

ORIGINAL RESEARCH

A Case series of Crystallizing Galactocele and review of literature

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Abstract

Galactocele is a lesion that occur commonly during pregnancy or lactation. It is a benign cystic breast disease containing milk. Milky fluid is aspirated using a fine needle aspiration, and cytology reveals paucicellular aspirate with foamy macrophages and sporadic apocrine cells against a background of proteinaceous fluid. Rarely, the galactocele's contents can crystallize, giving rise to a crystallizing galactocele entity. The crystalline galactocele are very uncommon. Till date in best of our knowledge not more than 15 cases have been reported in the literature. In this case series we are reporting 4 cases of crystalline galactocele.

Keywords: Crystalline galactocele, galactocele, Breast. Benign breast disease, Hematoxylin & eosin stain, Field stain, refractile, cytomorphological findings cystic lump

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Introduction

Galactocele is a relatively rare benign lesion of breast seen in young lactating women. It is also called as lactocele or lacteal cyst. It is a lactiferous duct occlusion-related retention cyst. This is triad of secretory breast epithelium, prolactin stimulus and ductal obstruction which results in cyst formation (1). Fine Needle Aspiration is both a diagnostic and therapeutic in cases of galactocele. It generally yields milky fluid showing paucicellular smears with foamy macrophages and occasional apocrine cells on a proteinaceous fluid background (2,3). Rarely, the galactocele's contents can crystallize, giving rise to a crystallizing galactocele entity. As the hormonal changes brought on by lactation subside, galactoceles frequently resolve on their own (4). Ultrasound appearances can be widely variable of galactolcele. Sonographic characteristics are found to be cystic/multicystic (~50%), mixed (cystic + solid) (~37%), and solid (~13%) (4). This present case studies describe the cytological findings of galactocele

which underwent crystallization and mimicked same clinically as well as on sonography. In this case series, we describe 4 cases of crystalline galactocele.

Case Series

Case 1: A right breast lump that was hard and painless was discovered in a young woman of 25. Two years ago, she first noticed the bulge. Clinically, the lesion was hard, and sonography had trouble classifying it. A FNAC was conducted, and the results on microscopic examination revealed granular amorphous material as well as crystals of different sizes and forms. The woman was informed that her lesion was benign and that it was likely crystallizing galactocele. There are extremely few examples where crystallizing galactocele's cytological findings have been documented. A thorough history and clinical examination, followed by fine needle aspiration, helped to establish the diagnosis of crystallizing galactocele in the present patient. However, it is frequently challenging to determine a galactocele's presence only

through sonography, and a pathologic diagnosis is frequently required.

Case 2: A 28 years old female was referred to our hospital with the chief complaint of a painless slowly growing lump in her left breast since 4 months. She had a full-term vaginal delivery of a boy two years prior. She had breastfed her child exclusively for a year before continuing irregularly till the presentation day. A distinct, movable, non-tender, nodular mass of approximately 1.5 X 1.0 cm was palpable in the left breast's lower outer quadrant upon physical examination. Areola and nipple were normal. The aspirate obtained on two passes of FNAC with a 22-gauge needle under aseptically settings was a thick milky chalky white aspirate. The cytology smears were examined using both H& E staining as well as field staining. The smears revealed refractile crystals with defined borders of various shapes and sizes, semi-transparent to dark blue on Field staining and many, distinct, compact, and semitransparent topurple crystals on H and E staining. Background material was granular, amorphous, and proteinaceous with frothy-appearing lipid micelles and crystals of various sizes mixed in. There were occasional visible bipolar nuclei, mild chronic inflammatory cells infiltrate present. A diagnosis of a crystallizing galactocele was determined based on the clinical history of lactation and the cytomorphological findings.

Case 3: 32 years old, thin, multiparous women, postpartum 2 year & 10 months had breastfed her child intermittently to the day of presentation. She presented with left breast swelling of size 4x3 cm, nontender and soft in larger part, but the apical part of swelling was tender, firm and fixed in consistency. A history of breast feeding was noted in lying down posture. FNAC was performed and yielded 1 ml of thick whitish colostrum like material from soft area, and chalky white

material from tender firm area, giving gritty sensation on aspiration. The smears were stained with Giemsa stain, H & E stain, and ZN stain was also performed to rule out tuberculosis. The smears studied, showed abundant granular amorphous proteinaceous material with crystals and lipid micelles interspersed within. Many crystals were identified which were variable in size, shape, and appearance. The appearance was amorphous eosinophilic to purple on H & E stain, colorless to basophilic on field's stain, chronic inflammatory cells and bipolar ductal epithelial cells were not identified.

