

## Mammary ductal ectasia as cause of bloody nipple discharge in a 28-month-old boy

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**SUMMARY:** Çorapçioğlu F, Akansel G, Sarper N, Taneri H, Yıldız K. Mammary ductal ectasia as cause of bloody nipple discharge in a 28-month-old boy. Turk J Pediatr 2005; 47: 379-381.

Bloody nipple discharge occurs rarely in infancy and may be secondary to mammary ductal ectasia. Discharge commonly resolves spontaneously, and ultrasonography is a useful diagnostic technique to detect the cause of discharge. We report a 28-month-old boy who presented with unilateral bloody nipple discharge for one month without signs of infection or mass. Ultrasound examination showed a dilated duct in the retroareolar region. No atypical cells were present on cytologic evaluation of the discharge. Further diagnostic studies were avoided and the discharge ceased completely one month later. We conclude that bloody nipple discharge is usually a benign and self-limited process in infancy and that it is advisable to avoid unnecessary invasive investigations initially. Invasive diagnostic studies or surgery should be reserved for cases with a palpable mass, persistent discharge or equivocal ultrasonographic findings.

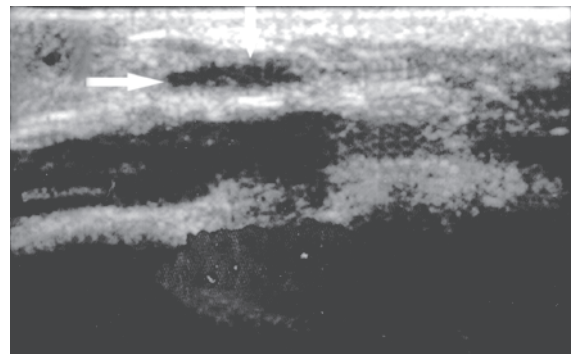
**Key words:** bloody nipple discharge, mammary duct ectasia, childhood.

Although most commonly due to a benign cause, nipple discharge represents an alarming complaint in adult patients. Underlying cancer is present in 10-15% of patients with nipple discharge<sup>1</sup>. Breast hypertrophy and a milky discharge from the nipple are often seen in mature infants, but bloody nipple discharge is rare in infancy and childhood<sup>2</sup>. Here, we report a 28-month-old boy with bloody nipple discharge, and discuss the clinical management of bloody nipple discharge in infancy.

### Case Report

A 28-month old boy was admitted with a one-month history of spontaneous bloody nipple discharge from his left breast. On physical examination, there was no palpable mass, breast enlargement or signs of infection. There was no history of trauma. Hemorrhagic discharge from the left nipple was seen during examination. The physical examination was otherwise normal. There was no history of cancer in his family. His complete blood count, chest X-ray, and abdominal ultrasonographic examinations

were normal. The ultrasonographic examination of the breast showed a dilated mammary duct in the retroareolar region of the left breast, with no evidence of abnormal vascularity on Doppler mode (Fig. 1). Laboratory findings including prolactin, estradiol, testosterone and gonadotropins were within normal ranges. Culture analysis of this discharged fluid was negative. A sample of discharge was sent for



**Fig. 1.** Color Doppler ultrasonography of the left breast shows a dilated duct (arrows), without evidence of abnormal vascularity.

cytologic evaluation. The specimen contained diffuse foam cells and rarely ductal epithelial cells; no atypical cells were present on the smear (Fig. 2). The nipple discharge diminished gradually and ceased completely in a month.

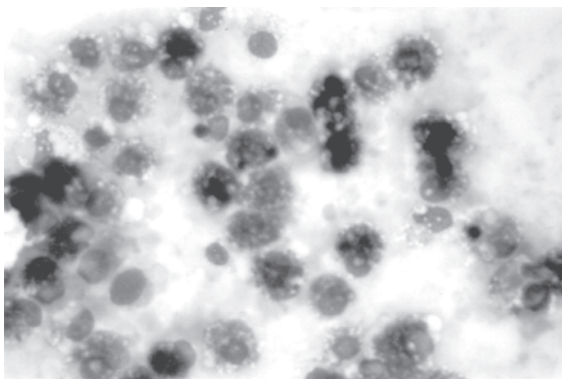


Fig. 2. Cytologic examination of discharge showing diffuse foam cells and rarely ductal epithelial cells (May-Grünwald-Giemsa stain, X400).

