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Epidermal Cyst in the Male Breast: A Case Report

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ABSTRACT

Epidermal cysts (EC) are benign lesions lined with epithelial cells and filled with keratin. They commonly develop spontaneously or after skin injury, typically appearing on the face, neck, and trunk, with a higher prevalence in men during their third and fourth decades. While most ECs are asymptomatic, some can cause discomfort or infection, and in rare cases, may become malignant. Diagnosis is usually made through ultrasound or MRI. Small, asymptomatic cysts may not require treatment, while larger or symptomatic ones are surgically removed. A 52-year-old man presented with a gradually enlarging left breast swelling over five years. Imaging revealed a predominantly hypoechoic lesion, and FNAC confirmed it as an epidermal inclusion cyst. Surgical excision was successfully performed, showing keratinizing squamous cells. Epidermal cysts (EC) are benign lesions characterized by epithelial proliferation and keratin production, often occurring spontaneously or following injury. While primarily found on the face, neck, and trunk, breast involvement is rare. Diagnosis relies on imaging and histopathology, with complete surgical excision recommended for symptomatic cases.

Key words: *Epidermal cyst, Ultrasonography, Artifacts.*

INTRODUCTION

A 52-year-old man presented with a gradually enlarging, painless swelling in his left breast over five years. There was no history of trauma or prior surgery. Examination revealed a soft to firm, mildly compressible, non-fluctuant, mobile lump measuring 4 × 4 cm in the upper outer quadrant of the left breast. (Figure 1) Ultrasonography was planned with a provisional diagnosis of lipoma. Routine blood investigation was within normal limits. Ultrasonography showed a well-defined, predominantly hypoechoic lesion with posterior acoustic enhancement (Figure 2A) and a twinkling artifact on Color Doppler. (Figure 2A) Fine-needle aspiration cytology (FNAC) yielded foul-smelling, whitish material, with microscopy revealing anucleated squamous cells and keratin clumps, (Figure 3) consistent with an epidermoid cyst. Surgical excision was performed through an elliptical incision.

Figure 1: *52 years old man with swelling in the upper and outer quadrant of the left breast with mild erythema.*

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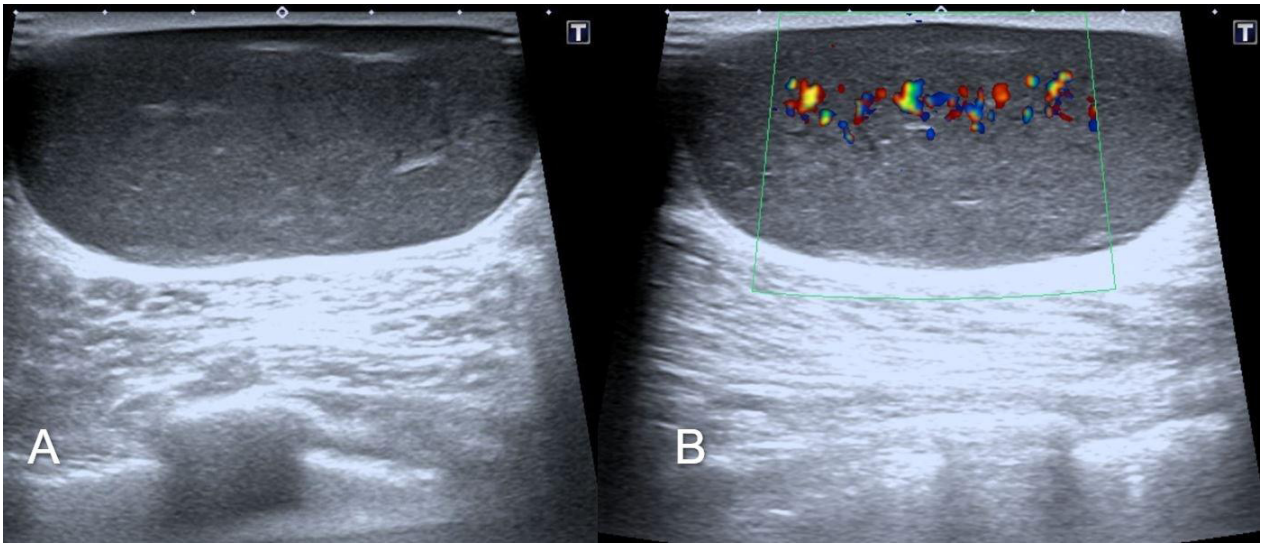

Figure 2: *Longitudinal grey-scale image of the left breast lesion showing well-defined mixed echogenic predominantly hypoechoic lesion with posterior acoustic enhancement (A). Colour Doppler interrogation in the corresponding lesion shows a twinkling artifact (B).*

