

Unusual Presentation of Aspergillosis in Breast Mimicking Fibroadenoma- A Rare Case Report

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Abstract: Fungal species are not frequently encountered in an immunocompetent host. Aspergillosis refers to variety of diseases of man and lower animals caused by several species of *Aspergillus*. Most cases of aspergillosis are caused by *A. fumigatus* group. Aspergillosis are abundant in the environment, they live in soil as saprophytes, deriving nutrients from dead plant and animal matter. Invasive aspergillosis typically occurs in severely immunocompromised patient. *Aspergillus* infections of breast and chest wall are rarely encountered in a young immunocompetent host. This report presents a case of aspergillosis of left breast in a young female, clinically mimicking fibroadenoma. Diagnosis was achieved by cytology, histopathology and subsequently culture. Here, we present this rare case of fungal infection of breast with relevant review of the literature.

Keywords: Aspergillosis, breast, immunocompetent.

1. Introduction

Aspergillosis is the most common mould infection in humans, accounting for >85% of invasive mould disease.

¹*Aspergillus* species usually affect an immunocompromised host.^{2,3} They are rarely encountered in an immunocompetent host. They usually affect pulmonary system. ^{1,4} Several clinical forms of aspergillosis are recognized, they may be classified as primary invasive – it is rare disorder, because exposure per se is less important in the development of aspergillosis than abnormal susceptibility. secondary invasive- occurs in immunocompromised. Members of *A. fumigatus* and *A. flavus* are involved. Secondary noninvasive- fungus colonises a pre existing cavity in the lungs forming aspergilloma. Primary allergic bronchopulmonary- occurs in previously sensitized persons who are exposed to the spores of an *aspergillus* species. Extrapulmonary manifestations are less common.³ Mycotic infections of the breast are uncommon, however, mammary aspergillosis has been reported at the site of prosthetic augmentation implants. ⁵Species belonging to this group are:

A. fumigatus, *A. flavus*, *A. niger*, *A. terreus*. We present a rare case of aspergillosis of left breast, clinically mimicking fibroadenoma, in an immunocompetent young female.

2. Case Report

A healthy 23-year-old unmarried female presented with a history of palpable mass in the upper outer quadrant of left breast. H/o tenderness present. Physical examination revealed an ill-defined vague mass located in the left breast. There was no palpable axillary lymph node. Fine needle aspiration cytology showed mainly lymphocytes, plasma cells, eosinophils and few scattered foreign body type of giant cells. The patient subsequently underwent excision biopsy and Microscopic findings revealed collections of lymphocytes, plasma cells, eosinophils, epithelioid cells and giant cells containing septate fungal hyphae, distorted giant cells with splendore Hoeser material. These hyphae were also stained by and Periodic Acid Schiff and Gomori methamine silver stain.

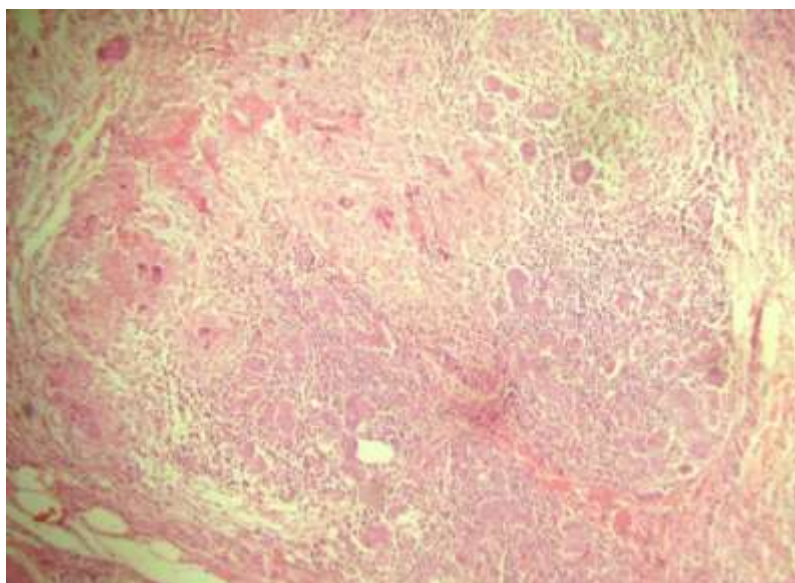


Figure 1: H & E of normal breast tissue showing Terminal ductal lobular unit with many giant cells. (10x)

