

## A Case Report of Pink Breast Milk

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#### **ABSTRACT**

A woman presented for her postpartum examination alarmed about pink stains on her breast pads and on her infant's burp pads and diapers. The stains were also found in her breast pump and the infant's bottles. Out of concern, she stopped breastfeeding. The diagnosis was colonization of mother and infant with Serratia marcescens. They were managed conservatively without antibiotics. The mother was guided to restart breastfeeding. The infant resumed nursing and continued to thrive.

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Col. Robin Neumeier, MSN, CNM, is Director of Nursing, Tripler Army Medical Center, Department of Ob-Gyn, Honolulu, HI. Serratia marcescens (S. marcescens) also known as Chromobacteriaviolaceum, is a member of the entero-bacteriaceae family. Chromobacteria are described as nonsporulating, aerobic, motile gram-negative bacilli that are insoluble in water. The organism has been isolated from water, soil, sewage, and animals. The bacilli also grow well on ordinary mediums. Some strains, including S. marcescens, have the capability of producing conspicuous pigments in the presence of oxygen that range from yellow to bright pink (Hejazi & Falkiner, 1997; Wheat, Zuckerman, & Rantz, 1951; Yu, 2010).

S. marcescens is an opportunistic pathogen with a role in nosocomial infections. It has been cultured from hospital equipment, including breast pumps and respiratory devices (Cullen, Trail, Robinson, Keaney, & Chadwick, 2005; Gransden, Webster, French, & Phillips, 1986; Moloney, Quoraishi, Parry, & Hall, 1987). Archibald and colleagues (1997) reported a S. marcescens outbreak in a newborn intensive care unit (NICU) that was traced to the contamination of health care workers' personal bottles of 1% chlorxylenol soap that were left open in work areas.

Colonization of S. marcescens has been documented in expressed breast milk, breast pumps, and infants' gastrointestinal tracts and endotracheal tubes. In these reports the mothers and/or infants did not demonstrate signs or symptoms of illness (Braver, Hauser, Berns, Siegman-Igra, & Muhlbauer, 1987; Faro, Katz, Berens, & Ross 2011; Gransden et al., 1986). The concern re-

garding S. marcescens extends to the population that contract active infections and suffer serious morbidity or mortality from these bacteria. This population includes individuals with compromised immune function. Infected newborns, particularly in the NICU, are included in this group. These bacteria have been isolated from cerebral spinal fluid, urine, and blood, in addition to respiratory and gastrointestinal tracts of infants (Bizzarro, Debmry, Baltimore, & Gallagher, 2007; Gransden et al., 1986; Jones et al., 2000; Voelz et al., 2010).

### **Patient Presentation**

A woman presented to a nurse practitioner for her routine 6-week postpartum visit. She was concerned about bright pink stains found on her breast pads and on her infant's burp pads and diapers that persisted even after washing. The bright pink color also was found in the infant bottles and breast pump when left in room air. Out of concern, she searched the Internet for information about "pink breast milk" and found a video that documented the course of events of a young mother with an acute infection from S. marcescens. Although the presentation was clearly different than the video, the mother questioned the safety of her breast milk. Consequently, she stopped breastfeeding and began pumping and discarding her breast milk. According to the mother, viewing the video strongly influenced her course of action.

Neither infant nor mother had signs or symptoms of illness. The woman's current review of systems was unremarkable. Her recent medical history was positive for right breast mastitis, diagnosed at

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postpartum day four. The infection resolved after a 10-day course of Dicloxacillin. She confirmed that her infant was up to date with his pediatric visits and was healthy and thriving.

The mother was initially seen by the nurse practitioner, who consulted with the attending physician and lactation specialist. All were perplexed by the mother's presentation. The work-up, diagnosis, and management of this unusual presentation expanded to a multidisciplinary team of clinicians from obstetrics and gynecology, infectious disease, general surgery, and pediatrics. Examinations of the mother and infant were performed. Cultures were taken of the mother's breast pads, milk, and breast pump. S. marcescens was isolated in one of the breast milk cultures. Common gram-negative and positive bacteria were also isolated. These results, together with the clinical presentation of the mother and infant, provided support for the diagnosis of colonization with S. marcescens without acute infection. The mother was encouraged to resume breastfeeding. The mother and the infant had several follow-up visits and remained free of active infections.

### Patient/Infant Information

This was the first pregnancy and child for this 20-year-old White woman. She was married to an active duty service member stationed in Hawaii. Her antenatal care began at 7 weeks, and she maintained the Department of Defense prenatal scheduled appointments throughout her pregnancy. She had an uneventful prenatal course. The findings from the antenatal visits, screenings, testing, and examinations reflected a low-risk pregnancy with a healthy mother and fetus. She remained in Hawaii during her entire pregnancy and immediate post-partum period.

Prior to this pregnancy, in 2012, the woman's medical history revealed Clostridium Difficile Colitis. She was treated at that time and has remained symptom free. She also reported a history of urinary tract infections with only one confirmed infection in 2012. The sexually transmitted infection history was positive for genital herpes simplex virus 2 (HSV-2). Her single outbreak was 6 years prior to the current pregnancy. Late in her third trimester she reported prodromal symptoms of HSV-2, but

her clinical presentation was negative. Following the current guidelines from the Center for Disease Control (2010), she was treated with a 3-day course of Valacyclovir 1000 g twice a day, and then maintained on Valacyclovir 1000 g daily until delivery.

The infant was delivered by a scheduled primary low transverse cesarean section at 40 1/7 weeks gestation. This is the hospital's protocol based on the mother's report of prodromal HSV-2 symptoms. It was an uncomplicated delivery of a healthy male infant with an appropriate birth weight of 3635 g. The Apgar scores were 8 at 1 minute and 9 at 5 minutes. The basic newborn screening panel for thyroid disease, adrenal disorder, hemoglobin and glucose disorders was negative. His screen for HSV 1 and 2 was also negative. The mother and infant roomed in together, and the infant was breastfeeding exclusively. They had an uneventful postpartum stay and were discharged together on day 2 after delivery.

## Timeline and Clinical Findings

There were several medical visits during the first week after delivery. The first was the infant's routine 3-day follow-up exam with pediatrics. The infant was nursing exclusively and had experienced a drop in weight to 3450g, which is well within the 5% acceptable weight loss range for newborns. His physical exam and review of systems were unremarkable. The mother did not express any concerns for herself or infant during the visit.

The following day the mother presented to the emergency room concerned that she may have mastitis. She reported not feeling well with a temperature of 101.4 degrees and self-medicated with Ibuprofen prior to going to the emergency room. She was initially evaluated by the staff physician, then by the obstetrical resident; her vital signs and temperature when taken were within the normal range. The evaluation included a physical examination, as well as blood cultures, complete blood count, and urinalysis. The lab tests were all within normal range, but the examination was positive for right breast erythema and bilateral cracked nipples. The resident physician provided the diagnosis of right breast mastitis and treated her with a 10-day course of Dicloxacillin. She was encouraged to continue breastfeeding.

The next visit was the routine 2-week pediatric well-baby visit. The infant's weight was 4100 g. The physical examination and review of systems supported normal growth and development. At this

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