CLINICAL CASE REPORT: PRIMARY TUBERCULOSIS OF THE BREAST MIMICKING CARCINOMA

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Abstract. This report describes a well-documented case of primary, nodular-form tuberculosis of the breast that mimicked cancer in a 73-year-old patient. This is a disease that rarely affects the breast.

INTRODUCTION

Breast tuberculosis is an extremely rare disease that was first described by Astley Cooper in 1829. Until recently, most documented cases were observed in previous generations.1–5 It principally affects women from underdeveloped countries such as Africa and India, where tuberculosis is still prevalent.4,6 The breast, as well as skeletal muscle and the spleen, are resistant to tuberculosis.7 Nevertheless, when the disease occurs, it invariably affects women of reproductive age (20–40 years).8 When elderly patients are rarely affected, the nodular form of tuberculosis of the breast may appear to mimic carcinoma, even by mammography, and this may lead to difficulties in diagnosis.3,4,9

The gold standard for diagnosis of the disease is detection of the etiologic agent, Mycobacterium tuberculosis, by using Ziehl-Neelsen staining or culture. However, smear positivity for acid-fast bacilli by Ziehl-Neelsen staining is low, and in most cases, tuberculosis of the breast can only be accurately diagnosed by histologic identification of the typical necrotizing, granulomatous lesion.5,10 This paper reports a rare case of tuberculosis of the breast mimicking cancer that was confirmed by histologic and etiologic examination with no apparent signs of the disease at other sites.

CASE REPORT

A 73-year-old Brazilian woman who was pregnant 19 times and gave birth to 19 children with no abortions sought treatment at the Mastology Unit of the Hospital Getúlio Vargas, Federal University of Piauí (Piauí, Brazil) in November 2003 complaining of a lump in her right breast for the past eight months. She denied any history of pulmonary tuberculosis but reported the death of her husband nine years earlier from pulmonary tuberculosis and the death of her sister from breast cancer five years earlier.

Physical examination detected a lump in the upper outer quadrant of her right breast, with skin retraction and edema at the site of the lesion. No palpable ipsilateral axillary lymph nodes were found. Mammography suggested a malignant tumor 3.6 × 2.3 cm with lobulated and partially defined contours.

In view of the suspected malignancy of the breast tumor, an incisional biopsy was conducted to histologically confirm diagnosis. However, this procedure showed a poorly vascularized lesion with an area of necrosis, and it was decided to carry out an excisional biopsy. Gross examination of the sample showed a solid lesion measuring 3.5 × 2.5 × 2.1 cm with an area of central necrosis. Histologic analysis showed a chronic granulomatous inflammation with caseous necrosis and Langhans-type giant cells (Figure 1). Diagnosis was confirmed by the identification of acid-fast bacilli in tissue sections using Ziehl-Neelsen staining (Figure 2). The result of a tuberculin skin test was strongly positive (18 mm); however, a chest radiograph and a computed tomographic scan showed no abnormality. After confirmation of the diagnosis, the patient received antituberculosis therapy (rifampicin, isoniazid, and pyrazinamide). She is currently being followed-up and the disease shows no signs of recurrence one year after treatment.

DISCUSSION

Tuberculosis of the breast is an extremely rare occurrence caused by the acid-fast bacillus M. tuberculosis, which principally affects women of reproductive age, with the most vulnerable being lactating women.8–10 Tuberculosis constitutes approximately 0.025–0.1% of all surgically treated diseases of the breast; however, this ratio is higher in underdeveloped countries.5 Tuberculosis of the breast in males is even rarer and is not a recognized condition.11

Although both breasts are susceptible to infection, only 3% of patients with tuberculosis of the breast are affected bilaterally.11,12 Infection of the breast may be the primary manifestation of tuberculosis, but this is probably not the most common pattern of involvement. In the view of some investigators, the disease is invariably secondary, even when the presumed primary focus remains clinically undetected. It generally originates from retrograde lymphatic dissemination from affected axillary and cervical lymph nodes or, rarely, from the primary pulmonary disease.4,14

The principal clinical manifestation of tuberculosis is the nodular form, which is predominant in elderly patients and both clinically and radiologically mimics carcinoma. In the younger patient, however, the disease usually presents as a pyogenic breast abscess.4,15 Surgical biopsy is necessary to establish the diagnosis of tuberculous mastitis, even when clinical appearance and results of fine-needle aspirative biopsy are suggestive of this diagnosis. In most cases, histology contributes to the diagnosis by identifying a granulomatous lesion with typical caseous necrosis.10,11 Bacteriologic and histochmical studies of the sample may confirm the definitive diagnosis by identifying the presence of the bacillus, although cultures and acid-fast bacilli staining are negative in most cases.
The principal differential diagnosis to be considered is carcinoma, although other diseases of the breast, such as fatty necrosis, plasma cell mastitis, periareolar abscess, actinomycosis, and blastomycosis, should also be considered. After microbiologic or histologic confirmation of the diagnosis of tuberculosis of the breast, treatment should include nodule excision or drainage in the case of abscess, and therapy with antituberculosis drugs. Before the discovery of antituberculosis drugs, treatment consisted of nodule excision, draining the abscesses, and surgery that could sometimes be as extensive as mastectomy. In the present case, the patient had a breast nodule associated with edema and skin retraction that was clinically and radiologically indistinguishable from cancer. The histologic diagnosis was tuberculosis of the breast because the disease was apparently not associated with any other location. The patient responded satisfactorily to the prescribed treatment and one year after treatment currently shows no sign of recurrence.

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