CASE REPORT
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Giant epidermal cyst in the breast requiring reconstruction with the bilobed flap technique — case report

Juliana Lopes de Aguiar Araújo[1], Diana Taissa Sampaio Marinho Navarro[1], Macerly Laise de Menezes Dantas[1], Gabrielly de Sousa Brunet[2], Larissa dos Santos Lourenço Ferreira[1], Ubiratan Wagner de Sousa[1]*

ABSTRACT

Epidermal cysts are one of the most common benign skin lesions, originating in the pilosebaceous unit, and are very common on the scalp, back, and trunk. They usually measure from millimeters to a few centimeters and require surgical treatment only depending on the patient's discomfort. Cases that mimic breast neoplasms are rare. Treatment consists of a minimal incision, with removal of the contents and their capsule, without major complications. We report here the case of a woman with an epidermal cyst in her left breast, which had grown progressively over the years, reaching 6 cm. Because of its size, location, and unfavorable relationship between tumor size and breast size, surgery using an oncoplastic breast remodeling technique was chosen, opting for the use of a bilobed flap to achieve a satisfactory cosmetic result, without loss of breast volume.

KEYWORDS: epidermal cysts; surgical flaps; breast-conserving surgery; breast diseases.

INTRODUCTION

Epidermal cysts originate in the pilosebaceous unit and are most commonly found on the scalp, back, and trunk. Their presentation in the breast is rarely reported, appearing mainly in the periareolar cutaneous and subcutaneous region[1-4]. As of 2021, only ten cases had been reported in the English literature[4]. There are no published studies detailing surgical options for large lesions.

The importance of reporting this benign lesion, in addition to its surgical approach, lies in the clinical-radiological differentiation of other non-neoplastic and neoplastic breast lesions. However, the incidence of malignant potential of this lesion is highly variable (0.045–19%), and the true incidence remains uncertain[3].

It is a retention cyst of the sebaceous gland derived from the infundibulum of the hair follicle or by traumatic inclusion (e.g., core needle biopsy or breast surgeries that can cause epithelial implantation or stimulation of epithelial proliferation). The epidermal cyst is lined by true stratified squamous epithelium, with proliferation and implantation of epidermal elements within a circumscribed space in the dermis, and its growth results from the accumulation of epithelial and keratinous debri[2,3].

Wide excision does not always have an aesthetic impact, as it often does not reach large volumes; in situations where there is a forewarning of resection of more than 20% of the breast volume, partial breast reconstruction is indicated using a variety of techniques.

The objective of this case report was due to the unusual shape of the epidermal cyst in the breast and its size but also due to the need to use an alternative surgical technique to repair the cosmetic deformity caused by its wide and adequate excision[5,11-13].

CASE REPORT

Female patient, 58 years old, menarche at 13 years old, three children, postmenopausal, with no personal history of hormone replacement therapy and no family history of breast cancer, but with a sister's history of ovarian cancer. She presented with a palpable lesion in her left breast, which she had for eight years, showing progressive growth. Mammography (MMG) in June 2023 showed a large, isodense, circumscribed nodule, located predominantly in the middle third of the central region of the left breast,

[1]Instituto de Educação, Pesquisa e Inovação do Rio Grande do Norte, Liga contra o Câncer – Natal (RN), Brazil.
[2]Universidade Potiguar – Natal (RN), Brazil.
***Corresponding author:** ubiratan_medicina@hotmail.com
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palpable, measuring approximately 6.2 x 5.5 cm, and classifying BI-RADS 4. An ultrasound was performed in June 2023, which showed a hypoechoic, oval, circumscribed nodule, with major axes parallel to the skin, located in the lower lateral quadrant (LLQ) of the left breast at 4 o'clock, measuring 5.5 x 2.7 x 5.3 cm, 0.9 cm from the papilla, with discrete central vascularity on color Doppler, palpable and BI-RADS 4. On physical examination, the breasts were of small to moderate volume, with a soft nodular area of 5.5 cm in LLQ of the left breast, periareolar (Figure 1).

A core biopsy was performed in June 2023, with sebaceous secretion being released during the procedure. The clinical and histopathological diagnosis was epidermal cyst. As a surgical plan, it was decided to perform complete resection of the breast lesion and breast reconstruction using a bilobed flap (Figure 2).