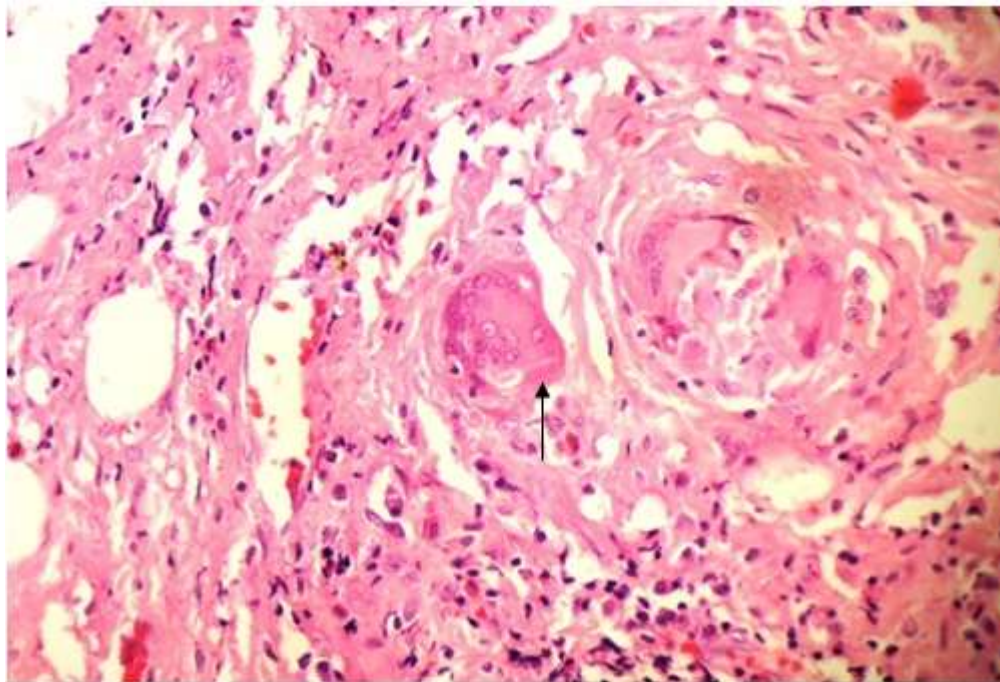


Figure 2: H & E clearly demonstrate the fungus inside the giant cell (arrow) (20x)

