



CYTOLOGICAL DIAGNOSIS OF COLLAGENOUS SPHERULOSIS OF BREAST

Dr. Ashok Kumar Dash¹, Dr. Shushruta Mohanty*¹, Dr. Meenakshi Mohapatra², Dr. Biswajit Padhy³, Dr. Subhashree Archana Rout³, Deepika Sahu³

¹Associate Professor, Dept of Pathology, M.K.C.G Medical College, Berhampur, Senior Resident, Dept of Pathology, M.K.C.G Medical College, Berhampur, Odisha.

²Senior Resident, Dept of Pathology, M.K.C.G Medical College, Berhampur, Odisha.

³Post Graduate, Dept of Pathology, M.K.C.G Medical College, Berhampur, Odisha.

***Corresponding Author: Dr. Shushruta Mohanty**

Senior Resident, Dept. of Pathology, M.K.C.G Medical College, Berhampur, Odisha.

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ABSTRACT

Collagenous spherulosis (CS) of breast is a rare entity that is often detected incidentally with a reported incidence of 0.2% in cytological material. It is usually seen in 3rd to 5th decade of life and associated more commonly with benign breast lesions and less commonly with preinvasive lesions. We here in discuss a case of collagenous spherulosis in a 25 yr female who was earlier diagnosed with tubercular mastitis a year back and was on ATT for 6 months. It is important for cytopathologists to be aware of this entity in order to differentiate it from its closer mimick i.e Adenoid cystic carcinoma of the breast which is malignant and requires radical treatment.

KEYWORDS: Breast, Collagenous Spherulosis, FNAC.

INTRODUCTION

Collagenous spherulosis (CS) of the breast is an interesting finding in proliferative breast lesion which results from the accumulation of basement membrane material in the form of eosinophilic spherules.^[1] It was first described by Clement *et al*^[1] in 1987. The presence of hyaline spherules surrounded by a single layer of benign myoepithelial cells is considered as the hallmark for diagnosis of collagenous spherulosis on FNAC. Due to lack of awareness of this entity among the cytopathologist and limited volume of diagnostic cells and spherules in aspirated material there are very few reports in English literature describing cytological features of collagenous Spherulosis.^[2] It is important to be aware of this entity so that the pathologist does not misinterpret it with Adenoid Cystic Carcinoma of the breast. Biopsy is advised in difficult cases to differentiate it from ACC.

CASE REPORT

A 25-year-old woman presented with a history of a painless lump in the right breast since 1-year. On examination, a soft nodule measuring 1 cm × 1 cm was palpable in the right infraareolar region. Previous FNAC done a year back showed features of tuberculous mastitis for which she was put on ATT for 6 months. After completion of 6 months of ATT regime though the lump reduced in size, a small lump measuring around 1 cm was palpable in that breast [Fig 1]. This prompted the treating physician for repeat FNAC to rule out any

residual remnants of active tuberculosis. The lump was subjected to fine-needle aspiration with a 22 G needle and a 10 mL syringe as per surgeons advise. On microscopic examination, the smears showed cohesive clusters and a few branching fragments of benign ductal epithelial cells intimately mixed with many spherical, acellular homogeneous hyaline globules lined by a single layer of uniform, small, oval or comma shaped cells. A few dispersed bare, bipolar cells were also seen in the background with occasional fragments of adipose tissue [Fig 2,3,4]. A diagnosis of collagenous spherulosis associated with benign proliferative breast disease was rendered.



Fig 1 – Clinical Pic showing healed Tubercular scars on the right breast post ATT.