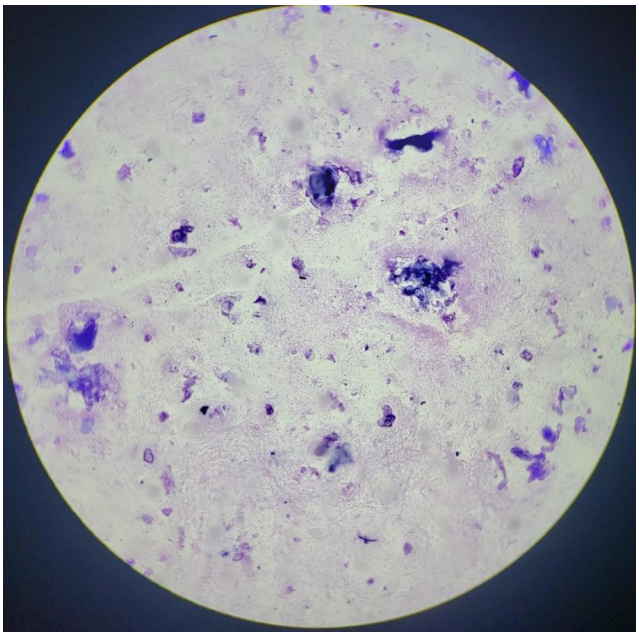

Figure 3: *Fine needle aspiration cytology from the left breast lesion showing anucleated squamous cells along with clumps of keratin. (Giemsa stain, 400x).*

DISCUSSION:

Epidermal cysts (EC), also known as infundibular cysts or epidermal inclusion cysts, are benign cystic lesions lined by epithelium in the dermal space, containing proliferating epithelial cells and their product, keratin. [1, 2, 5] These lesions usually occur spontaneously or as a result of injury that implants epidermal cells deep into the skin, followed by cell proliferation. [1, 2, 5] ECs commonly occur on the face, neck, periauricular area, trunk, and back. [2, 3, 5] Other sites include the scrotum, genitalia, buttocks, palms, and the plantar side of the feet.[1, 5] ECs in the breast are rare clinical entities. [4, 5] They typically occur during the third and fourth decades of life with a male predominance[1]. Early onset and atypical locations, such as the limbs, are generally associated with autosomal dominant Gardner syndrome [1] or Basal Cell Nevus syndrome when cysts are multiple.[1] Similar lesions may occur in neonates, which are small in size, called milium. [1, 5] Most patients with EC are asymptomatic; [1, 3, 5] those seeking medical attention may present with infected cysts, pain due to ruptured cyst walls, or large cysts causing discomfort. [1, 5] About 1% of cysts can undergo malignant transformation into squamous cell carcinoma or basal cell carcinoma. [1, 5]

Physical examination of ECs is often unreliable; in our case, the lesion was clinically diagnosed as a lipoma. ECs appear as smooth, soft, non-fluctuant, compressible lesions ranging from several millimeters to several centimeters. While these features are non-specific, the presence of a central dark comedone opening, called a punctum, and yellowish, cheese-like foul-smelling discharge are pathognomonic.[1, 4] The diagnosis of EC is based on ultrasonography, which demonstrates a round to oval, well-circumscribed, mixed echogenic, avascular lesion in the dermis and subcutaneous tissue with dorsal acoustic enhancement, as well as a more specific twinkle artifact on Doppler interrogation.[1, 2, 3] The twinkle artifact results from the ultrasound beam impinging on a strongly reflecting surface with a rough interface, producing complex reflections that lead to an increased pulse of the received echo, interpreted as movement.[2]

Magnetic resonance imaging of the corresponding lesion shows hyperintensity on T2 and variable intensity (high when calcification is present) on T1, with peripheral wall enhancement.[1, 3] Histopathology of the lesion reveals anucleated squamous and nucleated squamous epithelial cells.[1, 4, 5]

Asymptomatic small-sized lesions (<2 cm) do not require treatment.[5] Complete surgical excision is the gold standard treatment for large or symptomatic ECs.[1, 5] Surgery is usually delayed in cases of infected cysts, as it may lead to difficult dissection and possible remnant cyst wall, resulting in recurrence.[1] Alternative treatments include punch biopsy and the expulsion of intact cysts through a small defect or CO2 or erbium-YAG laser when the cyst is small.[1]

CONCLUSIONS

Epidermal inclusion cysts in the breast are rare but can present as painless, enlarging lumps. Ultrasound and color Doppler are effective for diagnosis, while FNAC and histopathology confirm the presence of keratinizing squamous cells. Complete surgical excision is the standard treatment for symptomatic cysts, with careful monitoring for potential malignant transformation in rare cases.

Epidermal inclusion cysts (EC) of the breast are rare but can present as painless, gradually enlarging lumps. Ultrasonography plays a key role in assessing their echogenicity, size, and internal characteristics, with color Doppler revealing specific features such as twinkling artifacts that aid in diagnosis. Fine-needle aspiration cytology (FNAC) and histopathology are essential for confirming the diagnosis, typically showing keratinizing squamous cells within the cyst. Complete surgical excision remains the standard treatment for symptomatic or large epidermal cysts, whereas small, asymptomatic cysts may not require intervention. Although uncommon, approximately 1% of epidermal cysts have the potential for malignant transformation, highlighting the importance of careful evaluation and follow-up.

CONFLICT OF INTEREST

None

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