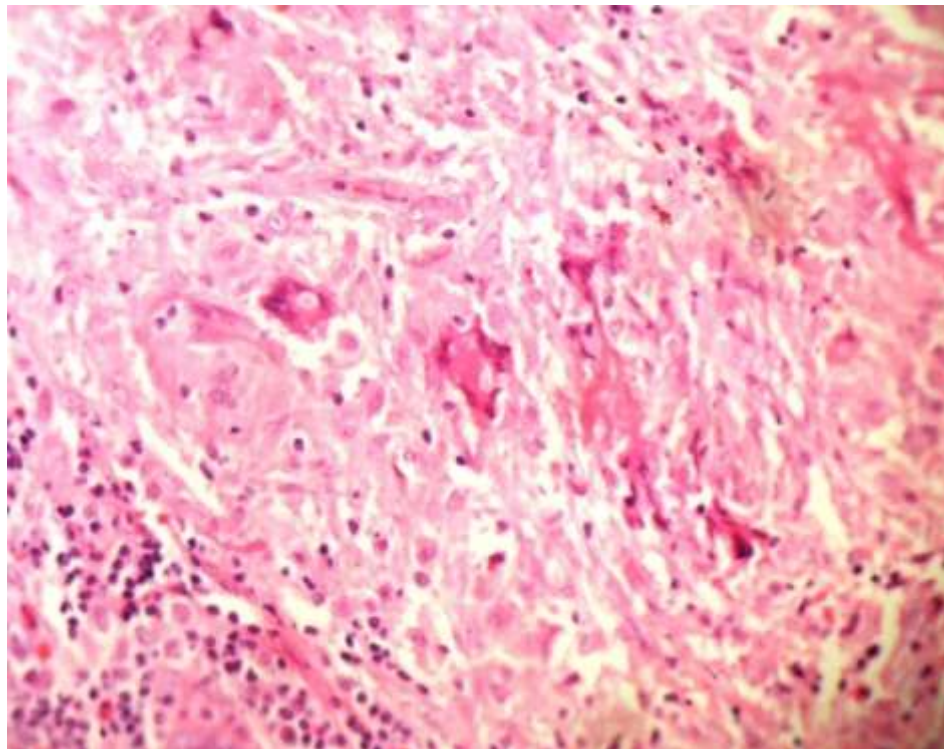


Figure 3: H and E stained sections show broken fungal septae within giant cells.(20x)

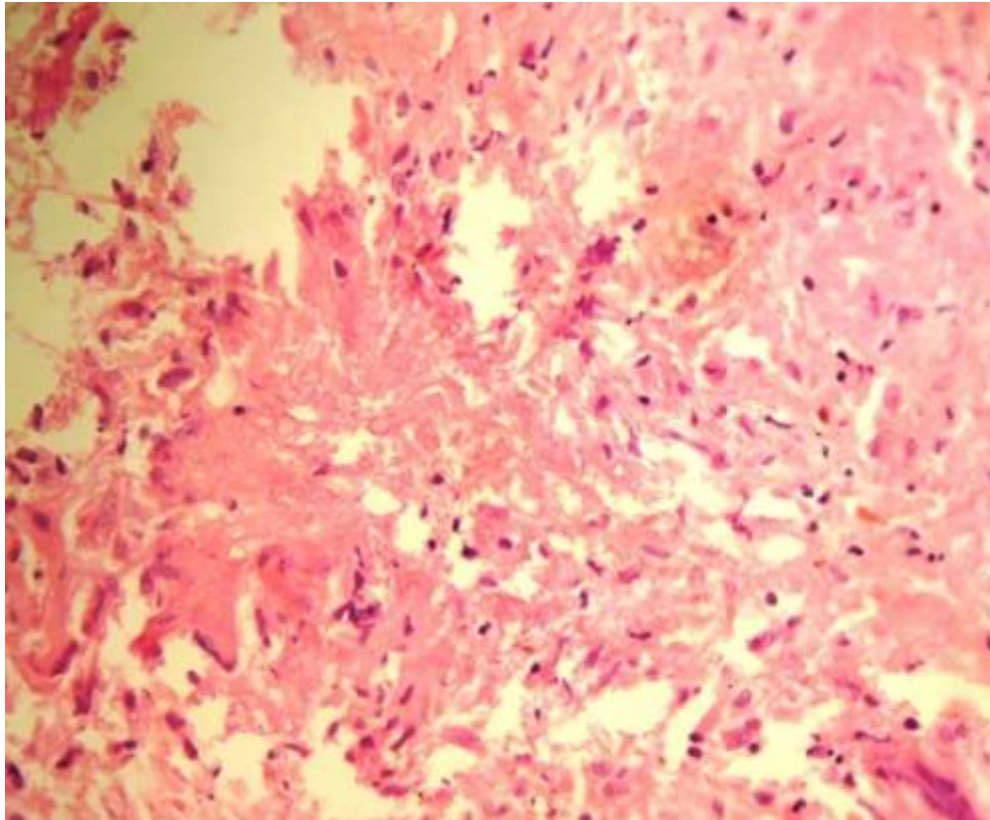


Figure 4: Note the unstained fungal hyphae and corona of splendore Hoeppli material

Also note the granulomatous inflammatory reaction. (H&E) (40x)

