Case Report

A Report on Rusty Pipe Syndrome

Shruthi Rajendran*, Kavya Balasubramanian*, Usha Sagadevan

From, Department of Obstetrics and Gynaecology, Lotus Hospital, Erode, Tamil Nadu, India.

** These authors contributed equally to this article as co-first authors*

ABSTRACT

Postpartum bloody nipple discharge, which can be completely benign, is often mistaken for malignancy, adding unnecessary stress to the patient and their family members. Awareness of this rare but benign condition, Rusty pipe syndrome, can alleviate stress for both the patient and the treating health-care team. Hence, we elaborate on a case of Rusty pipe syndrome and its management. A 25-year-old G4P1L0A2 delivered a girl weighing 2 kg via caesarean section. In the immediate post-operative period, there was bloody discharge from both nipples. Examination of both breasts revealed no swelling, inflammation, nipple sores, or cracks. The ultrasound of both breasts was normal. Cytological analysis of the breast discharge showed no evidence of malignancy. The patient was counselled and encouraged to continue exclusive breastfeeding. On the 5th post-operative day, the colour of the breast milk returned to normal. Breast milk is considered a golden fluid for the newborn. Understanding this extremely self-limiting and benign condition, known as Rusty pipe syndrome, and providing supportive counselling to the mother can alleviate unnecessary stress and improve breastfeeding outcomes.

Key words: Bloody nipple discharge, Postpartum, Rusty pipe syndrome

Breast milk is considered an ideal food that satisfies all the energy and nutrient needs of the infant in the 1st few months of life. Nevertheless, the presence of blood in breast milk may induce anxiety and stress in the mother, potentially exerting a detrimental effect on the commencement of breastfeeding. Diligently ruling out possible etiologies that contradict breastfeeding will benefit the entire breastfeeding journey. The exact incidence of Rusty pipe syndrome is unknown, but it is a benign, self-limiting condition. It is named so because the milk's colour resembles the rustic hue of the water flowing out of an old rusty pipe. It is usually bilateral, painless, and resolves spontaneously [1]. There are only a very limited number of reports available in the literature [2].

We report a case encountered in our clinical practice due to its rarity and with the aim of enhancing awareness among health-care professionals.

CASE PRESENTATION

A 25-year-old female, G4P1L0A2, delivered a girl baby weighing 2 kg through category 4 caesarean section, given fetal growth restriction and severe oligohydramnios at 35 weeks and 2 days of gestation. The baby was admitted to the neonatal intensive care unit for observation in view of prematurity. The mother was under observation in the ward, and when the breast milk was expressed, she noticed blood-stained colostrum from both breasts (Fig. 1).

On examination, there was blood-stained milk secretion from both breasts. There were no signs of nipple cracks or ulcers. Neither breast showed signs of engorgement, swelling, or a mass.

Ultrasound examination of both breasts revealed no significant abnormality. The breast milk was expressed and sent for cytological analysis. Simultaneously, the patient was reassured and counselled regarding the condition. The baby was nursed along the mother's side from post-operative day 1, and breastfeeding was initiated with continuous support from the health-care team. The mother experienced no difficulty breastfeeding and continued breastfeeding the baby exclusively.

Meanwhile, the cytological analysis of the breast milk report revealed scant cellularity, consisting of a few neutrophils, macrophages, and a few degenerated cells, with no atypical cells (Fig. 2). Noticeably, the colour of the breast milk gradually changed to normal by the 4th post-operative day, and she was discharged with advice to continue exclusive breastfeeding. She was

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Correspondence to: Dr. Kavya Balasubramanian, Senior Registrar, Department of Obstetrics and Gynaecology, Lotus Hospital, Erode, Tamil Nadu, India. E-mail: kavya14101994@gmail.com

Figure 1: The breastmilk expressed in a syringe shows the rusty colour characteristic of this syndrome