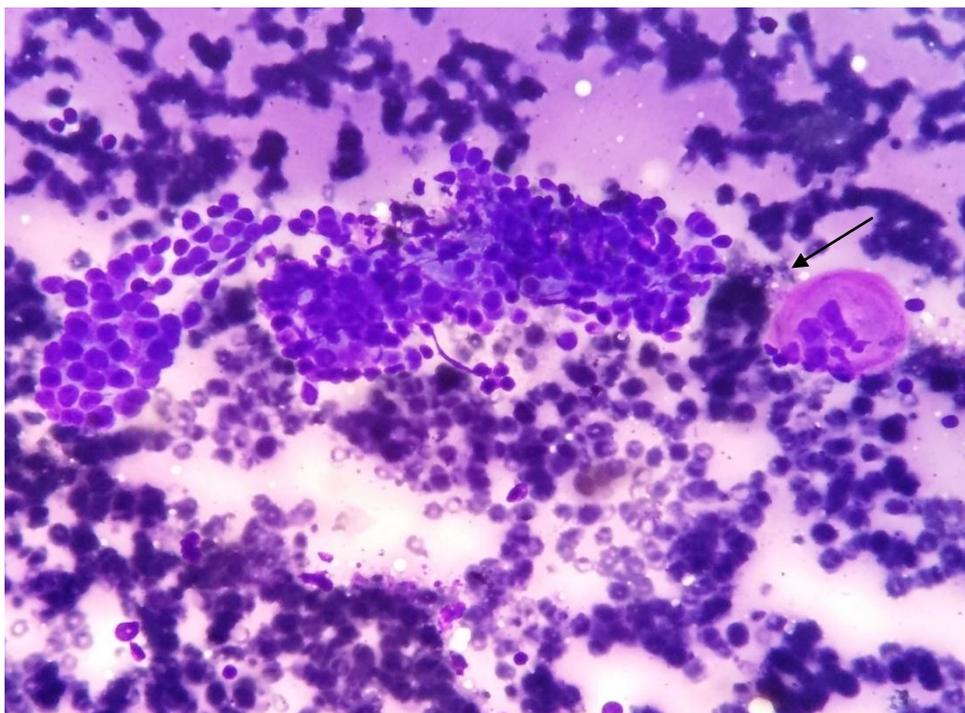


Fig 2- Collagenous Spherule (arrow) admixed with benign ductal epithelial and myoepithelial cells.