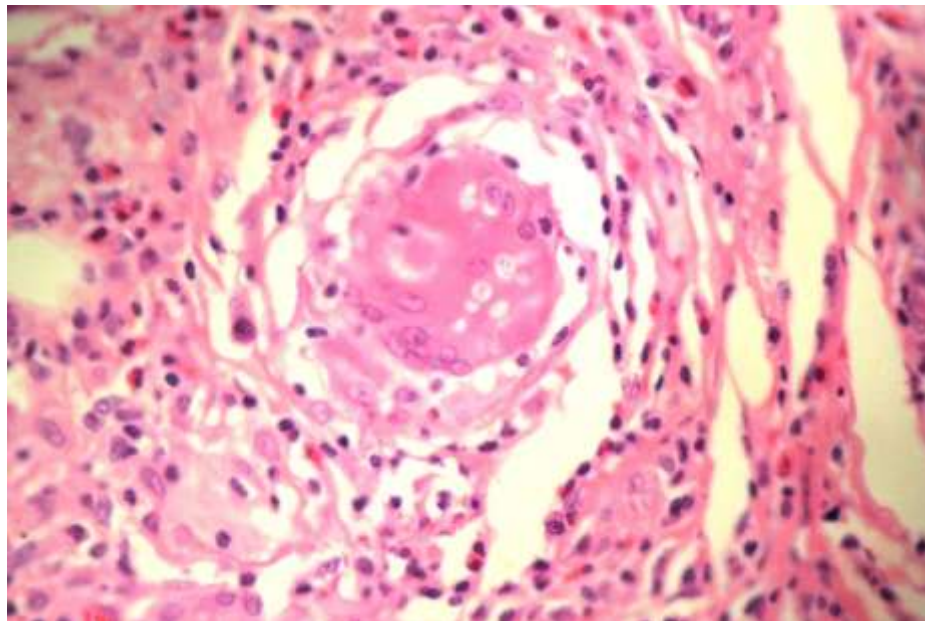


Figure 5: Higher magnification of distorted giant cell (40x)

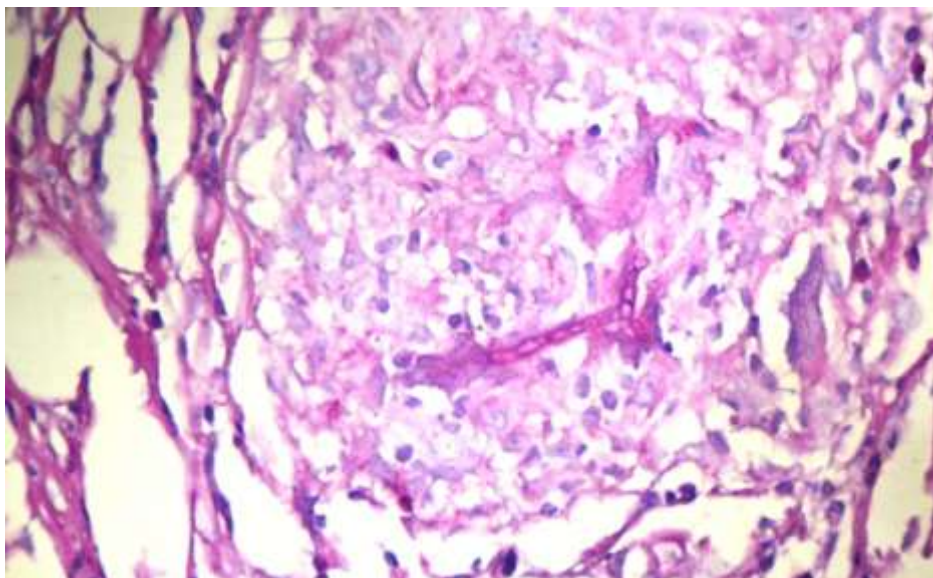


Figure 6: The hyphae are well decorated by PAS stain and show characteristic Dichotomous branching (40x)