After excision of the lesion in the left breast with margins, aiming at the integrity of the capsule, an incision of the flap was made at a previously marked site (Meadows marking[10]. With this technique, it was possible to transpose part of the mammary glandular tissue to cover the area with defect; the geometric structure of the flap allowed the maintenance of the breast volume.

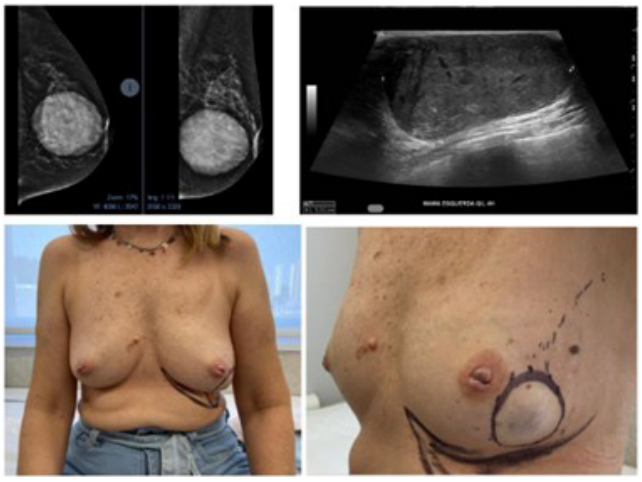


Figure 1. Clinical-radiological presentation of the case.



Figure 2. Wide resection of the lesion, highlighting the intact capsule of the epidermal cyst, and creation of a bilobed flap to correct the breast defect.

In the immediate postoperative period, a slight depression could be seen in the flap, but with maintenance of the shape of the breast, and the unusual appearance of the scar. During the evolution and accommodation of the flap, the aesthetic aspect showed significant improvement (Figure 3), and the patient was satisfied with the surgical result. The patient remains well, with no complaints four months after surgery, in clinical and outpatient follow-up.

DISCUSSION

Epidermal cysts are known to be benign lesions, with no association with breast cancer. They are believed to arise through several possible mechanisms. These include the derivation of a congenital anomaly resulting from cellular nests remaining from the embryonic mammary ridge, as a sequela of traumatic or surgical alterations, or as squamous metaplasia in an area of fibrocystic alteration or fibroadenoma[1].

Typically, they grow naturally slowly, with their rupture responsible for secondary reactions such as foreign bodies, granulomatous reactions or abscess formation[3]. Paliotta et al.[3] described the following clinical findings: palpable mass in the breast in 79% of cases, local discomfort in 67%, inflammation

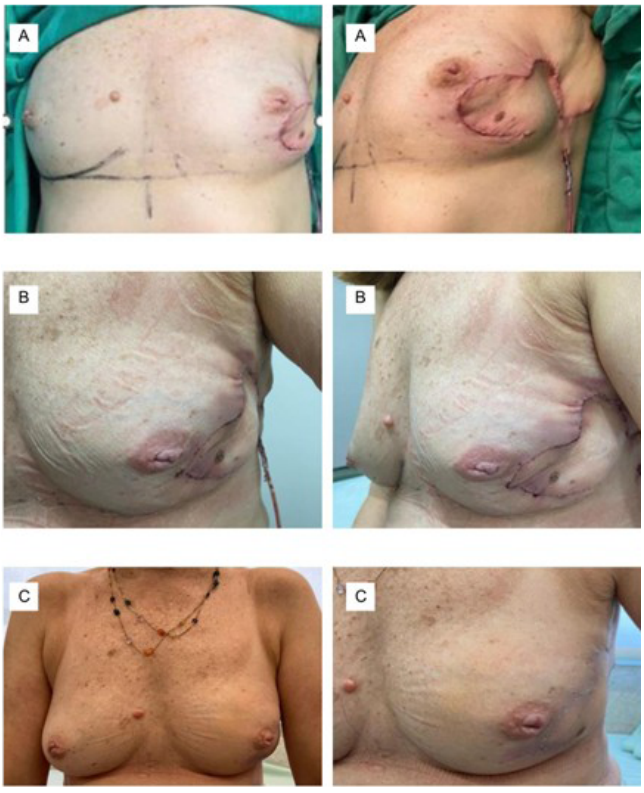


Figure 3. Postoperative appearance. (A) Immediate postoperative, (B) 7th day and (C) final appearance.

in 33%, spontaneous rupture in 12% and ulceration in 4% of the 65 patients studied.

