

Collagenous Spherulosis of Breast Diagnosed on Cytology: A Case Report

ZUBAIR HASAN, RASHMI C

ABSTRACT

Collagenous spherulosis is a rare benign change accounting for less than 1-2% of all breast biopsies. It is seen in association with benign proliferative lesions and pre invasive lesion and is an incidental finding. We hereby describe a case of collagenous

spherulosis associated with benign breast disease in a 31 years old female, presented with the complaints of lump in the left breast noticed 1 month ago associated with pain during menses. Also, discuss the salient features to differentiate it from Adenoid Cystic Carcinoma (ACC) of breast.

Keywords: Adenoid Cystic Carcinoma, Benign breast disease, FNAC breast

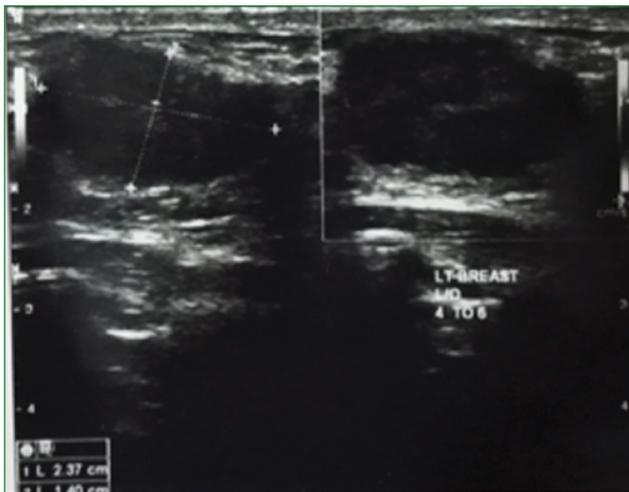
CASE REPORT

A 31-year-old female presented with history of lump in the left breast noticed 1 month ago. There was history of premenstrual breast swelling. On examination an ill-defined mass measured 2.5x1.5 cm and was present in the lower outer quadrant. The patient's consent was obtained.

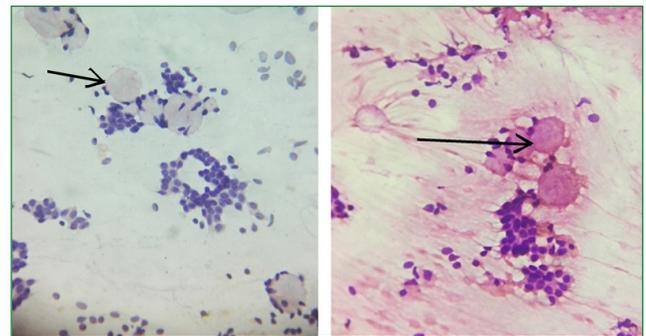
USG of left breast showed well defined hypoechoic lesions in left breast (Probably benign lesions-BIRADS 3) [Table/Fig-1].

The aspirate was blood mixed. Air dried and wet fixed smears were prepared on which Leishman's and Papanicolaou stains were done respectively.

FNAC showed clusters of bland ductal epithelial cells admixed with myoepithelial cells attached of hyaline globules of basement membrane material. The hyaline



[Table/Fig-1]: Ultrasonography image showing hypoechoic lesion.



[Table/Fig-2]: Hyaline globules in Pap and Leishman Stain.

globules stained pink on Pap stain and Leishman's stain. The spherules measured 20 to 100 microns in diameter and were PAS positive. The background showed numerous bare bipolar nuclei [Table/Fig-2].

An important differential diagnosis in lesions with hyaline globules is ACC. Points in favour of ACC are the hyaline globules being surrounded by syncytial multi layered three dimensional clusters with high N/C ratio, nuclear crowding and overlapping. Another feature of ACC is the absence of bare bipolar nuclei.

A differential diagnosis of ACC vs. collagenous spherulosis was considered. However, on the basis of cytological features a final diagnosis of collagenous spherulosis was given. Since, collagenous spherulosis is a benign diagnosis, the patient refused surgery is on regular follow-up.

DISCUSSION

Collagenous spherulosis is a rare benign change accounting for less than 1-2 % of all breast biopsies. It is regarded as an incidental finding of the lobular acini and ductules [1]. It is

considered as a form of ductal hyperplasia [2]. Collagenous spherulosis seen in association with benign proliferative lesions and pre invasive lesion and is an incidental finding [3].

In a morphological study of 59 cases, the association of collagenous spherulosis was found to be most with benign lesions of breast (69%) followed by lobular carcinoma in situ (25%) and atypical ductal hyperplasia (6%) [4].