## Discussion

Although milky discharge is a common phenomenon in neonates and infants, a bloody nipple discharge in infancy has been rarely reported, and it is a distressing finding for both the family and the physician<sup>3</sup>. Bloody nipple discharge has most commonly been attributed to infantile mammary ductal ectasia<sup>3-5</sup>. However the cause of bloody discharge and ductal ectasia remains mostly unknown in infants. Maternal hormones, including estrogen, progesterone and prolactin, and fetal hormones such as prolactin appear to influence the ductal hyperplasia and secretion<sup>4,6</sup>. It has been suggested that the early development of the breast is influenced more by the infant's than the mother's endocrine activity<sup>7</sup>. Sigalas et al.<sup>8</sup> reported a seven-month-old male infant with bloody discharge from the right nipple. In this patient, progesterone level was higher than normal during discharge and returned to normal after the discharge ceased. They suggested that the temporarily elevated progesterone level might be responsible for the bloody nipple discharge. Chronic mastitis has been mentioned previously as a possible cause of bloody nipple discharge in childhood<sup>6</sup>. In the presented case, laboratory findings including hormone profile were within normal range and culture study done on the discharge was negative.

The degree of ductal ectasia will determine whether palpable breast masses are present<sup>3</sup>. Although pathologic breast conditions are rare in childhood and exceedingly rare in adolescence, malignant breast tumors have been reported in children who presented with palpable mass and bloody nipple discharge<sup>9,10</sup>. In the presented case no breast enlargement was noted.

Bloody nipple discharge appears to be a self-limited condition; resolution may take six months and possibly longer<sup>3,4,11</sup>. But the management of unilateral versus bilateral discharge is different. Unilateral discharge is more suspicious for underlying disease than bilateral<sup>12</sup>. In general, bloody nipple discharge due to benign causes is bilateral and not spontaneous, whereas suspicious discharge is usually unilateral, spontaneous and persistent<sup>4</sup>. Close clinical monitoring of infants with bloody nipple discharge is advisable to avoid unnecessary invasive investigations<sup>3,4,6</sup>. Surgical interventions such as biopsy at this age may result in severe breast deformity, disabling both cosmetically and functionally by interfering with breast-feeding. The timing of surgical intervention varies for lesions that continue to bleed and that cause symptoms such as pain and tenderness<sup>3,4</sup>. Ultrasonography is the ideal initial imaging modality to study the pediatric breast. It can be useful in identifying any abnormality or in guiding further investigation<sup>3,13</sup>. At ultrasonography, the fat in normal breast parenchyma is hypoechoic, fibrous tissue is echogenic and glandular tissue is intermediate in echogenicity<sup>13</sup>. Benign masses have well-defined borders and are of variable echogenicity. Cysts are anechoic with clear-cut borders and are compressible. Most malignant masses are hypoechoic with ill-defined borders. Evaluation in color Doppler mode may help further characterize the abnormality when a mass lesion is diagnosed<sup>3,13</sup>. Ductal ectasia is seen as tubular hypoechoic areas with no evidence of increased vascularity<sup>14</sup>. Although galactography may still be useful in adults presenting with bloody nipple discharge, it is not an appropriate modality in children due to the extremely low incidence of cancer in this age group as well as the increased risk of radiation-induced malignant changes in the young glandular breast<sup>1,15,16</sup>. Although the discharge was unilateral and spontaneous

in the presented case, we avoided invasive investigation because the ultrasound revealed ductal ectasia and the discharge ceased in a short time.

In instances where biopsy or subcutaneous mastectomy was performed, histological changes were identical to those seen in adult mammary duct ectasia, which is a benign disease<sup>4,5</sup>. Dilated ducts with hyperplastic area, periductal fibrosis and inflammation are characteristically seen in full-term infants<sup>3,5</sup>.

Mangano et al.<sup>17</sup> reported the cytologic findings from a nipple discharge in a 10-month-old girl with unilateral breast enlargement. The discharge showed an increased number of clusters of breast ductal epithelium with a few in a papillary configuration. In the presented case we also observed ductal epithelial cells and foam cells on the smear. No atypical cells were present.

In conclusion, bloody nipple discharge in children is more commonly encountered in pre-puberty. Although rare, it may be seen in infants and it is most frequently a benign and self-limited symptom. Since mammary ductal ectasia is the most common cause of bleeding from the nipple in this age group, the infant may be followed closely and an early invasive approach should be avoided. However, histological diagnosis should be obtained in cases with unilateral bloody discharge if the discharge is persistent or a palpable mass or equivocal ultrasound examination is present.

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