

# Epidermal Cyst in the Breast: A Diagnostic Dilemma

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**Abstract** Epidermal cyst [10] and panniculitis are relatively uncommon conditions [2]. A combination of these arising in the breast is extremely rare. We report a case of epidermal cyst with panniculitis in the breast. A patient presented with a large breast lump of 5 cm in the right breast. Sonography showed a well-defined, central hyperechoic mass. A giant fibroadenoma was suspected clinically and based on imaging. Fine needle aspiration revealed a benign breast lump. The lump was excised, and the specimen revealed an epidermal cyst with panniculitis.

**Keywords** Panniculitis · Epidermal inclusion cyst · Epidermal cyst · Benign breast lump · Giant fibroadenoma · Alpha 1 antitrypsin deficiency

## Case Report

A 35-year-old female presented with a painless lump in the right breast from 2 months. The mass has grown progressively over the last 2 months with no associated symptoms like nipple discharge, history of trauma, and history of recent weight loss. On general examination, the patient was underweight and has a thin built, her BMI is 14.69 kg/m<sup>2</sup>, her mid arm and mid thigh circumferences were 18 and 31 cm, respectively, and no history of previous surgeries.

Examination of the breast revealed a 5-cm lump occupying the right breast which was firm, (Fig. 1) attached to subareolar region, and non tender with no discharge from the nipple and no axillary lymph nodes. Ultrasonography showed a heterogeneously hypoechoic, well-circumscribed mass measuring 5 × 4 cm in size suggesting a fibroadenoma.

Fine needle aspiration cytology (FNAC) of the lump revealed a dirty yellow aspirate suggesting benign cystic disease of the breast. Based on clinical imaging and cytological findings, fibroadenoma, sebaceous cyst, and epidermal cyst were thought as the differential diagnosis.

Due to its size and clinical concern for malignant transformation [1], we decided to perform a total excision biopsy. Microscopic findings revealed a cyst lined by the squamous epithelium having granular layer along with giant cell reaction [11] (Fig. 2). The surrounding adipose tissue is inflamed composed of histiocytes and few giant cells (Fig. 3) No malignancy was noted. The lesion was diagnosed as epidermal cyst with panniculitis of the breast. The patient was further subjected to an abdominal ultrasound which was normal.

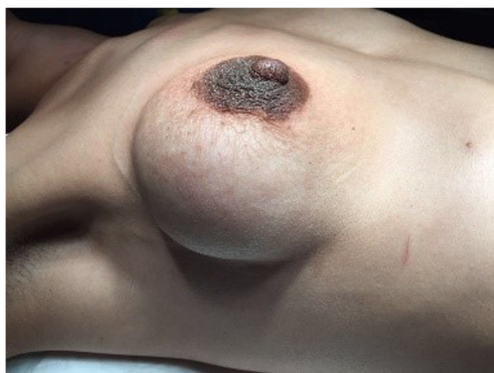
## Discussion

Epidermal cyst, also called as epidermoid, keratin, sebaceous cyst, epidermal inclusion cyst, commonly develops on the face, head, and neck. It is uncommon to develop epidermal cyst in the breast only; about 40 cases have been reported in the literature [2]. Its occurrence in combination with panniculitis in the breast is an extremely rare phenomenon. A specific etiology is unknown but few theories regarding its etiology have been postulated including congenital, arising from cell nests remaining from cells such as the embryonal mammary ridge or secondary to obstructed hair follicles, and implantation of epidermal fragments deep within the breast tissue secondary to

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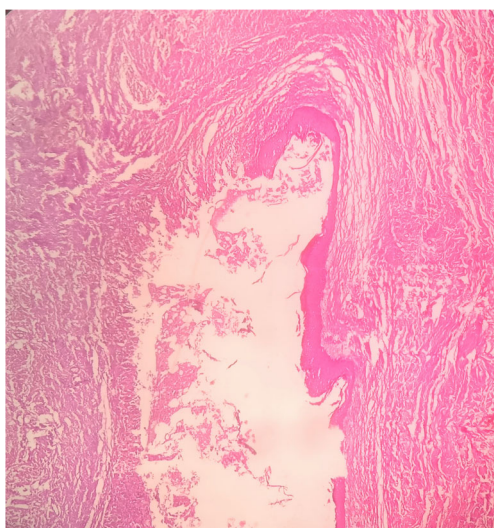