Hyaline globules seen in collagenous spherulosis can also be seen in ACC, a malignant neoplasm thus warranting caution [5].

Collagenous spherulosis characteristically shows intraluminal acellular eosinophilic and fibrillar spherules comprised of collagen which arise between epithelial and myoepithelial cells [6]. The spherules are comprised of collagen and basement membrane like proteoglycans viz., laminin, fibronectin and heparin sulphate [7].

The hyaline globules stain black with reticulin, blue with trichrome, pinkish red with Van-Gieson, black with reticulin and are variably positive with PAS and Alcian blue stains [6].

As many as 25% of cases of collagenous spherulosis are associated with calcification. The cells surrounding the spherules are myoepithelial in nature and are positive for cytokeratin, actin, S-100 protein, p63, actin, calponin and smooth muscle myosin [8].

Mucinous spherulosis is a terminology for similar structures with basophilic appearance. It is believed to be an early stage preceding collagenous spherulosis [9].

An important differential diagnosis in lesions with hyaline globules is ACC. Points in favour of ACC are the hyaline globules being surrounded by syncytial multi layered three dimensional clusters with high N/C ratio, nuclear crowding and overlapping. Another feature is the absence of bare bipolar nuclei. Similarly hyaline globules can also be seen in epithelial myoepithelial carcinoma [10].

CONCLUSION

Collagenous spherulosis being a completely benign lesion can be picked up by the cytopathologist on careful examination of the cellular morphology. It is important to be aware of this entity so that the pathologist does not misinterpret it with ACC of breast. Biopsy and immunohistochemistry is advised in difficult cases to differentiate it from ACC.

REFERENCES

- [1] Jan YJ, Li MC, Ho WL. Collagenous spherulosis presenting as a mass of the breast. *Zhonghua Yi Xue Za Zhi (Taipei)*. 2002;65:494-97.
- [2] Puri S, Mohindroo S, Gulati A. Collagenous spherulosis: An interesting cytological finding in breast lesion. *Cytojournal*. 2015;12:25.
- [3] Reis-Filho JS, Fulford LG, Crebassa B, Carpentier S, Lakhani SR. Collagenous spherulosis in an adenomyoepithelioma of the breast. *J Clin Pathol*. 2004;57(1):83-86.
- [4] Resetskova E, Albarracin C, Sneige N. Collagenous spherulosis of breast: morphologic study of 59 cases and review of the literature. *Am J Surg Pathol*. 2006;30(1):20-27.
- [5] Gangane N, Joshi D, Anshu, Shivkumar VB. Cytological diagnosis of collagenous spherulosis of breast associated with fibroadenoma: Report of a case with review of literature. *Diagn Cytopathol*. 2007;35(6):366-69.
- [6] Divani SN, Mavrogiannis L, Kostis J, Lioupi A. FNA cytology of collagenous spherulosis: recognizing a benign breast lesion. *J BUON*. 2003;8(2):171-72.
- [7] Jain M, Niveditha SR, Bajaj P, Rani S. Collagenous spherulosis of breast: Diagnosis by FNAB with review of literature. *Indian J Pathol Microbiol*. 2000;43:131-34.
- [8] Rabban JT, Swain RS, Zaloudek CJ, Chase DR, Chen YY. Immunophenotypic overlap between adenoid cystic carcinoma and collagenous spherulosis of the breast: Potential diagnostic pitfalls using myoepithelial markers. *Mod Pathol*. 2006;19(10):1351-57. Epub 2006 Jun 30.
- [9] Laforga JB. A case of mucinous spherulosis of the breast diagnosed retrospectively in FNA material. *Diagn Cytopathol*. 2006;34(9):626-30.
- [10] Pandya AN, Shah P, Patel R, Patel PR. Adenoid cystic carcinoma of breast and the importance of differentiation from collagenous spherulosis by FNAC. *J Cytol*. 2010;27(2):69-70.

AUTHOR(S):

1. Dr. Zubair Hasan
2. Rashmi C

PARTICULARS OF CONTRIBUTORS:

1. Associate Professor, Department of Pathology, The Oxford Medical College Hospital And Research Centre, Bengaluru, Karnataka, India.
2. Senior Resident, Department of Pathology, The Oxford Medical College Hospital And Research Centre, Bengaluru, Karnataka, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Zubair Hasan ,
10, Paranjothi Road, Fraser Town, Bengaluru-560005,
Karnataka, India.
E-mail: drzubairhasan1@gmail.com

FINANCIAL OR OTHER COMPETING INTERESTS:

None.

Date of Publishing: **Apr 01, 2018**