

Epidermal Inclusion Cyst: A Rare Benign Breast Lesion

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Abstract

Epidermal inclusion cyst in the breast is an uncommon condition. It may be congenital, originating from hair follicles or occurring after trauma (breast reduction or breast cytology puncture) or consists of squamous metaplasia of the regular columnar epithelium within an ectatic ductus galactophorus. We report the case of a 22-year-old woman, with two pregnancies and with no particular pathological history, who presented with a 3 cm nodule of the right breast at the union of the upper quadrants, firm, mobile and painless. The skin, areola and nipple were unaffected. The axillary areas and the contralateral breast were unremarkable. The breast ultrasound showed a heterogeneous and well circumscribed hypoechoic mass classified as ACR3. Macroscopic examination revealed a unilocular cyst with a discretely thickened wall, abundant yellowish contents and measuring 2 cm on a long axis. Histologically, it was a cystic cavity whose wall was lined with a pseudo stratified keratinized squamous epithelium with a granular layer and whose lumen contained keratin lamellae. This cyst is surrounded by a more or less fibrous pallial tissue containing regular, sometimes dilated or even cystic milk ducts. The diagnosis of epidermal inclusion cyst of the breast on a background of fibrocystic mastopathy was thus concluded. The importance of this benign lesion lies in the differentiation between other non-neoplastic and neoplastic breast lesions.

Keywords

Epidermal Inclusion Cyst, Breast, Fibrocystic Mastopathy, Dakar, Senegal

1. Introduction

Epidermal cysts result from the proliferation and implantation of epidermal

elements in a circumscribed space of the dermis [1]. There are three types of epidermal cysts: Epidermal inclusion cyst (EIC) or infundibular cyst lined by pseudostratified squamous epithelium containing a layer of granular cells; trichilemmal cyst lined by pseudostratified squamous epithelium without a layer of granular cells showing abrupt keratinization; and sebaceous cyst with the same lining as EIC however associated with adnexal structures (pilosebaceous, apocrine, and eccrine glands) [2].

Such cysts can occur anywhere in the body, although they are more common in the head and neck, trunk, and extremity regions [3]. Epidermal inclusion cyst in the breast is an uncommon condition [4]. The incidence of malignant potential is estimated between 0.045% and 19%, and the true incidence remains uncertain. The importance of this benign lesion lies in the differentiation between other non-neoplastic and neoplastic breast lesions [5]. In addition, an association between breast epidermal inclusion cyst and epidermal carcinoma has been reported [6]. The objective of this work was to describe the mechanisms of occurrence of epidermal breast cysts and the steps of their management.

2. Case Report

We present the case of a 22 years old woman, with two pregnancies and with no pathological history, without hormonal treatment, followed up in the surgical department of a peripheral health center for a right breast nodule of 3 cm of large axis at the union of the upper quadrants. It was well circumscribed, mobile, painless with healthy skin opposite. The nipple and areola were unremarkable, as were the lymph node areas and the contralateral breast. The rest of the clinical examination was without abnormality.

The breast ultrasound showed a 3 cm in diameter, hypoechogenic, heterogeneous, well circumscribed mass classified as ACR3 (Figure 1). Sublocal excision through a subareolar incision allowing extraction of the mass without capsular



Figure 1. Ultrasound appearance of a hypoechogenic, heterogeneous, well circumscribed Mass.

effraction. A needle cytopuncture was not performed.

On gross examination, the mass measured $3 \times 2 \times 1.5$ cm with a firm, whitish, irregular surface. On section, the slices revealed a unilocular cyst with a discretely thickened wall, abundant yellowish contents and measuring 2 cm in size.

Histologically, it was a cystic cavity whose wall was lined with a pseudo stratified keratinized squamous epithelium with a granular layer and whose lumen contained keratin lamellae (**Figure 2**). This cyst is surrounded by a more or less fibrous pallial tissue containing regular, sometimes dilated or even cystic, milk ducts. The diagnosis of epidermal inclusion cyst of the breast on a terrain of fibrocystic mastopathy was thus concluded (**Figure 3**). Dressings were done every three days. Suture removal was done at ten days and healing at three weeks post surgery. The patient was seen at one, three and six months and the scar was flat, periareolar.

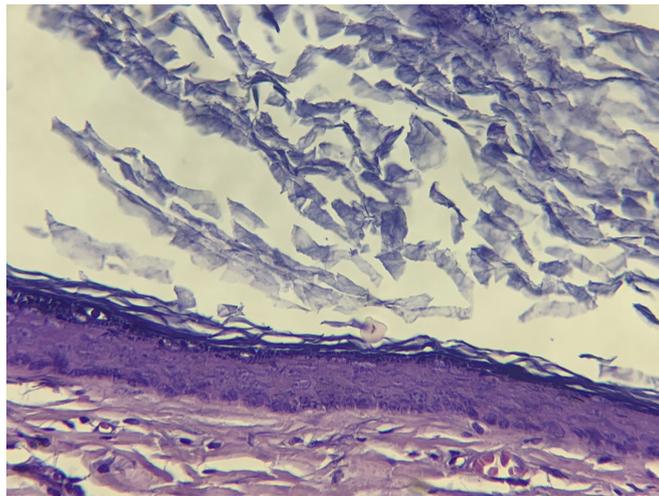


Figure 2. Histological appearance of a cystic wall lined with a pseudo-stratified keratinized squamous epithelium containing a cluster of keratin (HE $\times 400$).