**Fig. 1** Lump seen in the breast

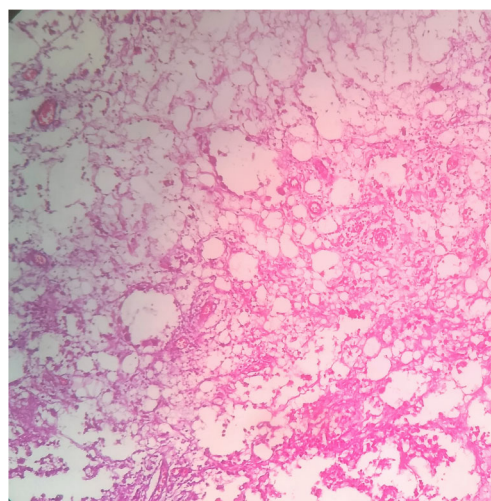
trauma-like needle biopsy of the breast [3]. Cystic reaction in the dermis is due to inflammation of the pilosebaceous structures and finally due to squamous metaplasia of columnar cells within a dilated duct in case of fibrocystic disease. On physical examination, it is well-circumscribed, originating from the skin, firm in consistency, and free from underlying structures.

On ultrasonography, epidermal cyst may have a solid, well-circumscribed, and complex or heterogeneous appearance with hypoechoic and hyperechoic concentric onion ring-like appearance in some cases [4]. It may be misdiagnosed based on imaging alone, especially if it presents as a breast lump with mammographic and sonography images mimicking as fibroadenoma or phyllodes tumor [5], or even a malignant breast lesion [3]. Although this cyst is known to be benign, it may rarely have malignant potential, transforming into squamous cell carcinoma [6].

A small asymptomatic epidermal cyst of the breast must be closely watched with FNAC. Symptomatic breast lump increasing progressively should be completely excised to prevent recurrence and malignant transformation.



**Fig. 2** Micrograph showing epidermal cyst lined by stratified squamous epithelium (H & E)



**Fig. 3** Micrograph showing panniculitis (H & E)

Panniculitis is a group of diseases presenting with inflammation of the subcutaneous adipose tissue. The disease can be categorized on the basis of etiologic factors, primary site of involvement, and microscopy [7]. Based on etiology, it is grouped under metabolic disorders such as  $\alpha$ 1-antitrypsin deficiency or pancreatic fat necrosis and autoimmune disorders such as lupus erythematosus or scleroderma due to physical causes, trauma, cold, and reaction to a foreign body.

Panniculitis is microscopically classified as lobular involving fat lobules or septal involving the interlobular septa. Granulomas and necrotic changes can be present. Panniculitis is diagnosed based on histologic features, immunologic markers, and search for any infectious agents and symptoms include tender skin nodules, involving the extremities and systemic signs such as weight loss and fatigue. Involvement of the breast is very rare in panniculitis, and it can occur as a component of systemic panniculitis. Mammogram of the breast reveals curvilinear, branching, and punctate microcalcifications representing calcification of the fat necrosis component [8]. Sonography usually reveals ill-defined, heterogeneous fat-tissue hyperechogenicity. Panniculitis of the breast is usually known to regress and involute after 1 to 4 weeks [9].

## Conclusion

We present this case due to its rarity as epidermal cyst of the breast is uncommon and involvement of this site in combination with development of panniculitis in the breast is very rare. The diagnosis of epidermal cyst is to be considered while managing a case of cystic swelling in the breast. Whenever a patient presenting with a breast lump is thin and emaciated with a low BMR, panniculitis can be considered.

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