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Primary Actinomycosis in Male Breast Mimicking Malignancy – A Rare Case Report with Review of Literature

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Case Report

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Abstract: Primary actinomycotic infection is a rare finding in breast with very few cases been reported in male breast and it is seen to be associated with trauma to skin or any predisposing conditions like diabetes mellitus. We are reporting an unusual rare case of actinomycosis of breast in a 70 year old male patient who came with the complaints of swelling in the right breast since seven years along with pain and bloody discharge from nipple since five to six months. Clinically breast malignancy was suspected and lumpectomy was done. Histopathological study showed features of actinomycosis.
Keywords: Actinomycosis, Male Breast, Nipple Discharge.

INTRODUCTION

Actinomycosis is a chronic granulomatous bacterial infection commonly seen in oral flora, colon and vagina. Actinomyces are commensals of the human oropharynx, gastrointestinal tract and female genitalia. Most common species is A. israelli [1]. It is known to directly affect the breast but etiology behind is still unknown. It is said that they are mostly associated with infection of lactiferous ducts due to trauma and secondary actinomycosis can be due to extension of the primary pulmonary infection through thoracic cage [2]. It is seen that till date only 32 cases have been reported in literature since 1981 [3].

It is said that breast actinomycosis involves the nipple as primary site of inoculation. Clinically the patient usually presents with breast mass or skin induration along with sinus tracts or bloody nipple discharge. Most common presentation is recurrent abscesses with or without fistula and it is difficult to differentiate this from an inflammatory carcinoma [2]. We report this case because of its rarity.

CASE REPORT

A 70 year old male presented with complaints of lump in the right breast since seven years associated with pain and bloody discharge from nipple since five to six months. He gave no history of trauma, infection or any significant medical or surgical history.

On examination: A firm lump was felt in the right breast which was mobile with well – defined borders. Skin and areola showed multiple depressed nodules.

MRI showed an ill-defined altered signal soft tissue lesion 7 x 2.1 x 8 cm as seen in right chest wall in retro-areolar region suggestive of neoplastic etiology. There was no lesion in lung, lymph nodes or thoracic bone.

Clinical diagnosis of breast malignancy was made. Tru-cut biopsy was reported as Chronic Non-specific Inflammatory lesion. There was no evidence of fungus, granuloma or malignancy. Lumpectomy of the breast mass was performed and sent for histopathological examination.

Grossly, we received a right breast lumpectomy specimen 9 x 6.5 x 3 cm covered by skin flap 9 x 6.5 cm in size. Multiple ulcerated nodules of varying sizes ranging from 0.2 to 0.5 cm in diameter over skin were noted. On serial sectioning, grey-white ill-defined, firm fibrotic area was seen (Figure-1).

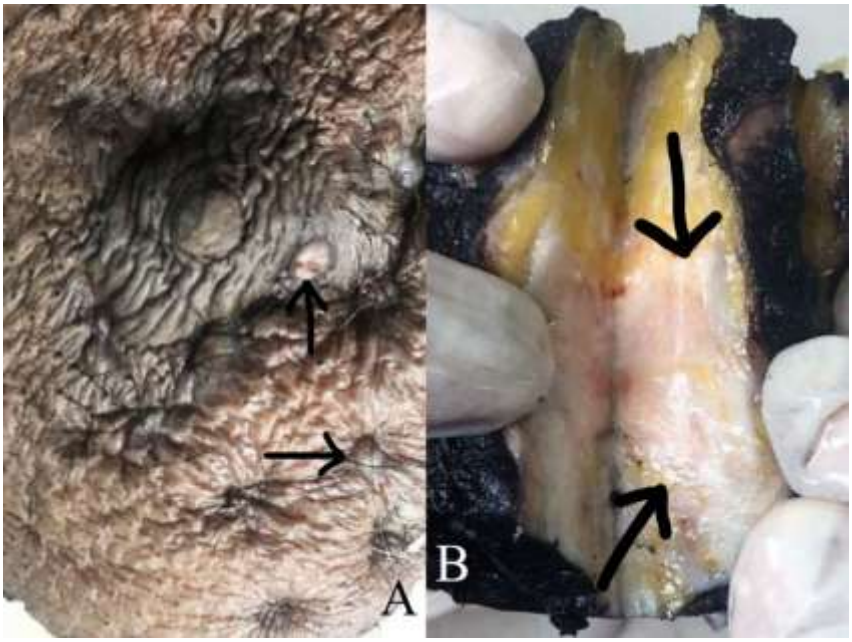

Fig-1: A: Gross showing skin covered breast lump with multiple ulcerated nodules over skin (Small arrow). B: Cut section showing grey-white, ill-defined, firm &fibrotic area (Large arrow).

Microscopy of the fibrotic areas revealed many actinomycotic colonies surrounded by dense neutrophilic infiltrate along with areas of fibrosis and foreign body type of giant cells with macrophages. However, there were no epithelioid cell granulomas or caseation. No atypical cells noted. Periodic Acid Schiff (PAS) &GomoriMethamine Silver (GMS) staining was done which confirmed the presence of actinomycotic colonies. Based on these findings, final diagnosis of Actinomycotic infection was made (Figure 2).

