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Recurring mammary ductal ectasia in children: Case report

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ABSTRACT

Bloody nipple discharge is a rare finding in children; its occurrence in infants is almost always benign in origin and suggests primarily the presence of mammary ductal ectasia. We describe the case of a 4 years 6 months old male child who presents with right bloody nipple discharge and no other associated symptoms. Blood tests were normal. Ultrasound revealed mammary ductal ectasia. Symptoms resolved spontaneously after 6 months. After 3 years, the patient presented again for the same complaint, but in the contralateral breast and mammary ductal ectasia recurrence was found. Histological findings, characteristics, recurrence and available treatments of ductal ectasia will be discussed.

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1. Introduction

Bloody nipple discharge abbreviated as BND can be considered as a common symptom in adults associated with various possible diagnoses ranging from a fibrocystic disease to less frequently, breast cancer [1]. On the contrary, in the pediatric age groups, BND is a rare finding that brings not only anxiety to the parents but also is a challenging presentation to the pediatrician with the absence of clear guidelines. Although the etiology differs with age, all the reported cases of bloody nipple discharge in children have been attributed primarily to a benign process known as ductal ectasia [2]. The literature reports a limited number of patients having ductal ectasia with a mean age at presentation of 12.5 ± 13.3 months (range 20 days to 4 years) and a male to female ratio of 1.55 to 1.00 [3]. The main presenting symptom is usually the bloody discharge from the nipples that can be associated with a breast enlargement and a palpable small mass. The symptoms can manifest either unilaterally or even bilaterally [4]. Furthermore; the average age of symptom resolution is 2.8 months [3]. Because of the benign origin of the children breast diseases, surgical biopsy is not necessary for diagnostic purposes and should be avoided knowing it can lead to breast deformity in very early ages [1].

2. Case report

A four and a half years old male child presented to the hospital after the mother had noted over the last few weeks a recurrent bloody stain (chocolate like in color) discoloring his undershirt. There was no history of previous episodes of bloody nipple discharge, fever, recent use of drugs, or trauma. Medical history is uneventful. Family history was negative for any breast disease or malignancy, bleeding or endocrine problems. The child's growth was normal for age. On physical examination, there were no signs of breast hypertrophy, engorgement or inflammation. No palpable cystic masses in the areolar area were noted and no associated skin lesions. The only positive finding was the bloody discharge from the right nipple upon squeezing the areola. The left breast was normal. In addition, no palpable axillary, supraclavicular or cervical lymph nodes were found.

Blood tests performed were normal (Table 1). Bacteriologic Culture of the nipple discharge was negative. Cytology revealed only the presence of few macrophages. Ultrasound showed small bilateral retro-areolar glandular tissue associated with mild dilatation of the right retro-areolar ducts on the right side when compared to the left side (Fig. 1). These findings were suggestive of mammary duct ectasia. On follow up, 3 months later, ultrasound imaging revealed a decrease in the degree of ductal dilatation as well as a mild decrease in the size of the sub-areolar glandular tissue (Fig. 2). Symptoms resolved spontaneously after 6 months with no surgical or medical intervention. After 3 years, and at the age of seven and a half years, the patient presented again with the

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Table 1
Blood tests performed.

Blood test	Result	Normal value for the age group (4–6 yrs)
TSH	1.010 μ U/mL	0.30–5.00 μ U/mL
Free T4	1.27 μ U/mL	1.1–3.1 μ U/mL
Prolactin	8.40 ng/mL	0.8–16.9 ng/mL

same complaint of bloody discharge but now from the contralateral left breast.

Repeat ultrasound was done and showed again subareolar fibroglandular tissue bilaterally with mildly dilated ducts more prominent on the left breast with no focal suspicious soft tissue lesion (Fig. 3). Mammary ductal ectasia has recurred after 3 years in the contralateral breast and has spontaneously resolved after 3 months.

3. Discussion

The definitive etiology of ductal ectasia remains unknown. Nevertheless, multiple factors were raised and were recognized as playing a major role in leading to mammary duct ectasia. Some of

which are autoimmune processes, congenital abnormalities of the nipple and duct system, chronic inflammation of the mammary peri-ductal system, trauma, and maternal hormonal stimulation [5]. Bacterial infection causing bloody nipple discharge is part of the differential diagnosis; yet it commonly presents with pain in the breast region, erythema and signs of inflammation. Usually mastitis presents before six weeks of age, and is rarely a cause of bloody nipple discharge [6].