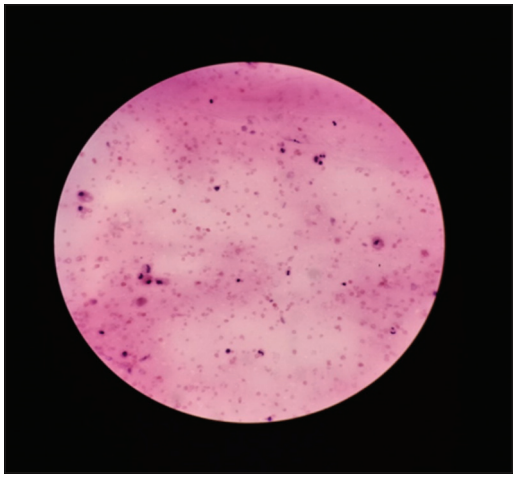

Figure 2: Cytological analysis of the breast milk showed scant cellularity composed of a few neutrophils, macrophages, a few degenerated cells, and no atypical cells

followed up after 1 week and 2 months after surgery, and there were no reported concerns.

DISCUSSION

The colour of breast milk varies widely, and unless the situation demands breast milk expression, many mothers are unaware of their breast milk color. While many colour variations are expected, a few can be abnormal. Therefore, health-care professionals must be aware of these variations. Typically, colostrum is yellow, and mature breast milk is bluish-white. Some unusual breast milk colours include, but are not limited to, pink, orange, yellow, green, black, brown, and red [3].

Blood in breast milk is usually indicated by colours such as pink, bright red, chocolate brown, coffee, black, or olive green. While the most frequent cause of blood in breast milk is a cracked nipple, it could also be due to intraductal papilloma, mastitis, Rusty pipe syndrome, or rarely breast malignancy [4]. The study done by Merlob *et al*. reported that the prevalence of blood-stained milk during pregnancy was 0.1% [5]. Rusty pipe syndrome is a physiological phenomenon caused by hormonal changes in the mammary gland. Under the influence of estrogen and progesterone in pregnancy, both the vascularity and the number of lobules increase. Eventually, the myoepithelial cells surrounding the ducts are distorted, leading to the thinning and increased permeability of the duct walls. All these changes result in the presence of blood cells in the colostrum, which then gives it the classical brown or red colour [1,6].

Most health-care professionals will be alarmed upon noticing bloody colostrum due to the frequent association of bloody nipple discharge with malignancy in the non-pregnant population. However, it could be entirely physiological in postnatal women, so it is vital to approach this presentation systematically. The triple assessment consists of clinical, radiological, and cytological examinations and is considered the gold standard for analysing abnormal nipple discharge [7]. We adopted the same approach in evaluating this postnatal woman with bloody nipple discharge. Once we noticed the blood-stained colostrum, we did a detailed examination of both breasts to rule out nipple cracks, ulcers, or soreness, breast swelling, inflammation, or mass. Following this, we proceeded with the next step, which was the radiological examination of both breasts. We performed an ultrasound examination of both breasts, which revealed no significant abnormal findings. Then, the last step in the assessment was cytological confirmation. Hence, we sent the breast milk for cytological analysis. The cytological examination confirmed the benign nature of the condition. Hence, we confirmed the diagnosis of Rusty pipe syndrome.

Once the diagnosis is established, providing active counseling to the mother and her carers is invaluable in managing this condition. Various techniques of active counseling need to be incorporated, such as listening, validating concerns, providing scientific evidence, and directing the mother to make informed decisions rather than imposing a decision on her [8]. In our patient, we supported her from the beginning and provided her with all the information, which helped her initiate her breastfeeding journey without much anxiety. In addition, we supported and motivated her to exclusively breastfeed. Hence, active support and counselling will play a pivotal role in eliminating fear among patients when such rare conditions are diagnosed.

CONCLUSION

Rusty pipe syndrome has to be considered in the differential diagnosis of bloody nipple discharge after ruling out other local etiologies. Providing supportive counselling to the mother regarding this condition will have a positive impact on her mental health and the overall breastfeeding journey. Hence, healthcare professionals need to be aware of this potentially self-limiting condition to promote maternal and neonatal health.

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