ORIGINAL RESEARCH PAPER

Pathology

MULTIPLE KERATINOUS CYSTS IN A GIANT FIBROADENOMA- A RARE CASE REPORT

KEY WORDS: Giant fibroadenoma, Keratinous cysts

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ABSTRACT

Fibroadenoma is one of the most common causes of benign proliferative lump in the breast. Giant fibroadenomas are fibroadenomas weighing more than 500 grams or measuring >5 cm in size however the occurrence of epidermal cysts in fibroadenoma is very rare. Epidermal cysts are benign cysts formed by the inclusion of keratinized stratified squamous epithelium in the dermis leading to the formation of cysts filled with lamellated keratin. These are usually small subcutaneous intradermal lesions that occur most commonly over the face, neck, trunk and extremities. Here we report a case of a young female presented with a large breast lump who had undergone lumpectomy and histopathologically diagnosed as Giant fibroadenoma with multiple epidermal cysts.

INTRODUCTION :

Fibroadenoma is the most common benign proliferative lesion of the breast and usually occurs in adolescent and young women and is associated with the proliferation of epithelial and stromal components of the breast (1). Giant fibroadenomas are defined as fibroadenomas of greater than 5□ cm in size, or 500□ g, are rare benign breast lesions that account for approximately 0.5%–2% of fibroadenomas, and usually occur in women during pregnancy or lactation or in adolescent women (2). Epidermal inclusion cysts are the cysts that result from the proliferation and implantation of epidermal elements within a circumscribed space in the dermis with an accumulation of epidermal and keratinous material and are common in the skin over the face, neck, trunk and extremities (3). However epidermal cysts in the breast are very rare and only a few cases have been reported in the literature (3).

Case Report :

A 26-year-old female presented with complaints of a palpable painless lump in her right breast for the past ten months which gradually increased in size. Her history was negative for any breast cancer or trauma. Clinical examination revealed a non-tender, mobile, well-circumscribed lump in the centre almost involving the whole of the right breast which was soft to firm in consistency and measuring approximately 10 x 9.5 cm. Dilated veins were seen over the swelling (Fig.1), however no skin changes were seen over the lump neither was any bilateral axillary lymphadenopathy identified. The contralateral breast was normal on examination. Mammography revealed the presence of a well-circumscribed discrete oval mass which was hypo to isodense to breast glandular tissue.

Coarse popcorn calcification was also seen. Ultrasonography revealed a large ill-defined heterogeneous solid cystic lesion involving almost all quadrants of the right breast with increased vascularity. A differential diagnosis of Giant fibroadenoma with cystic changes and Phylloides tumour was made on radiology. Further Fine Needle aspiration cytology (FNAC) was advised which showed branching cohesive clusters of ductal epithelial cells with overlying and interspersed myoepithelial cells and scattered bare bipolar nuclei in the background. Few stromal fragments along with spindle-shaped cells were also seen, however no evidence was keratin was noted in the smears examined. Based on these cytological features, a diagnosis of a benign proliferative disease was made.

The patient was further planned for Wide local excision with Breast reconstruction. The resected specimen(lumpectomy specimen with an ellipse of skin) was sent for histopathological examination. The whole specimen grossly measured 11.5x8.2 x 5cms and the ellipse of skin measured 7 x 4.5 cm. On the cut section creamish white to brown lobulated mass was identified measuring 10.5 x 8 x 4.5 cm. The Cut surface showed creamish white homogenous firm areas along with multiple cysts running from (Fig. 2). On microscopic examination proliferation of both glandular and stromal elements with glands showing both intracanalicular and pericanalicular patterns with few glands showing cystic dilatation were identified.

Glands showed adenosis and epitheliosis. Stroma was cellular and showed areas of myxoid changes. Numerous cysts lined by squamous epithelium and filled with keratinised material along with areas of hyalinisation and haemorrhage were also seen (Fig. 3-5). No leaf-like growth pattern or evidence of malignancy was identified. Based on gross and microscopic examination a final diagnosis of Benign proliferative neoplasm favouring Giant Fibroadenoma with multiple keratinous cysts was made. Her postoperative recovery period was uneventful. The patient is on regular follow-up and is normal with no signs of recurrence.

Fig.1 Right breaast mass with dilated veins over the skin

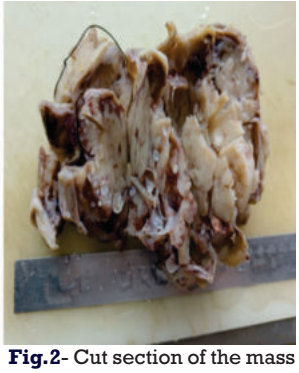

Fig.2- Cut section of the mass showing creamish white areas with multiple cysts

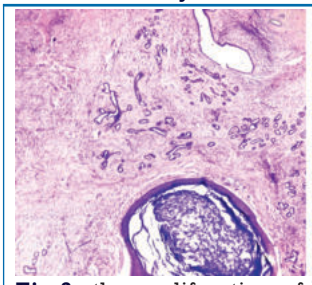

Fig.3- the proliferation of glandular and stromal elements with a keratinous cyst

