

Crystallizing Galactocele: A report of an unusual case

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ABSTRACT

Galactocele is a benign cystic lesion of the breast and is commonly seen in pregnancy and lactation. Crystals in galactocele are rarely seen and reported. Crystals form due to supersaturation of milk with solutes and obstruction of the draining ducts. Fine needle aspiration cytology is used for a dual purpose, i.e., diagnostic and therapeutic procedure in such cases. Here, we present the case of crystallizing galactocele in a 27-year-old female.

Key words: Benign breast cyst, Breast lump, Crystallizing galactocele, Galactocele

Galactocele is a benign cystic lesion of the breast, commonly seen in pregnancy and lactation. The incidence of galactocele is estimated to be around 4% among all breast lesions [1]. It usually results from the blockage of a duct leading to the collection of milk. Crystals in galactocele are rarely seen, with only a few case reports in the literature. Crystalline galactocele can lead to a diagnostic dilemma as crystals are rarely seen in breast cytology. Fine needle aspiration cytology (FNAC) has a dual purpose and acts as both a diagnostic and therapeutic procedure in galactocele [2].

Here, we report a case of a 27-year-old lactating female with crystallizing galactocele.

CASE REPORT

A 27-year-old female presented to the Surgery Outpatient Department in our hospital with the chief complaint of the presence of a lump in the right breast, upper outer quadrant, for the last 2 months. The patient was a lactating female and had delivered a full-term baby 3 months ago.

She was afebrile with a pulse rate of 88/min and blood pressure of 110/70 mmHg. On palpation, the lump was (2 × 2) cm in size, soft to firm in consistency, mobile, and non-tender. The overlying skin and nipple areola complex were unremarkable. After clinical examination, fibroadenoma was kept as a provisional diagnosis, and ultrasound was advised.


On ultrasonography, the possibility of fibroadenoma was kept, and FNAC was advised. Fine needle aspiration (FNA) yielded 3 mL of thick whitish fluid, and the swelling subsided after aspiration. Smears were made from the aspirate, and they were

stained with Giemsa stain. Microscopic examination of the smears revealed paucicellular smears with scattered foamy histiocytes in the background of amorphous granular proteinaceous material, lipid micelles, and crystals of varying sizes. These crystals were rectangular to rhomboid in shape and were refractile (Fig. 1). Ductal epithelial cells were not seen in the smears examined. The diagnosis was suggestive of crystallizing galactocele. On follow-up of the patient, the swelling did not recur, and she was feeding her infant without any discomfort.

DISCUSSION

Galactocele, also known as lacteal cyst or milk retention cyst, is one of the most common benign lesions of the breast and the most common cause of breast lump in lactating women [1,2]. Galactocele can form anywhere along the milk line, i.e., from axilla to groin, but it commonly forms in the retroareolar region. The triad of secretory breast epithelium, ductal obstruction, and prolactin hormone secretion is required for the development of galactocele [3,4]. Difficulty in lactation due to improper latching, nipple abnormalities, trauma, inflammation, cleft palate in infants, or certain conditions in infants where lactation is contraindicated can lead to incomplete emptying of lactiferous ducts. Intake of oral contraceptives can also cause excessive stimulation of the epithelium. A galactocele is an encysted collection of milk, lined by cuboidal epithelium.

Clinically, it presents as a non-tender, mobile breast lump. On ultrasound, it can mimic any cystic lesion, even carcinoma. FNAC plays a major role in the diagnosis and therapeutic drainage of galactocele. Aspirate is thick, chalky white. Microscopic examination of FNA smears shows foamy histiocytes and

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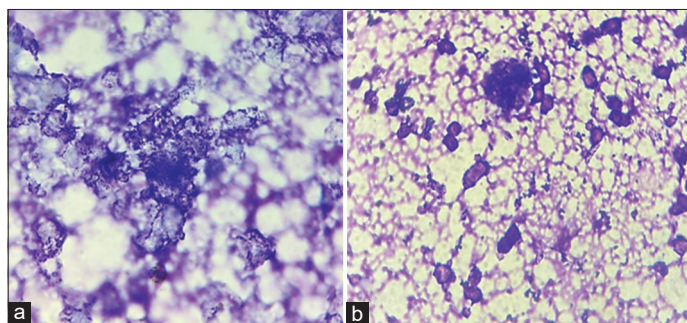


Figure 1: Polyhedral crystals at low magnification (Giemsa, ×10); (b) Polyhedral crystals and granular amorphous material at high magnification (Giemsa, ×40)

necrotic cells in the background of granular amorphous proteinaceous material [5]. Crystals in a galactoceles are rarely seen. Milk consists of lipids, albumin, lysozyme, whey proteins, IgA secretory piece, acidic, and neutral mucins. Supersaturation of milk, acidic environment, along with stasis, leads to crystal formation. Chemically, these crystals consist of calcium lactate or tyrosine and show positive birefringence [3].

There are only 10 cases of crystallizing galactoceles that has been reported in the literature [2-11]. Raso *et al.* documented the first such case in 1997 [2]. All the cases were lactating females and their age varied from 22 to 40 years. Our patient was 27 years old and had a lump in the right breast. The right breast was involved in five cases, and in two cases, the side was not mentioned. The lump was seen in the upper outer quadrant in four cases, as was in our case. Shetty *et al.* categorized these crystals as tyrosine crystals and concluded that there should be sufficient time of contact between calcium and lactate or tyrosine for crystallization [9]. However, these crystals can also form due to the crystallization of lactose, which is present in higher amounts in human milk. Lactose crystals are polyhedral crystals which appear the same as the crystals seen in our and other cases [12]. Further studies are needed for the exact characterization of these crystals.

Clinical differential diagnosis of galactoceles includes fibroadenoma, lactational adenoma, fibrocystic disease, and breast carcinoma. Radiologically, galactoceles can mimic all conditions. Fine needle examination provides the diagnosis in these cases. Fibroadenoma shows moderately cellular smears with many branching clusters of benign ductal epithelial cells and stromal fragments, along with numerous bare benign nuclei in the background. Fibroadenoma with cystic change will show foamy histiocytes in addition to the above findings. Lactational adenoma will show loosely cohesive clusters of monomorphic cells with foamy cytoplasm. Fibrocystic disease shows few clusters of benign ductal epithelial cells with many foamy histiocytes in the background. Carcinoma breast will show dyscohesive cells with nuclear pleomorphism [13]. Galactoceles shows paucicellular smears with few foamy histiocytes in the background of amorphous proteinaceous material and lipid micelles. The epithelial and stromal fragments are absent in galactoceles.

The treatment and prognosis of crystallizing galactoceles are the same as conventional galactoceles. This case adds to the knowledge of the unusual finding of such a variation.

CONCLUSION

Crystalline galactoceles can be considered a diagnosis in cases where a pregnant or lactating female presents with a long-standing lump and FNA smears show only crystals.

AUTHOR'S CONTRIBUTORS

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