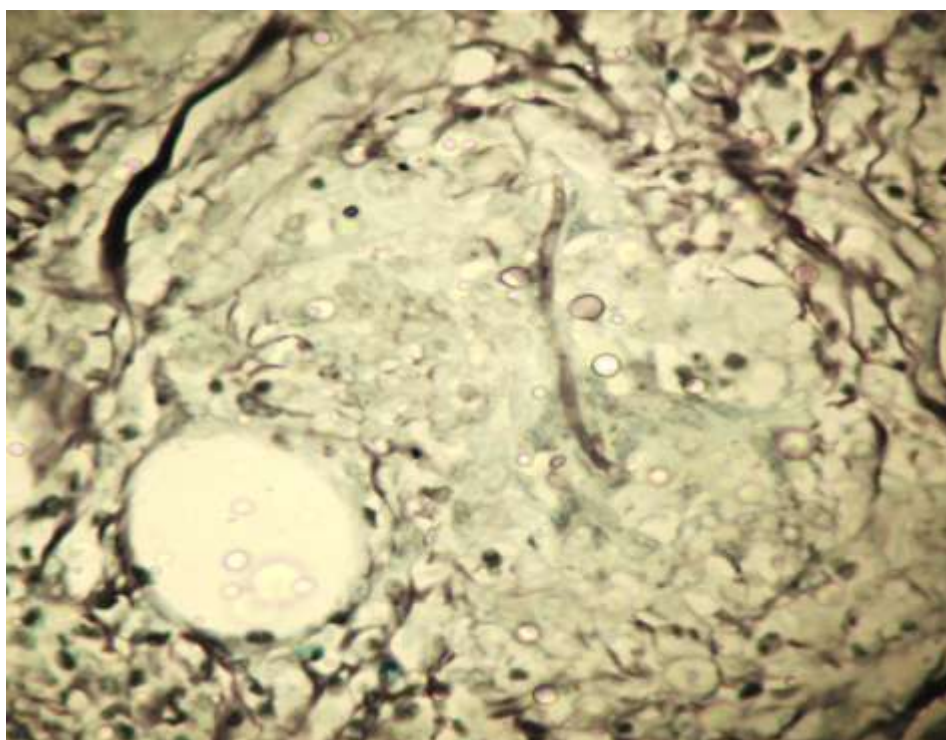


Figure 7: Aspergillus hyphae are narrow, septate, uniform width and deeply stained by Gomori Methamine Silver (GMS) (40x)

3. Discussion

Few cases of aspergilloma of the breast have been reported. One case of fungal infection of chest wall was described in a patient of poliomyelitis with lung aspergillosis.² Each single case of fungal infection of the breast was described in patients with acute myeloid leukemia;³ diabetes mellitus;⁴ postoperative status for breast carcinoma; and lung transplantation.⁶ Three cases were found to be associated with breast implant surgery.^{7,9} Only six cases of fungal infection of breast and chest wall were reported in an immunocompetent host.^{2,4,5} Although cases underlying breast malignancy, surgical procedure and chemotherapy, muscular disease like poliomyelitis, fungal infection

elsewhere in the body may be the predisposing factor for fungal infection at unusual site like breast.

Aspergillus species are the most ubiquitous fungi seen in soil, water, indoor air, and decaying vegetations.^{1,10} it may be disseminated to the lung and paranasal sinus, less frequently extrapulmonary sites such as brain, heart, skin, kidney and gastrointestinal tract.⁷ Aspergillus infection causes invasion of the blood vessels, hemorrhagic necrosis, infarction, and potential dissemination to any other organ in susceptible patient.⁶ The major risk factors for invasive aspergillosis are prolonged neutropenia (>3 weeks) or neutrophil dysfunction (chronic granulomatous disease), corticosteroid therapy (especially prolonged high-dose

therapy), transplantation (highest risk is with lung and bone marrow), hematologic malignancy (risk is higher with leukemia), cytotoxic therapy, and AIDS (risk increases with lower CD4 count).²

Radiology includes x ray findings and blood investigations are non-specific in our case. The diagnosis of aspergillus infection is usually made by demonstrating the septate, acute branching hyphae in the breast tissue by biopsy.^{1,11,12}. Histopathology also showed aspergillus fungal hyphae in

necrotic material along with distorted giant cells. These findings were supported by positive fungal culture.