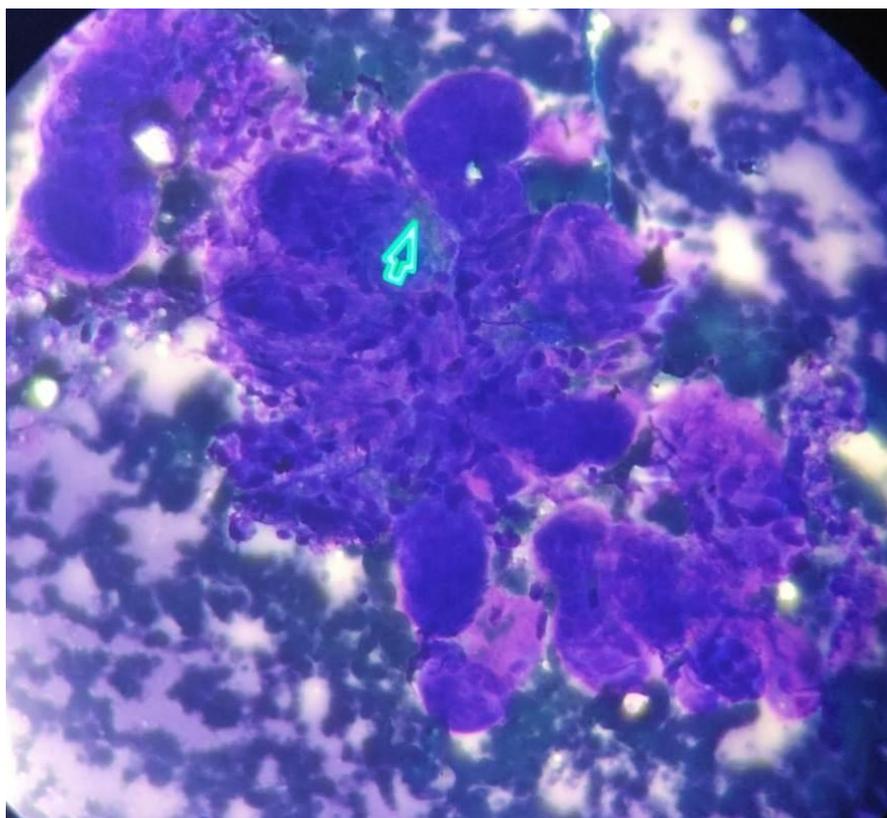


Fig 3 – Shows Cluster of dense purplish pink spherules

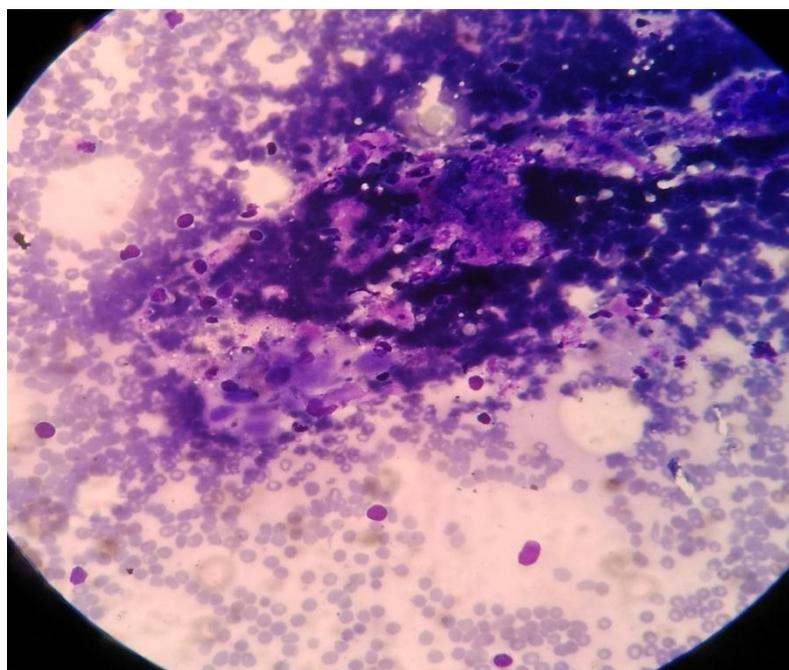


Fig 4- Bipolar bare Myoepithelial nuclei adjacent to collagenous material.

DISCUSSION

Collagenous spherulosis is regarded as incidental finding of lobular acini and ductules.^[3] It has been frequently seen in association with benign proliferative lesions of the breast, including sclerosing adenosis, radial scar, intraductal papilloma, fibroadenoma, adenomyoepithelioma, atypical ductal hyperplasia, etc.^[4,5]

Collagenous spherulosis characteristically shows intraluminal acellular eosinophilic spherules varying in diameter from 20 to 100 nm which arise between epithelial and myoepithelial cells.^[1,6] Histochemically these spherules are rich in collagen and basement membrane like proteoglycans viz., laminin, fibronectin and heparin sulphate.^[7] The source of the basement membrane material is the myoepithelial cells that

surrounds these spherules. Immunohistochemistry (IHC) positivity for actin, calponin, S-100, p63, and smooth muscle myosin confirms that the cells surrounding the spherules are myoepithelial in nature.^[8] However, the stimulus for its formation is unclear, but the association of collagenous spherulosis with fibrotic lesions suggests that localized fibrosis may serve as a promoting environment.^[9] The hyaline globules stain black with reticulin, blue with trichrome, pinkish red with Van-Gieson, and are variably positive with PAS and Alcian blue stains.^[6] Sometimes the spherules may calcify and result in macrocalcification on mammography.^[4] A variant, designated as mucinous spherulosis, has also been described showing spherules composed of basophilic mucinous material and exhibiting similar immunohistochemical reactivity. It is believed to be an early stage preceding collagenous spherulosis.^[10]

These hyaline globules may sometimes pose a diagnostic challenge for cytopathologist in differentiating it from its closer mimick i.e Adenoid Cystic Carcinoma of breast, a rare salivary gland tumour of the breast.^[7,9] On cytology Collagenous spherulosis (CS) shows, monolayered clusters of cells with low nuclear/cytoplasmic ratio and a single layer of nuclei surrounding the spherules, as seen in our case while in contrast, adenoid cystic carcinoma of the breast shows syncytial, multilayered, branching clusters of cells having high nuclear/cytoplasmic ratio and the spherules surrounded by several layers of cells. The presence of bare, bipolar nuclei in the background points more towards diagnosis of collagenous spherulosis as well as benignity of the lesion. In certain cases where diagnosis becomes difficult it is advisable to go for open biopsy to make accurate diagnosis.^[10] IHC is also helpful in differentiating these two entities. Smooth muscle myosin heavy chain and calponin are uniformly and strongly positive in CS and negative in ACCB. C-kit (CD117) is a sensitive marker of ACCB, which is not expressed in CS.^[8]

CONCLUSION

Collagenous spherulosis is a benign lesion that can be diagnosed by cytopathologists by careful examination of cellular morphology. It is crucial for cytopathologists to be aware of this entity in order to avoid a false positive diagnosis of Adenoid cystic carcinoma. Biopsy is resorted in difficult cases when discrepancy in diagnosis arises. A proper correlation with imaging modalities and clinical features is recommended with continued follow up for better management of the patient. Our patient refused to go for surgery and is on follow up since 8 months with no symptoms of recurrence.

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