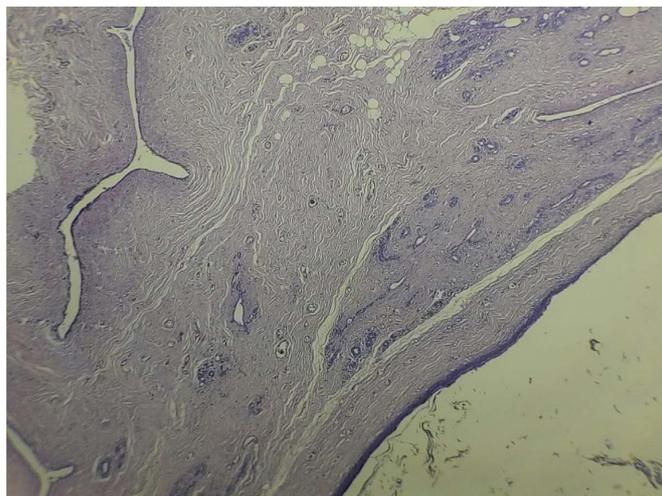


Figure 3. Histological aspect of an epidermal cyst in the context of fibrocystic mastopathy (HE $\times 40$).

3. Discussion

The mechanisms of occurrence of an epidermal inclusion cyst are numerous and different. First, it may be congenital, originating from hair follicles [7]. A second proposed origin is that of trauma, notably by breast reduction or breast cytological puncture [8] [9]. The third hypothesis consists of squamous metaplasia of the regular columnar epithelium within an ectatic ductus galactophorum. This is a focus of fibrocystic mastopathy or fibroadenoma [10]. The pathogenesis of our patient's epidermal cyst would be squamous metaplasia of the regular columnar epithelium within an ectatic ductus galactophorus in a context of fibrocystic mastopathy.

The first histologically defined case of epidermal inclusion cyst of the breast was reported in December 1900 at Johns Hopkins Hospital (Baltimore, USA) [11].

According to a review of the international literature by Paliotta et al in September 2014, 90 cases had been reported in patients aged between 20 and 85 years and 73% were female. Clinically, it is a palpable solid mass. The diagnosis of breast epidermal cyst was usually made by breast ultrasound, mammography, fine needle aspiration, and biopsy, alone or in combination. Ultrasound has been shown to be reliable for diagnostic suspicion.

It described a well-circumscribed, heterogeneous and complex lesion, sometimes with an "onion bulb" appearance alternating hyper and hypoechogenic areas [1]. Cytology showed non-atypical squamous cells associated with numerous anucleate scales [3]. In our patient, only ultrasound was performed.

In the study by Paliotta et al, the median cyst size was approximately 3 cm (extremes 1 and 10 cm).

Asymptomatic lesions that are small (<2 cm in diameter) and have an accurate diagnosis do not require treatment. An excisional biopsy is not necessary if the ultrasound findings are typical [1].

Excision is usually the most appropriate treatment, eliminating the possible risk of malignant transformation [12].

This is the treatment our patient received. Another therapeutic option is VABD (vacuum-assisted biopsy device) or biopsy assisted by an aspiration system. It has the advantage of being less invasive and can be performed under local anesthesia in less time. However, in case of possible rupture of the cyst, fine needle cytology may be necessary to verify the malignancy of the lesion [13]. Another promising alternative to surgery is the Erbium: yttrium aluminum garnet (YAG) laser in the treatment of epidermal cysts, especially for large lesions that pose an aesthetic risk to the patient. The results obtained are cosmetically satisfactory, with rapid healing and minimal invasion [14].

In the vast majority of cases (88%) the lesions examined were benign, as in our patient who showed no signs of malignancy. However, this benign lesion may present complications [10] [15]. These include spontaneous rupture of the cyst wall, infection, abscess formation or possible malignant transformation into squamous cell carcinoma or melanoma.

4. Conclusion

A mammary epidermal cyst may present as a palpable mammary nodule. This condition is uncommon in this location, which is the particularity of our observation. We wanted to remind you that it is indeed present in the sphere of benign breast lesions, which may eventually degenerate.

Authors' Contributions

All authors have read and approved the final version of the manuscript.

Conflicts of Interest

The authors declare that they have no competing interests.

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