

Unilateral bloody nipple discharge in a two-month-old male

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Abstract Bloody nipple discharge is a rare but distressing finding in neonates and infants. We report on a 2-month-old boy with unilateral bloody nipple discharge. Ultrasound examination revealed dilated mammary ducts. This benign phenomenon is most likely to be caused by mammary ductal ectasia. Invasive investigations or surgery should be avoided in neonates or infants with bloody nipple discharge unless the discharge is unilateral, spontaneous, persistent and accompanied with a palpable mass. Otherwise only serial clinical follow-up is recommended until spontaneous resolution.

Keywords Bloody nipple discharge · Neonate · Infant · Mammary ductal ectasia

Abbreviations

BND bloody nipple discharge

Introduction

Milky nipple discharge associated with palpable breast enlargement is frequently seen in neonates. This benign phenomenon is linked to placental-transmitted maternal hormones. At variance bloody nipple discharge (BND) is rarely seen in

neonates and infants. This is a rather distressing finding for parents. Here, we report on a two-month-old male infant with unilateral BND. Diagnostic steps required to avoid unnecessary invasive procedures are discussed.

Case report

A two-month-old boy was seen in the outpatient clinic by a paediatrician with a four-day history of unilateral BND. The discharge was intermittent, occurred spontaneously and with straining. No change in size of the breasts was noticed. There was no history of trauma nor drug ingestion. Pregnancy, delivery and medical history were unremarkable. The infant was entirely breastfed. Familial history was negative for bleeding diathesis and breast carcinoma. Physical examination of the breasts showed a normal skin without signs of inflammation, palpation was painless with no breast enlargement or palpable masses. Pressure on the areolar area resulted in expression of blood droplets at the left nipple (Fig. 1a). Further physical examination was unremarkable. Ultrasound of the breast region showed dilatation of the retroareolar mammary ducts on the left side (Fig. 1b). No cysts or echogenic masses were detected and absence of Doppler signals excluded a vascular abnormality. Peripheral blood count and coagulation screening tests (PT and aPTT) were normal. Prolactin (17 ng/mL), oestradiol (< 12 pg/mL), testosterone (188 ng/dL) and gonadotropins (β -HCG < 0.1 ng/mL) serum levels were within normal range for age. Bacterial culture of the discharge was negative. By cytologic evaluation, infective or malignant pathology was excluded, only red blood cells and macrophages were found. Nipple discharge diminished gradually and resolved spontaneously within two weeks. Follow-up until the age of 13 months was uneventful.

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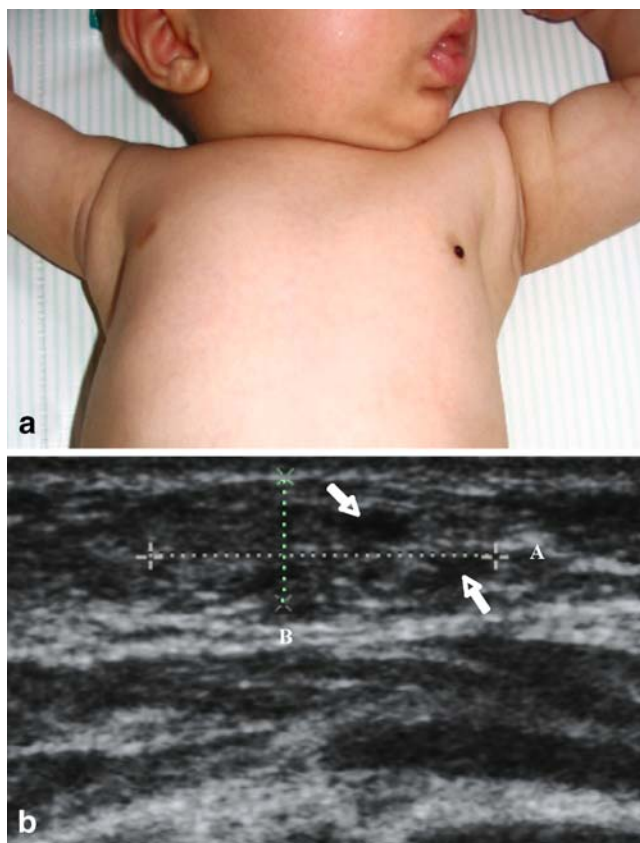


Fig. 1 a. Unilateral bloody nipple discharge, b. Ultrasound of the left breast (A=11.9 mm, B=4.4 mm), ductal ectasia (arrows)