Most of the reported cases of bloody nipple discharge were found in children younger than four years of age. This can be explained partially by the mere fact that breast development continues until that age along with a secretory function [7]. In adulthood, researchers associated in many instances bloody nipple discharge with intraductal papilloma [8], whereas in children, it is always a benign condition, and is most often caused by mammary duct ectasia and epithelial hyperplasia [7]. Lots of literature reviews elucidated histological and physiological findings about ductal ectasia. Mammary duct ectasia is characterized histo-pathologically by the dilation of the mammary ducts accompanied by a peri-ductal inflammation. The most striking feature found in histological sections of enlarged mammary duct is the presence of macrophages containing a foamy like granular material [3]. The ductal

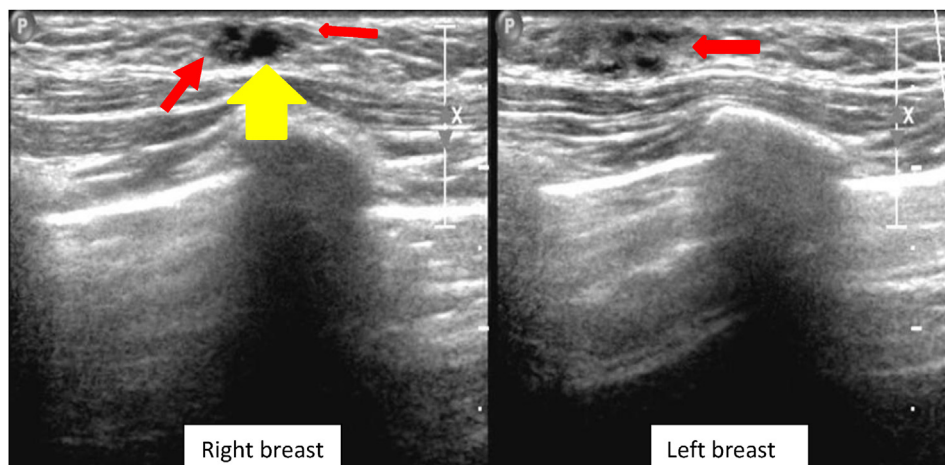


Fig. 1. Ultrasound of the breast: there are small bilateral retro-areolar glandular tissues (thin arrows). There is mild dilatation of the right retroareolar ducts (thick arrow), when compared to the left side.

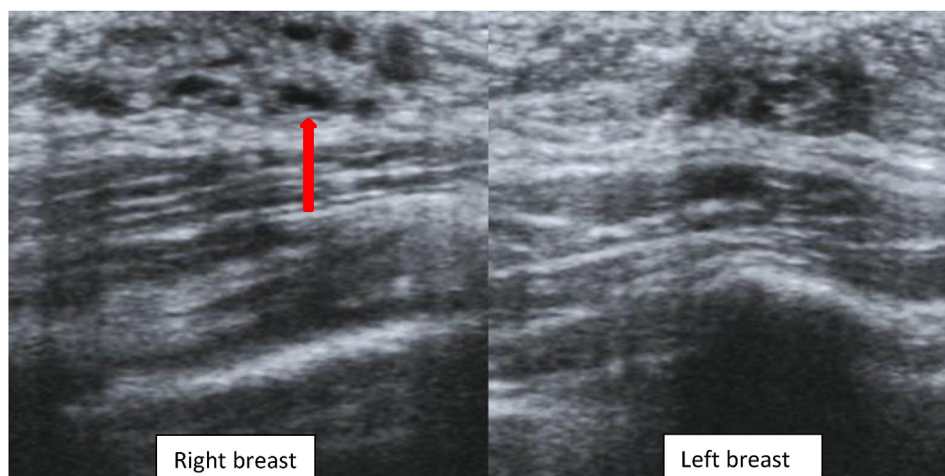


Fig. 2. Follow up ultrasound of the breast three months later: there has been decrease in the degree of ductal dilatation bilaterally (thin arrow:glandular tissue) Right breast Left breast.

