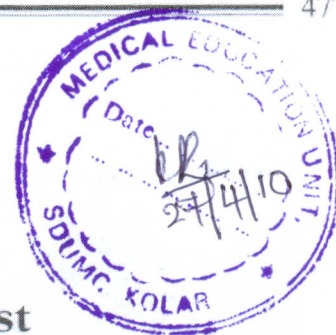


Case Report



Primary Actinomycosis of Breast — A Case Report

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Abstract

Primary Actinomycosis of breast is an unusual condition affecting females in the reproductive age group. We present a case of a 55-year old postmenopausal female, who presented with a lump in the breast and axillary lymph node enlargement which was clinically suspicious of carcinoma breast. Following fine needle aspiration cytology and histopathological examination a diagnosis of primary Actinomycosis of breast was confirmed.

Keywords

actinomycosis, primary, breast

Introduction

Actinomycosis is a chronic granulomatous disease caused by Gram positive filamentous bacteria, that are part of the normal flora. The main clinical forms are cervicofacial in 60% of cases, thoracic in 15% of cases and abdominopelvic in 25% of cases. Rare sites include breast, kidney, ovary, liver, bladder, prostate, pericardium etc¹.

Primary Actinomycosis of breast is a rare disease throughout the world and only about 30 cases have been reported so far². This condition sometimes presents as a diagnostic challenge as it may simulate carcinoma breast.

Case Report

A 55-year old post-menopausal female presented with a painful breast lump in the right retroareolar region since

two weeks along with enlargement of axillary lymph nodes. There was no history of trauma or bloody discharge from the nipple. Relevant hematological and biochemical parameters were within normal limits. Chest X-ray was normal. On examination, nipple appeared retracted. A clinical diagnosis of carcinoma breast was made. FNAC of the breast lump was done which was suggestive of an acute inflammatory lesion. Special stains for acid fast bacilli (AFB) was negative. The patient was put on antibiotics, but did not respond to treatment.

The patient underwent mastectomy which was then subjected for histopathological examination. Mastectomy specimen measured 20x10x4cm with an elliptical bit of skin. Nipple appeared retracted and a small erosion was present adjacent to the areola. Cut section showed a grey white area measuring 4x4x3cm immediately below the nipple. Focal cystic areas and areas of necrosis were also seen within it (**Fig. 1**). Axillary pad of fat showed three lymph nodes, largest measuring 1 cm, smallest measuring 0.5 cm which was grey brown on cut section.

Histopathology showed dense neutrophilic infiltrate with histiocytes and a few lymphocytes forming multiple microabscesses. One of the microabscesses showed focal colonies of actinomycosis (**Fig. 2**). The colonies were positive in Gram's stain, but negative in AFB stain. Gomori methenamine silver showed positive actinomycotic colonies. No evidence of malignancy were seen in any of the sections studied. Lymph nodes showed only reactive lymphadenitis.



Fig. 1

Cut section of breast showing grey white areas and areas of necrosis and cystic change (arrow).

There was no lung disease, tooth problems or gingivitis in the patient. Thus a diagnosis of primary Actinomycosis of breast was made.

Discussion

Primary Actinomycosis of breast is an unusual condition and was first reported by Ammentorp in 1893^{3,4}. Actinomycosis of breast is primary, when inoculation occurs through the nipple and the possible causes include trauma, lactation, and kissing. Secondary actinomycosis refers to the extension of pulmonary infection through the thoracic cage, in a process that can affect the ribs, muscles and finally the breast⁵.

Primary Actinomycosis usually affects women in the reproductive age group, but males are also known to be affected. All the reported cases in females have involved premenopausal women and only one case of primary actinomycosis in a post menopausal woman has been reported by de Barros *et al*⁵ till now.

The disease usually presents as a recurrent abscess which starts at the nipple and hence the site is always retroareolar in location. Fistulas with purulent or blood discharging sinuses may occur. In advanced cases fibrosis and cicatrization occur resulting in architectural distortion of breast tissue⁵. Another possible clinical presentation is a chronic abscess of breast, that is sometimes impossible to distinguish from malignancy of breast as in our case³.

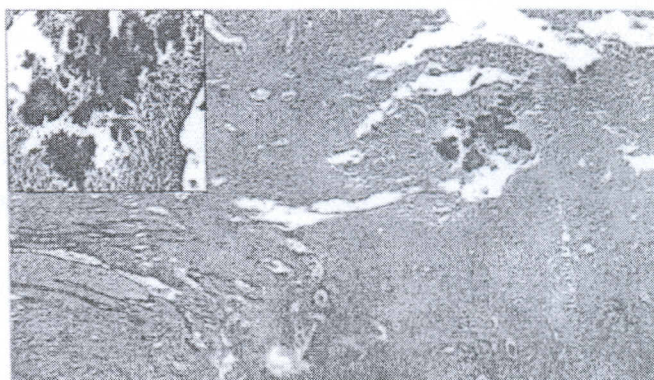


Fig. 2

Microphotograph showing actinomycotic colonies in breast tissue. H&E x100. Inset showing actinomycosis, H&E x400.

The differential diagnosis when fistulas are present, is to exclude chronic suppurative mastitis, tuberculosis, syphilis and chronic osteomyelitis of ribs³. When it presents as an chronic abscess, tuberculosis and actinomycosis should be considered. According to Jain *et al*⁶ primary actinomycosis must be considered in the differential diagnosis of chronic breast abscess and malignancy especially when FNAC suggests chronic inflammation.

Diagnosis is by FNAC, culture or pathological examination of excision biopsy or mastectomy specimen. Culture is diagnostic, but it gives positive results in only 50% of patients and should be performed with both aerobic and anaerobic media⁶. The most common species is *Actinomyces Israeli*, but other species like *Actinomyces viscosus*, *Actinomyces turicensis* and *Actinomyces radingae*⁷ have been recently reported.

The presence of characteristic actinomycotic colonies establishes the diagnosis when culture is unsuccessful or suitable specimens for culture are not available⁶. Bacterial colonies are seen as intertwined radiating filaments terminating in pear shaped clubs which are better visualized by Grocott- Gomori coloration⁸. They can be further distinguished from *Nocardia* species by acid fast stain which is negative in Actinomycosis.

In the present case, a breast lump with axillary lymph nodes in an elderly patient was clinically suspected to be carcinoma breast. Since no fistulas or draining sinuses were present, and no colonies were present on cytological smears, a possibility of actinomycosis was not considered.

A negative AFB on cytological smear ruled out the suspicion of tuberculosis also. Hence, a diagnosis was made following mastectomy.

Reports in literature, reveal that many authors have also felt it to be a diagnostic challenge as attention is frequently drawn to the presenting clinical manifestations, which are often confusing. Gogas *et al*⁸ reported that the diagnosis is frequently made after surgery. According to Volante *et al*⁹ many pre-operative investigations (radiological scans, incisional biopsy, fine-needle aspiration) are sometimes non-specific, and hence a surgical excision of the mass is needed to make a definitive diagnosis and define the appropriate antibiotic therapy.

Treatment consists of prolonged administration of Penicillin or Doxycycline followed by oral Amoxicillin and in cases refractory to medical treatment, excision biopsy has been considered⁵. It is therefore suggested that when the aspiration smear from a mass is found to be an inflammatory exudate rich in neutrophils, special efforts must be made to look for this microorganism. Establishment of the definite diagnosis in rare sites requires a high index of suspicion and good clinical-microbiological collaboration. Timely diagnosis can help rule out malignancy and a more conservative approach can be done.

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