Discussion

In healthy newborns only sporadic cases with BND have been reported. Berkowitz and Inkless [1] first reported BND in two neonates. No pathological examination was undertaken, and the clinical finding was thought to be related to ductal hyperplasia caused by hormonal stimulation. Temporarily increased progesterone levels might be responsible [9]. Based on the histological findings in a three-year-old boy, mammary ductal ectasia is considered to be the major cause for BND [10]. Mastitis causing BND has been reported in

adolescent and adult patients but only sporadically in young infants [2]. The major concern about BND is the underlying fear for breast carcinoma. Reports about the very exceptional occurrence of breast carcinomas in young children are on record including juvenile secretory carcinoma and phyllodes tumors. Breast cancer in children younger than three years has until now not been reported. Pituitary adenomas, specifically prolactinomas can present with spontaneous nipple discharge that is usually bilateral and milky [3]. Neonates and infants with mammary ductal ectasia can present either with unilateral or bilateral discharge, and with or without a palpable mass. Mammary duct ectasia is a benign transformation characterized by dilatation of the mammary ducts, periductal fibrosis and inflammation. The degree of ductal ectasia determines whether palpable masses are present or not. Bloody nipple discharge in young children or infants appears to be a self-limited condition [11]. Resolution may take two weeks to nine months [11]. Clinical follow-up of the child with 'masterly inactivity', unless there are specific 'red-tops' is a clue message. Invasive investigations at such a young age may have lifelong sequelae, which can be avoided. In the paediatric literature nine infants with BND younger than six months are reported [1, 5–8, 11, 13] (Table 1). All children except one were not treated. Surgical excision was performed in a four-month-old female because a breast mass was detected. Microscopic examination revealed a haemorrhagic cyst [13].

Initial investigations in a patient with BND should include Gram-staining, cytologic evaluation for the exclusion of a tumoral process, and bacterial culture of the discharged fluid. Ultrasound (US) and color Doppler imaging are the ideal initial imaging modalities to study the paediatric subareolar region [4]. The highest quality US images of the breast are obtained with 5–12-MHz linear transducers. In the normal breast fat is hypoechoic, fibrous tissue is echogenic, and glandular tissue is intermediate in echogenicity. Fibroadenoma is the most common benign neoplastic lesion of the breast in children. On US the mass has well-defined borders, is hypoechoic and homogenous. Breast cysts are solitary or

Table 1 Clinical presentation in infants younger than 6 months with bloody nipple discharge described in the literature

| Case | Age | Sex | Physical examination | Duration of symptoms | Surgery and histology |
|---------------------------|----------|-----|----------------------|----------------------|-----------------------|
| Berkowitz and Inkless [1] | 6 weeks | M | Breast enlargement | 6 months | n.d. |
| | 6 weeks | F | Breast enlargement | 1 month | n.d. |
| Gershin and Mogilner [6] | 3 months | F | Breast enlargement | 6 months | n.d. |
| Stringel et al. [10] | 5 months | F | Small nodule | 3 months | n.d. |
| Weimann [11] | 4 months | M | Normal | 10 months | n.d. |
| Kelly [7] | 2 months | M | Normal | 5 months | n.d. |
| George and Donnelly [5] | 10 weeks | F | Normal | 9 months | n.d. |
| Phan et al. [8] | 9 weeks | F | Breast enlargement | 15 days | n.d. |
| West et al. [13] | 4 months | F | Masses | – | Haemorrhagic cyst |

n.d.=not done

multiple and most commonly located near the nipple and areola. Uninfected cysts are anechoic masses located in breast tissue. They are round or lobular in shape, contain internal septations or isolated echoes and are avascular at Doppler US. Infected cysts contain debris or fluid-fluid levels, and at Doppler US an increased vascularity is noted peripherally. Adenocarcinoma presents with a hypoechoic mass with inhomogeneous internal echoes, irregular margins and variable acoustic shadowing. Ductal ectasia is seen as tubular hypoechoic areas without evidence of increased vascularity [12]. In the presence of abnormal hormone levels, further imaging to rule out pituitary lesions is advised. Surgical interventions such as biopsy are not indicated in the neonate and young infant and may result in severe breast deformity, disabling both cosmetically and functionally by interfering with breast feeding. Invasive investigations were avoided in the patient as the team correctly diagnosed the bloody discharge to be benign- due to an underlying duct ectasia.

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