So, final diagnosis was made by cytology histopathology and culture. Appropriate treatment is necessary to prevent adverse outcome. Recommended treatment for primary cutaneous aspergillosis is voriconazole, itraconazole, and amphotericin B. Voriconazole has been shown to be statistically superior to amphotericin B.¹⁰ Aspergilloma of breast can be treated by surgical excision.³

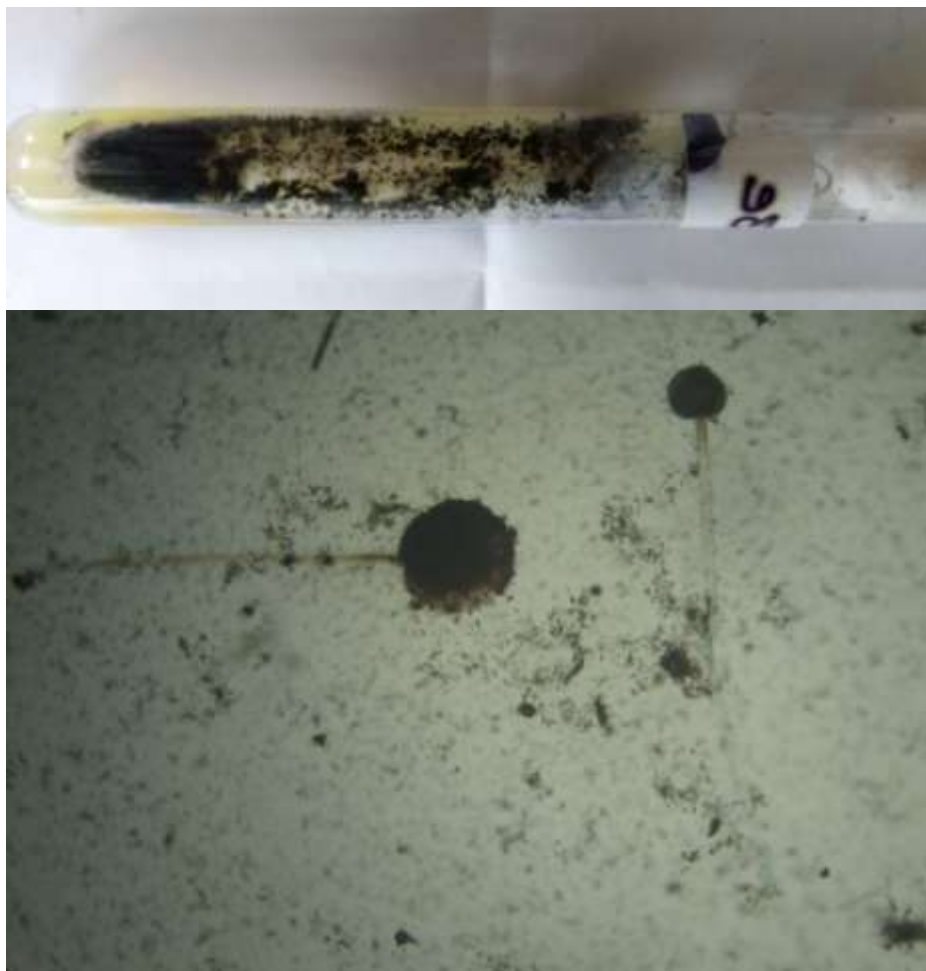


Figure 8: culture positivity of *Aspergillus niger* showing full covered black coloured head with long hyphae (20x)

4. Conclusion

Aspergillus can present with breast involvement even in an immunocompetent patient; therefore, the possibility of fungal infection should not be ignored in any slow growing long-standing breast lump in an immunocompetent status. Immune deficiency should be investigated in all patients with fungal infection. Prolonged anti-bacterial medications without definitive diagnosis of fungal infection lead to adverse outcome.

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