Case 4: A 55-year-old female was referred to our hospital with the chief complaint of a painless slowly growing lump right breast since 3 months back. On physical examination of the breast, a discrete, mobile, non-tender, nodular lump measuring approximately 3.0x2.5cm was palpable in the upper outer quadrant of the right breast. Nipple and areola were unremarkable. The surgeon advised an FNAC of the lesion. Ultrasonography of breast show well-defined iso to ecogenic, cystic lump of size 2.3x2.2x1.8cm. FNAC was performed under aseptically conditions using a 22-gauge needle which yielded a thick milky white aspirate of 3.0 ml and sized relatively reduced after aspiration. The cytology smears were studied with H& E staining, as well as Field staining. The smears showed numerous, distinct, compact and semitransparent to purple crystals on H and E staining and refractile to dark blue crystals with defined borders of variable shapes and sizes on Field staining. The background showed granular, amorphous, and proteinaceous material which was admixed with frothy appearing lipid micelles /milky background and variable sized crystals. In view of the cytomorphological features, a diagnosis of a crystallizing galactocele was made.

[Figure 1]

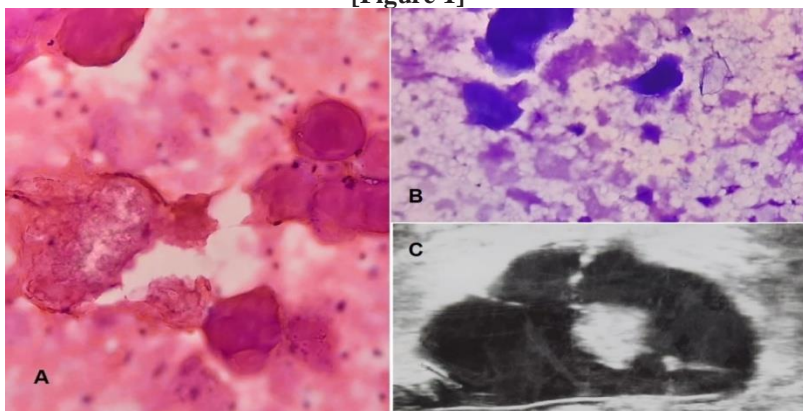


Fig1: (A) H&E stain show many variable sized semi-transparent angulated crystals on a background of granular amorphous eosinophilic proteinaceous material; (B) Shows numerous variable size angulated semi-

transparent to dark blue / purple in amorphous proteinaceous background; (C)Ultrasonography of breast show cystic lesion of approximately 22x14 mm with ecogenic component.

Discussion

A benign retention cyst of the breast known as a galactocele, lactocele, or lacteal cyst is characterized as a milk-filled cyst. Even though galactocele can develop anywhere along the milk line, which runs from the axilla to the groin, it tends to develop in the retro-areolar area of the breasts. Galactoceles must be distinguished from other breast conditions such as cysts, fibroadenomas, abscesses, or carcinomas(5,6). The preferred method for the diagnosis is ultrasound(4). FNA, which produces a milky fluid, is frequently used for both diagnostic and therapeutic purposes(1). Galactocele can only develop in the presence of the triad of secretory breast epithelium, prolactin stimulation, and ductal blockage(7). According to the literature, 4% to 5% of breast imaging reporting and data system (BI-RADS) category four lesions are found when core needle biopsies are carried out on women who have benign breast diseases and present to the outpatient department(6). Galactocele, though, is not that unusual. Because galactocele is benign and asymptomatic, it probably hasn't been recorded many times in the literature. On ultrasonography, these lesions are typically well circumscribed, ovoid, anechoic or hypoechoic masses with posterior enhancement or fat fluid level, a feature useful in differentiating it from solid breast tumours (4). In our case ultrasonography done showed FNAC is not only a simple, and minimally invasive procedure, but also its major advantage in pregnant women is avoidance of surgical trauma and anesthesia. It is also inexpensive and time saving. On FNAC, galactoceles yield chalky white milky fluid, as in our case which by itself is diagnostic (1). Microscopy shows necrotic cells and nuclear debris, sometimes accompanied by inflammatory cells. Ductal epithelial cells are infrequently observed in cytological smears, which revealed a great deal of semitransparent crystals of various sizes and shapes with angulated borders against a backdrop of granular and amorphous detritus as well as frothy-appearing micelles(8). A rare variation in the aspirate of galactocele is presence of crystals on smear, first case of which was documented in 1997 by Raso et al. (2). In our case study, age of three cases were between 25 to 32 years and were also lactating mothers. One case was 55 years old, postmenopausal female. Literature review shows crystalline galactocele cases vary between 21 to 40 years(9–11).

No other case report have been published showing crystalline galactocele in postmenopausal age. The reason for detection at later age may be due to asymptomatic nature of crystalline galactocele and not noticed by the patient. The galactocele may have developed during lactation or pregnancy but when it enlarged in size, it was noticed by the patient at later age. In conclusion, crystallizing galactocele is a benign condition that only rarely affects women who are pregnant or lactating. Our study also shows that crystalline galactocele may be detected in postmenopausal women. Although, we did not perform polarizing microscopy, however, if crystals are seen in FNAC smears, it is worthwhile to analyze the Giemsa stained smears under a polarized microscope.

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