



## A CASE REPORT OF "RUSTY PIPE SYNDROME"

## Paediatrics

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## ABSTRACT

"Rusty pipe syndrome" is a condition that is usually seen in a primiparous woman who presents with bilateral bloody nipple discharge in the early postpartum period. Its prevalence is low and is a physiological condition that primarily occurs due to increased alveolar and ductal vascularization associated with the onset of lactation. Here, we report a case of a 20-year-old primigravida who presented with bilateral painless bloody nipple discharge, postpartum. Her breast examination did not show any signs of infection or structural changes, and the breast ultrasound did not reveal any significant remarks. Five days after the onset of lactation, the bloody nipple discharge ceased, and lactation continued on demand.

## KEYWORDS

Rusty Pipe Syndrome, Bloody Nipple Discharge, Primiparous, Postpartum Period

## INTRODUCTION

Human Breast milk is often referred to as the gold standard for infant feeding. In daily practice, a bloody nipple discharge is a rarely encountered symptom during pregnancy or lactation that results in significant patient worry and prompts medical evaluation and intervention.<sup>[1]</sup> Bleeding from nipples in a lactating mother can create anxiety in the mother and the treating doctors. Bloody discharge from the breasts can be caused by various conditions like cracked nipples, mastitis, trauma, or ductal papilloma.<sup>[2]</sup> However, Rusty pipe syndrome (RPS) is a benign physiological condition that typically presents with brown or bloody milk mimicking flowing water from a rusty pipe; it is usually bilateral, painless, and self-limiting.<sup>[3]</sup> Rusty pipe syndrome is a breastfeeding condition in which the color of the breast milk looks brown, or rust-colored, similar to dirty water coming out of an old rusty pipe, and hence, the name of the syndrome. The rusty color is usually due to the mixing of colostrum, or first breast milk, with a small amount of blood.<sup>[4]</sup> In most cases, the syndrome is spontaneously cured within 3 to 7 days after the onset of lactation.<sup>[5]</sup> In other cases, this condition persists for the first few weeks of lactation and is eventually resolved spontaneously.<sup>[6]</sup> Due to the under recognized and underdiagnosed condition of RPS, we report a case of RPS to bring this benign disease to readers' notice.

## Case report

A 20-year-old primigravida mother delivered a male baby at term gestation via LSCS with a birth weight of 2.43kg. After delivery, the infant was transferred to the neonatal intensive care unit in view of transient tachypnea of the newborn which settled by four hours of life. Due to the separation of the mother and baby, the mother could only express milk and send it to the baby. The mother noticed a bilateral bloody nipple discharge when she expressed milk (Figure 1). On evaluation by a gynecologist and pediatrician, the mother did not have any pain or swelling of the breasts.



Figure 1: Rusty brown colored colostrum expressed on day 1

There was no history of any infection or trauma to the breasts. There was no family history of any breast disease in the patient's family. She denied having any alcohol or drugs during pregnancy. She did not have significant antenatal illness. Examination of the breasts did not reveal any inflammation, tenderness, engorgement, or mass lesion. Both the nipples were normal, and no cracks, ulcers, or fissures were noticed.

There was a frank bloody discharge from both breasts. No colostrum secretion was noticed. She was advised to express her breast every 2 to 3 hours to avoid breast engorgement and to promote secretions. A bloody discharge sample was collected and sent for cytological analysis (Figure 2) to rule out malignancy. As there were no signs of inflammation the possibility of rusty pipe syndrome was considered, and the baby was put to the breast to maintain lactation, and additional formula milk was given by cup. Breast ultrasound imaging revealed dense breast tissue with no suspicious masses, cysts, calcifications, architectural distortions, or enlarged lymph nodes. A surgical consultation was obtained, mammogram was done which was normal and ruled out intraductal papilloma. Cytological analysis of the milk did not show any atypical or malignant cells. Bloody discharge gradually decreased and by the 5th postnatal day milk secretion started and the baby was given exclusive breast feeds. After which, the case was followed up after 2 weeks and the bloody discharge did not recur.



Figure 2: Rusty brown colored colostrum being sent for cytological analysis on day 2

As per the norms, informed consent was obtained from the patient for publication of this case report and accompanying images.

## DISCUSSION

Rusty pipe syndrome is a physiological condition that causes transient painless bloody discharge from breasts.<sup>[7]</sup> This is usually bilateral but may begin in one breast first. This may be noticed during pregnancy but is more common in early lactation. Bloody nipple discharge correlates with the proliferation of the duct epithelium. The capillary network around mammary ducts is fragile due to hormonal stimuli (estrogen, progesterone and oxytocin) and is easily traumatized, resulting in blood cells leaking into breast secretions.<sup>[8]</sup>

The most common cause of pathological nipple discharge is ductal papilloma, which accounts for 35–57% of cases, followed by duct ectasia (17–36%) and malignant lesions (4–21%).<sup>[9] [10]</sup> Intraductal papilloma is a benign tumor found within the breast ducts, in which abnormal proliferation of ductal epithelial cells causes tumor growth. A solitary intraductal papilloma is usually found located centrally posterior to the nipple and affects the central duct. Patients often present with spontaneous bloody or clear nipple discharge. An

Intraductal papilloma may be occasionally palpable. The breast ultrasound usually reveals a mass near the nipple. Tissue sampling, in addition to imaging, is necessary for the diagnosis of intraductal papilloma. Treatment of intraductal papilloma involves surgical excision and complete removal of the tumor.<sup>[11]</sup>

Notwithstanding the extremely rare coexistence of pregnancy and the abovementioned diseases, such pathological conditions should be ruled out before RPS is diagnosed. The first diagnosis of RPS is established by the history of the present illness and regular physical examination, followed by specific tests, such as cytological analysis of the bloody discharge and breast ultrasonography, if necessary. If the ultrasonography reveals suspicious findings, additional imaging using mammography or digital breast tomosynthesis (DBT or "three-dimensional mammography") may be indicated.

## CONCLUSION

Rusty pipe syndrome is a physiological self-limiting condition, usually resolved within three to seven days after the onset of lactation. Awareness of the medical and paramedical personnel dealing with lactating mothers about this benign condition will help in the proper management of this condition. In "rusty pipe syndrome" cases, if the infant tolerates the milk, then breastfeeding can be continued and encouraged. Hence, educating the mother that her infant would be unaffected by the small quantity of blood consumed would be more beneficial than the discontinuation of exclusive breastfeeding.<sup>[12]</sup>

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