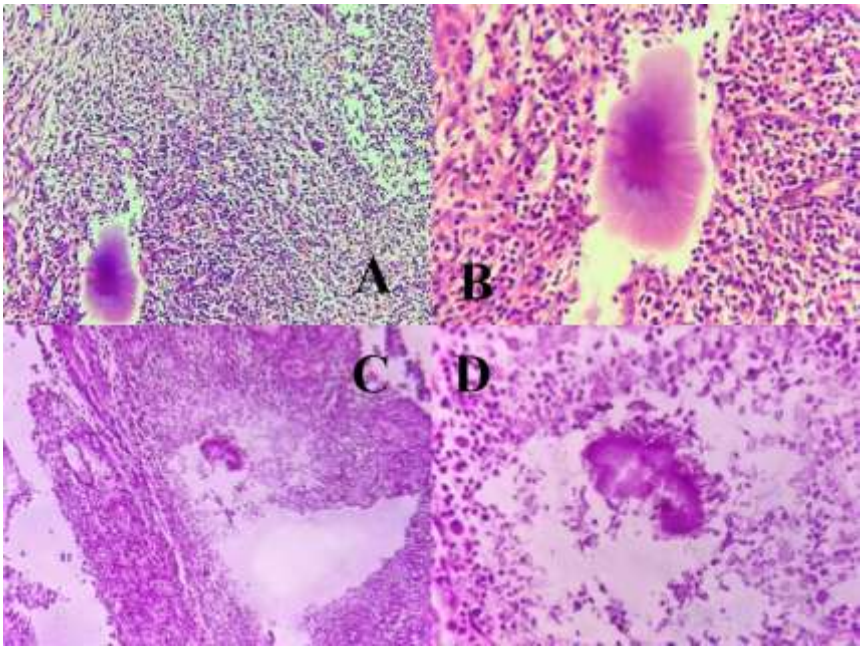

Fig-2: A: Actinomycotic colonies surrounded by dense neutrophilic infiltrate and fibrosis (H&E 10x). B: High power view of Actinomycotic colony (H&E 40x). C: Actinomycotic colonies surrounded by dense neutrophilic infiltrate (PAS 10x). D: High power view of Actinomycotic colony (PAS 40x).

Patient was put on appropriate antibiotics and he responded well to treatment. On follow up, patient is doing well with no recurrence of symptoms or disease.

DISCUSSION

Actinomycosis of the breast is a rare cause of granulomatous suppurative mastitis first described by Ammentrop in 1983 [2]. Actinomycosis is a gram positive anaerobic bacteria causing infection by the breach in the mucosal barrier [3].

They are slowly progressive, suppurative granulomatous disease often present with sinus tract and bloody nipple discharge as seen in our case. Etiology behind the primary infection is still unknown but most cases occur following trauma, surgery, lactation and kissing. Most commonly seen in premenopausal women and is rare in men [4]. Secondary actinomycosisfollow extension of pulmonary infection through thoracic cage [3].

In 78% cases of primary breast actinomycosis, the causative agent was found out to be Actinomycesisraelii. Also various other species known are A. viscosus, A. turicensis and A. radingae. These species show branching rods histologically and are seen to be anaerobic as well [3].

One case of male breast abscess was recently reported in a 53 old year old male and the causative agent was found out to be Actinomyceseuropaeus [3]. It was first reported in 1997 as facultative anaerobic rod bacteria. Histologically it is a short, non-mobile bacteria which causes infection of urinary tract, skin and soft tissues beside breast abscess. Also a single case of Actinomycesneuii was reported in 73 year old male which mimicked epidermoid cyst [5]. It is different from other species being an aerobic pathogen and exhibit non-branching rods on microscopic evaluation. A. neuii has been known to cause abscesses and infected atheromas [3].

It is seen that breast actinomycosis, typically involves the nipple as primary site for inoculation and often located retropapillary [4]. Fistula or purulent discharge can occur and in advanced cases fibrosis with architectural distortion results. Variable presentations are seen mammographically which include thickening of the overlying skin, retroareolar mass, or sinus tract which characteristically appears as dense tracts connecting breast density to the skin. The appearance overlaps with infectious mastitis and breast cancer [3]. In our case also, radiological features were suggestive of breast malignancy.

Differential diagnosis include many conditions like chronic suppurative mastitis, tuberculosis, syphilis and chronic osteomyelitis of rib, and malignancy [3]. Histopathological examination remains gold standard to arrive at correct diagnosis.

Fine needle aspiration cytology (FNAC) may help in making correct diagnosis. Typically, it shows “bales of wool” appearance which is characteristic of actinomycosis reminiscent. Epithelioid and giant cells may be seen in the background of inflammatory cells. In our case, FNAC was not done. Histopathological examination shows characteristic “cotton ball appearance” surrounded by inflammatory cells. The micro – abscesses are seen which contain actinomycotic colonies [2]. Various stains are used for confirmation which include PAS, Grocott-Gomori silver stain on histopathological sections while Gram’s, and Ziehl-Neelsen stain are employed on pus/exudates to demonstrate bacilli and rule out tuberculosis. Culture may be advised which yields positive in 50% cases. It is recommended that both aerobic and anaerobic media should be used [4]. In our case also, characteristic actinomycotic colonies were seen surrounded by dense infiltrate of neutrophils. However, no epithelioid cell granuloma/giant cells were seen. The histopathological diagnosis of actinomycosis was confirmed on PAS and GMS stain.

CONCLUSION

Even though rare, actinomycotic mastitis should be considered in the differential diagnosis of breast lumps, especially when associated with inflammatory features.

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