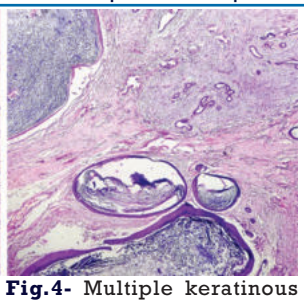

Fig.4- Multiple keratinous cysts lined by stratified squamous epithelium with lamellated keratin in the lumen

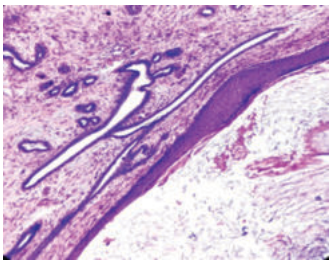

Fig.5 Cyst lined by keratinised stratified squamous epithelium with keratin flakes in the lumen

DISCUSSION:

Breast lumps are commonly encountered in females from varied ages but giant breast lumps are infrequent and give rise to multiple differentials such as fibroadenoma, phyllodes tumour, lipoma, cyst, abscess, hamartomas and malignancies (4). Due to their similar clinical features and overlapping cytomorphological features as well as lack of representation of entire samples in FNAC as in the present case, poses a diagnostic dilemma which can be confirmed by histopathological examination. While fibroadenomas are common benign lesions in breast tissue, giant fibroadenomas are very rare and are usually encountered in adolescent women (15–25 years of age), pregnant or lactating women as hormones like estrogen, progesterone and prolactin are found to contribute to their growth (5). Histopathological feature of fibroadenomas includes the proliferation of both glandular and stromal elements with glands showing intracanalicular and pericanalicular proliferation, minimal atypia and rare mitosis. An important differential for this entity is the phyllodes tumour whose distinction on histopathology can be made by its leafy architecture, matrix overgrowth, infiltrating margins and significant atypia (6). It is important to differentiate between the entities as they differ in their treatment and prognosis (6)Another important differential to be ruled out is breast carcinoma, though rare in young age groups but when diagnosed these are present at the advanced stage (7). However in the present case none of the features of malignancy were evident on clinical examination, radiology and cytology, hence the possibility of breast cancer was ruled out. Giant lipomas are usually soft, mobile, non-tender masses with unilateral involvement which on histopathology shows are well-circumscribed nodules and clusters of mature adipose tissue. Breast abscesses present with sudden and rapid growth and are usually tender and associated with inflammation which on histopathology shows a dense collection of inflammatory cells predominantly comprising of neutrophils and lymphocytes with few histocytes in a background of necrosis (8). While hamartomas show an admixture of ducts, lobules, fibrous stroma, and adipose tissue in varying proportions on histopathological examination(8). Epidermal inclusion cysts are common cutaneous benign inflammatory lesions and are formed by the implantation of epidermal elements in the dermis These occur in various parts of the body including the face, scalp, neck, and trunk, however, only a few cases of epidermal cysts of the breast have been reported in the literature (9) Various theories have been proposed explaining the mechanism of development of these cysts. To begin with, epidermal inclusion cysts can be congenital in origin arising from cell nests remaining from cells such as the embryonal mammary ridge, Furthermore they can develop from obstructed hair follicles (10). In addition they can result after a trauma like reduction mammoplasty or needle biopsy of the breast (11) also sometimes, pilosebaceous structures may become inflamed, leading to a cystic reaction in the dermis. This theory is typically used to explain the presence of cysts on the face, neck, and trunk (12). Finally, epidermal inclusion cysts may be created by squamous metaplasia of normal columnar cells within a dilated duct in the case of fibrocystic disease or a fibroadenoma or phyllodes tumours (13). Most breast epidermal inclusion cysts occur in the skin layer and are usually small and well-circumscribed. Under mammography, these types appear to be well circumscribed with homogeneous increased density. In Ultrasonography they show a well-circumscribed, solid and complex or heterogeneous appearance (14). Small epidermal inclusion cysts of the breast usually do not cause any problem but larger cysts pose several problems including their spontaneous rupture releasing keratin that may induce secondary foreign body reactions, granulomatous reactions or abscess formation (9). The malignant potential of epidermal inclusion cysts is variable ranging from 0.045 to 19% and are found to be associated with squamous cell carcinoma (15). In cases of multiple or large epidermal inclusion cysts in the breast, as in the present case, entire cyst wall removal is recommended for both pathologic confirmation and surgical treatment and to prevent further risk of recurrence (15).

CONCLUSION

Giant fibroadenoma of the breast is a rare tumour, and the presence of an epidermal cyst is even rarer. Giant breast lumps cause diagnostic dilemmas and therefore thereby creating a diagnostic dilemma. Therefore a detailed clinical examination, radiology, and preoperative cytology followed by histopathological diagnosis is of utmost importance for a definite diagnosis and helpful in ruling out differential diagnosis allowing a timely diagnosis for deciding a proper treatment regime and preventing further progression of the disease.

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