The importance of recognizing this lesion lies in the fact that it can be confused with any benign or malignant lesion of the breast, both clinically and radiologically.

Clinically, an epidermal cyst presents as a firm nodular protrusion of the skin; in the breast, the lesion usually grows deep into the subcutaneous tissue and is indistinguishable from other types of breast lesions. Classically, an ultrasound scan shows a solid, circumscribed, complex mass[2]. A mammogram shows a well-circumscribed mass with homogeneous increased density[5]. Calcification of an epidermal cyst may occur mainly in older lesions[6,7]. An incisional biopsy typically shows the release of proteinaceous material that is highly suggestive of this entity. Histopathological examination shows that these lesions are lined with stratified squamous epithelium containing an agranular layer[2,3].

The treatment of choice is surgical excision with preservation of the integrity of the capsule, minimizing complications such as recurrent infections and recurrence of the lesion due to inadequate excision. Simple excision techniques are generally used, with small scars, which do not require advanced technical knowledge of flap rotation and reconstruction of large defects. There is no need for additional treatments after surgical excision, which is curative[1-5].

The case report presents a large lesion, requiring an advanced oncoplastic surgical technique as an alternative for breast remodeling used in breast-conserving surgeries more commonly used in the treatment of malignant lesions, in which free surgical margins are required.

The emergence of oncoplastic surgical techniques has enabled not only oncological safety but also the preservation of breast cosmesis, with acceptable aesthetic results[8,11-13]. Individual aspects should be respected and guided by variables such as lesion location, breast size, skin type, patient's body shape and symmetrization in relation to the other breast when making a decision regarding the technique to be used. The bilobed flap was initially described by Esser in 1918, who designed it for closing defects in the nasal tip. However, it was Zimany, in 1953, who published the description of this flap in the English literature and made it popular. It is a double transposition flap with a single pedicle, in which the first flap is transposed into a defect and the second and smaller flap is transposed to fill the secondary defect caused by the transposition of the larger flap, distributing the tension forces in several directions and reducing the distortions and skin redundancies generated by a simple transposition flap or primary closure[9]. It is used in cases of volume replacement and can be a choice when opting for a thoracic-lateral transposition flap.

There are several ways to draw the markings, the most common being the Meadows technique. It involves transporting part of the glandular tissue to the region of the defect, and a lateral thoracic flap is used to correct the area adjacent to the tumor[9,10]. The larger lobe corresponds to 75% of the defect and the smaller lobe, to 75% of the larger one. The flaps are detached and rotated so that the first fills the primary defect, the second fills the secondary defect and, finally, the defect left by the smaller lobe is closed primarily.

Its main complications are necrosis, epitheliolysis and infection, which in most cases can be resolved in an expectant way or with surgical debridement or the use of antibiotics.

Advanced breast reconstruction techniques using flaps can be best used in association with breast fat grafting, a very promising and safe technique, which has established itself as an important technical-surgical refinement[13].

CONCLUSIONS

Epidermal cysts in the breast do not always require complex excision without loss of a large amount of glandular tissue. The alternative surgical technique to repair the deformity left after excision is uncommon and can be performed by surgeons with expertise in breast oncoplasty.

The choice of the appropriate surgical technique for treating breast lesions requires careful evaluation, with very individualized criteria, and the possibility of changing the previously chosen technique may exist if a better technique favors cosmesis and surgical safety. The use of one or more associated techniques can favor a safe and aesthetically acceptable way for patients, regardless of the nature of the breast lesion.

Written informed consent was obtained from the patient for the publication of this case report and the accompanying images. A copy of the consent form is available for review by the editor-in-chief of this journal. This report was approved by the ethics committee under No. 6.995.223.

AUTHORS' CONTRIBUTION

JLAA: Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Project administration, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. DTSMN: Conceptualization, Data curation, Investigation, Funding acquisition, Methodology, Supervision. MLMD: Formal analysis, Funding acquisition, Investigation. GSB: Conceptualization, Formal analysis, Investigation, Software. LSLF: Data curation, Project administration, Software, Validation. UWS: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing.

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