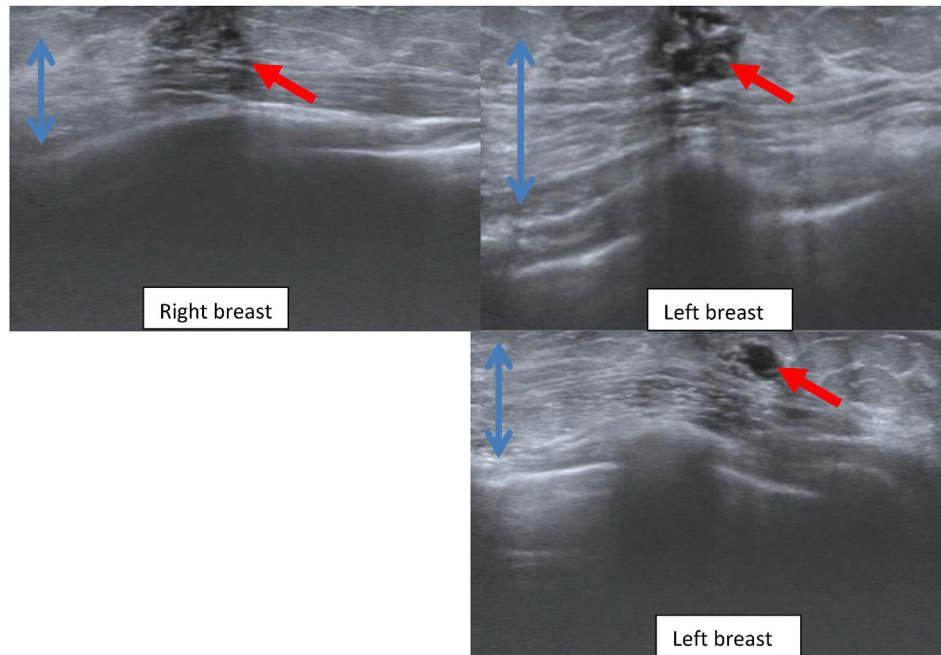


Fig. 3. Ultrasound of the breast 3 years later: again showing the subareolar fibroglandular tissue bilaterally (two sided arrow) with mildly dilated ducts (one sided arrow) more prominent on the left.

dilatation with its lumen filled with lipids and debris, causes significant discrepancy in relation to adjacent ducts; with time, the phagocytic cells surrounding the lipid material form the granulation tissue leading to ulceration of the ductal epithelium causing bloody nipple discharge [5].

The workup of bloody nipple discharge consists of a relevant history and a full clinical exam with giving special attention to any signs of inflammation of the breasts. Lab tests include blood cell count, coagulation profile, hormonal serum levels of prolactin, estradiol, thyroxin, FSH and LH. Workup also includes gram stain and culture of the discharge with cytology and breast ultrasound [5].

According to the literature, surgeons opt with surgical excision of the abnormal breast tissue over observation alone; however, mammary duct ectasia with bloody nipple discharge is a self-limited disease that tend to resolve spontaneously within three to nine months [8]. Excised tissues have consistently been in accordance with benign duct ectasia so that no clear benefit has been revealed from excision of breast tissue. On the contrary the procedure might cause lifelong breast deformity and dysfunction [9].

In the literature, bloody nipple discharge recurrence was observed up to three years after the initial diagnosis was reported [3], and the majority of the recurrent BND episodes were noted to be in the bilateral breast rather than on the same side [3]. Recurrence in the contralateral breast alludes to the possibility of a systemic cause of BND [3].

Mammary duct ectasia is a self-limiting disease that more often than not needs no surgical or medical intervention; it resolves spontaneously [10]. If after laboratory investigation, it was found that the cause of the mammary duct ectasia was of a bacterial origin, the patient should be treated with antibiotics. On the other hand, a patient with no bacterial infection but having any of the following findings: breast enlargement, severe pain, palpable mass, suspicious cytology or a non-resolving bloody nipple discharge then surgical intervention can be indicated [3]. Our patient's

clinical presentation resembles that of the previous reported cases in the literature suggesting a benign cause of his symptom.

Conflicts of interests

No potential conflict of interest relevant to this article was reported.

Appendix A. Supplementary data

Supplementary data related to this article can be found at <http://dx.doi.org/10.1016/j.epsc.2016.10.006>.

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