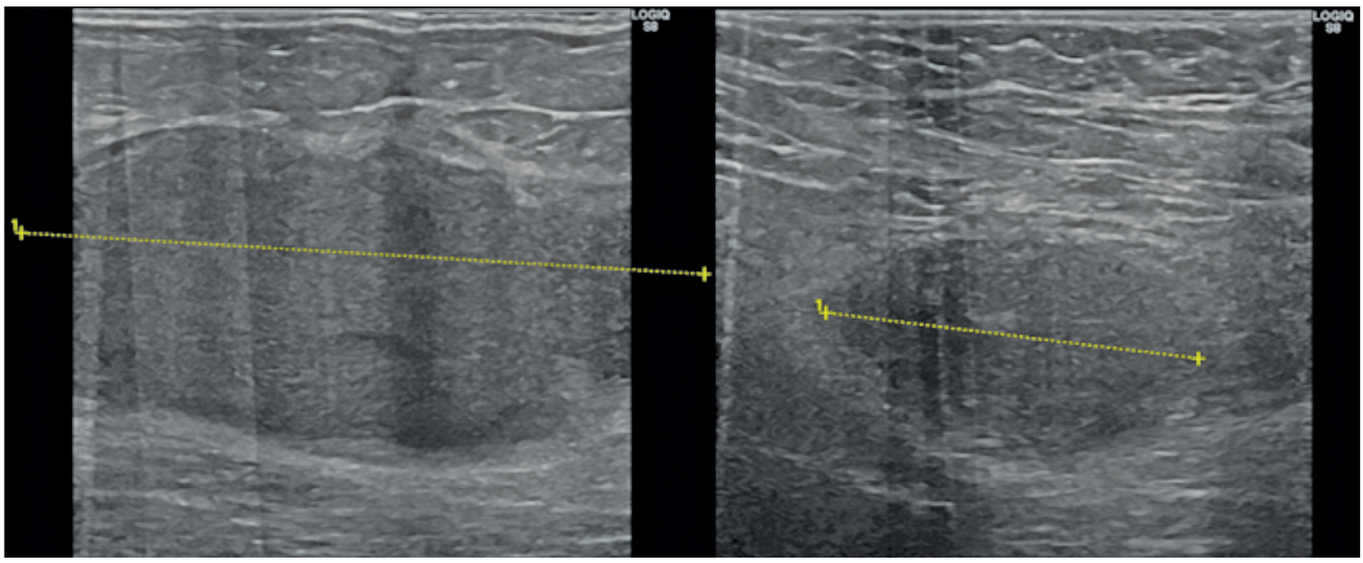

Figure 2 – Right breast ultrasound on initial evaluation.

was positive for *Mycobacterium tuberculosis* complex. Thoracic computed tomography (Fig. 3) revealed no pulmonary infiltrates, consolidations, or cavitations suggestive of pulmonary tuberculosis. At the breast level, a 6×5.7 cm lesion was confirmed, with multiple axillary nodes.

The patient was referred to an infectious diseases specialist and commenced a standard six-month antituberculosis regimen (isoniazid, rifampicin, ethambutol, pyrazinamide).

During follow-up, she developed a local abscess requiring surgical drainage. Ultrasound at two months demonstrated a residual collection (21×8×4 mm) and a second smaller collection, both reduced compared to prior imaging. Subsequent outpatient follow-up at 3, 6, and 12 months showed progressive regression, with complete resolution of nodular lesions and absence of axillary lymphadenopathy. At two-year follow-up, no recurrence was observed. The most recent mammogram demonstrated only minimal skin retraction at the upper outer quadrant, consistent with prior surgery, and was classified as BI-RADS 2. The patient was discharged to her primary care physician with a plan for annual radiological surveillance (Fig. 4).

