

# Blood-Streaked Stools in Two Breast-fed Siblings

Edith Klein, MD, Pesach Shvartzman, MD, and Zvi Weizman MD  
Beer-Sheva, Israel

Cow's milk was implicated in the pathogenesis of infantile enterocolitis over two decades ago,<sup>1</sup> and more recently a role for soy proteins in the development of this disorder was posited.<sup>2</sup> In 1982 Lake et al<sup>3</sup> reported 6 breast-fed infants with blood-streaked diarrhea appearing during the first month of life in whom there was histological evidence of an inflammatory process ranging in severity from minimal change to a suspicion of ulcerative colitis. In all, there was a cessation of diarrhea within 36 hours of stopping breast-feeding, and in 5, a recurrence of symptoms when breast-feeding was reinstated. The following year Shmerling<sup>4</sup> described a similar clinical course in 6 further infants and suggested that sensitization took place during the first hours after birth, when they were fed cow milk formula before the initiation of nursing. The mothers of the 12 infants who comprised the subjects of the two reports were ingesting milk or soy proteins, but symptoms were relieved in only 7 by an elimination diet.<sup>3,4</sup>

Two siblings are described with blood-streaked stools occurring early in the course of breast-feeding. Both became asymptomatic on cessation of nursing, and in one, symptoms recurred when an attempt was made to reintroduce breast-feeding. There were two older children in the family who had not been breast-fed and had never passed bloody stools.

## CASE REPORTS

### Case 1

A 6-week-old breast-fed female infant was brought to her family physician because the mother had noted streaks of blood in her infant's stools over the past days. The child was afebrile and in no apparent distress. Her birth and the antecedent pregnancy had been uneventful, and there

were no significant findings on physical examination. In particular, there were no anal lesions that could account for the blood. Findings on repeated stool cultures and examinations for parasites were negative, but both erythrocytes and leukocytes were in evidence when a fecal smear was viewed under high-power magnification. The mother's breasts showed no signs of fissuring. Replacement of breast-feeding with a casein hydrolysate led to the passage of normal stools.

### Case 2

A 4-week-old male infant, brother to the above, and 2 years her junior, was seen for blood-streaked stools that had persisted for over 1 week. The mother, already familiar with the phenomenon, did not hasten to consult the family physician on this occasion. Physical examination was within normal limits, weight gain was satisfactory, and the infant seemed to be thriving. No ancillary studies were done, breast-feeding was stopped, and within 2 days stools were normal. An attempt to reinstitute nursing was associated with the reappearance of blood.

The mother related that, while breast-feeding, she had made sure to drink four or five cups of cow's milk a day because she believed it promoted lactation. On this occasion, too, examination of her breasts revealed nothing untoward.

## DISCUSSION

Although the investigation of these two patients was limited and a viral infection was not ruled out, it seems reasonable to assume that their blood-streaked stools were associated with breast-feeding and very likely a protein the mother was ingesting. This assumption is supported by the fact that in both instances the blood disappeared when nursing was stopped and, in the second instance, a rechallenge with breast milk was followed by a recurrence of bleeding. Furthermore, the first patient had erythrocytes and leukocytes in her stool, a finding that is held to be suggestive of inflammation.<sup>3</sup>

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From the Department of Family Medicine and Department of Pediatrics, University Center for Health Sciences, Ben-Gurion University of the Negev, Beer-Sheva, Israel. Requests for reprints should be addressed to Pesach Shvartzman, MD, Department of Family Medicine, Ben-Gurion University of the Negev, POB 653, Beer-Sheva 84105, Israel.

Three causative mechanisms for dietary protein-induced enterocolitis in breast-fed infants have been proposed: (1) a chemical toxin, (2) cellular or humoral factors in breast milk, or (3) a high molecular weight, strongly antigenic compound that can be absorbed by the immature gut.<sup>5</sup> It has been demonstrated that breast-fed infants can have serum antibodies to cow's milk protein,<sup>6</sup> yet five of the six infants reported by Lake et al<sup>3</sup> were not sensitive when challenged at the age of 1 year. These considerations lend credence to the third mechanism, which in effect differs little from the first, since large protein molecules can act as toxins; as the gut matures, it becomes impermeable to these proteins.

Only 7 of the 12 infants in the series reported by Lake et al<sup>3</sup> and Shmerling<sup>4</sup> were able to continue nursing after their mothers underwent various dietary manipulations that included the elimination of milk, soy, and even egg proteins. This finding raises the question of sensitivity to human milk protein. No infant was challenged with cow's milk during the first year of life, so it is possible that none was sensitive and that the injurious substance in breast milk represented an idiosyncratic elaboration of some protein the mother absorbed. A genetic-allergic basis for the rectal bleeding in some of the infants is suggested by atopic manifestations such as scaly facial dermatitis<sup>3</sup> as well as other cutaneous and pulmonary symptoms.<sup>4</sup>

This report is believed to be the first of siblings with dietary protein-induced colitis while being breast-fed. The absence of a family history of atopy and that the two older children were given cow's milk from an early age with no adverse consequences does not support a genetic basis for its occurrence in a brother and a sister. Rather, these historical findings point to the mother as a common source for the disorder, which the older siblings escaped by virtue of not having nursed. No attempt was made to change the mother's diet in the cases reported here, and no conclusions can be drawn concerning whether she could have continued to breast-feed.

It could be argued that the blood in the two infants' stools was from a maternal source. In neither instance, however, was there evidence of bleeding from the nipples,

and the mother did not complain of pain when she nursed. Furthermore, a considerable quantity of blood would have to be ingested in order to reach the large bowel in an undigested state, and at the very least, one would expect such an occurrence to produce melena, too. The Apt test, which is most often employed in diagnosing the swallowed-blood syndrome appearing during the first 3 days of life,<sup>7</sup> was not performed because the history and physical examination did not seem to warrant it. Other causes of hematochezia or melena in infants, such as bacterial infection, necrotizing enterocolitis, anal fissure, Meckel diverticulum, and intussusception,<sup>7</sup> did not fit the clinical picture either.

The disorder must be considered rare, comprising as it did only 17% of 18 cases of diarrhea and rectal bleeding seen in infants at The Johns Hopkins Hospital over the course of 1 year.<sup>3</sup> On the other hand, its recognition by primary care physicians can avert the need for an aggressive investigation including repeated venipunctures, nasogastric suction to identify a possible upper gastrointestinal source of bleeding, sigmoidoscopy, rectal biopsy, barium enema, and barium swallow, all procedures that were employed in the study by Lake et al.<sup>3</sup>

## References

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