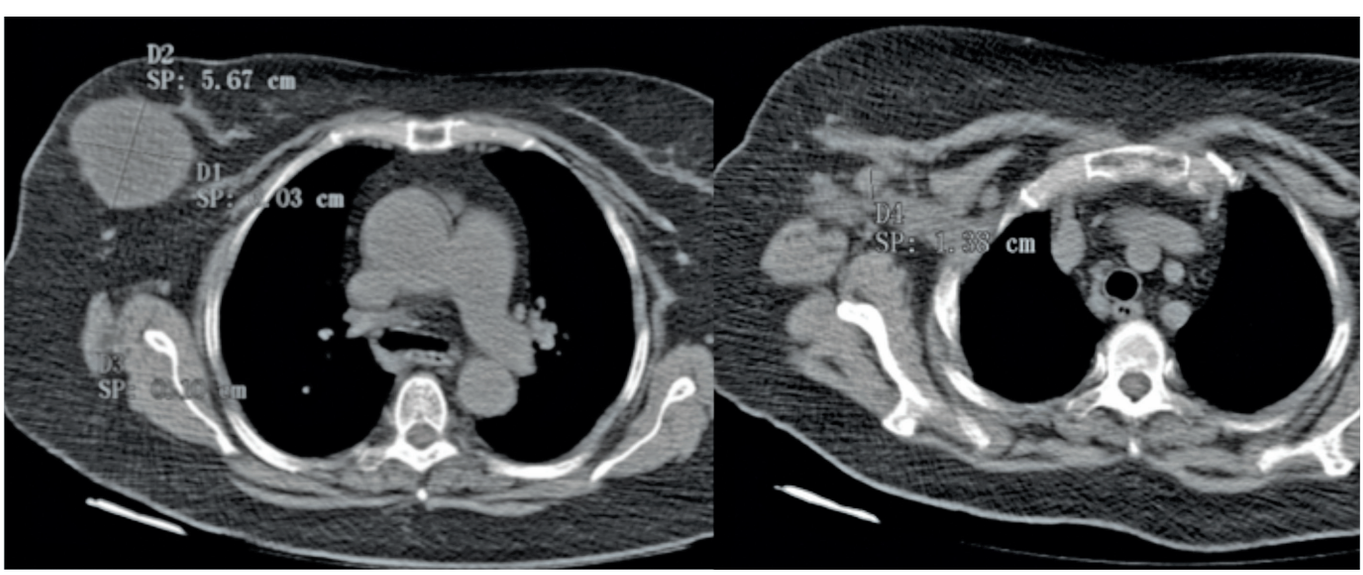

Figure 3 – Thoracic tomography showing a right breast formation and ganglion formations in the right axilla.

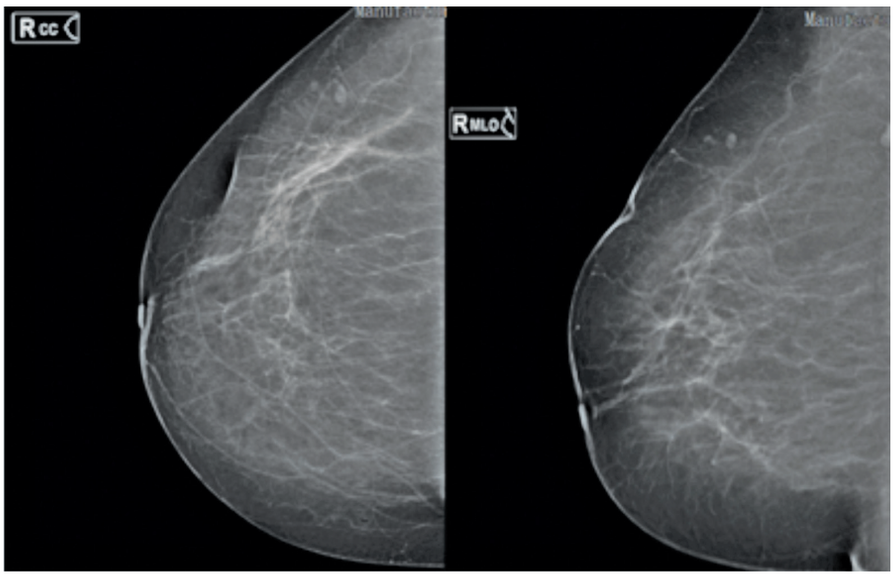

Figure 4 – Right breast mammography on discharge.

DISCUSSION

Primary breast tuberculosis is rare, particularly in immunocompetent patients. The disease commonly affects women at reproductive age, but it can also occur in postmenopausal patients.[2,4] The pathogenesis may involve direct inoculation or spread from nearby lymph nodes.[1,7]

The clinical presentation often mimics carcinoma (firm, irregular mass) or pyogenic abscess.[4,5] Imaging features are nonspecific and may further suggest malignancy. Therefore, histopathological confirmation is mandatory. The presence of granulomatous inflammation with caseous necrosis and demonstration of acid-fast bacilli are diagnostic.[3] Culture or polymerase chain reaction for *M. tuberculosis* provides confirmation.

Differential diagnoses include breast carcinoma, idiopathic granulomatous mastitis, and fungal infections.[3] Misdiagnosis may lead to unnecessary mastectomy.[4,5]

Treatment is primarily medical, with anti-tuberculosis therapy being highly effective.[3,2] Surgery is reserved for drainage of abscesses, excision of residual masses, or diagnostic uncertainty. This case highlights the importance of considering tuberculosis in the differential diagnosis of breast lumps, especially in endemic regions.

TAKE HOME MESSAGES

Primary breast tuberculosis is an important differential diagnosis of breast masses. A high index of suspicion, along with histopathological and microbiological confirmation, is crucial for accurate diagnosis. Early treatment with anti-tuberculosis therapy leads to excellent outcomes and prevents unnecessary surgery.

ETHICAL DISCLOSURES

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CONTRIBUTORSHIP STATEMENT

CLV: Literature review and writing of the manuscript.
SBS and MFM: Writing and critical review of the man-uscript.
RL and AIF: Critical review of the manuscript.
All authors approved the final version to be published.

DECLARAÇÃO DE CONTRIBUIÇÃO

CLV: Revisão da literatura e redação do manuscrito.
SBS e MFM: Redação e revisão crítica do manuscrito.
RL e AIF: Revisão crítica do manuscrito.
Todos os autores aprovaram a versão final a ser publicada.

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