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Extramedullary hematopoiesis secondary to COVID-19: A first case report in a newborn

Nicolas Caudrelier[1], Patrick Cyr[1], Victor Kokta[2] and Catherine McCuaig[1]

Abstract

A 39 weeks newborn baby was born with blueberry muffin macules and papules on her back. Skin biopsy was performed and showed extramedullary hematopoiesis. The mother who was infected by COVID-19 infection at 35 weeks of pregnancy did not have any other risk factor for extramedullary hematopoiesis, thus making this viral infection the most likely cause of blueberry muffin rash.

Keywords

Extramedullary hematopoiesis, blueberry muffin baby, COVID-19, newborn

Introduction

Extramedullary hematopoiesis occurs naturally in fetuses and normally ceases before birth. In newborn babies, it happens secondarily to a bone marrow dysfunction. The most common causes of this condition are viral infections including cytomegalovirus and rubella, but also other congenital infections and neonatal anemias. The treatment of bone marrow dysfunction, which can occur spontaneously in the case of viral infections, solves the skin lesions.

Case presentation

We describe a 3260 g baby girl born by vaginal delivery at 39 weeks gestation. Her mother was a healthy 25-year-old and primiparous. Pregnancy was uneventful. Prenatal serologies and fetal ultrasounds were normal, levothyroxine-treated hypothyroidism was well controlled, and maternal blood group was B+ . On week 35 of pregnancy, mother was diagnosed with a mild form of COVID-19 infection confirmed by polymerase chain reaction (PCR) test. She presented premature rupture of membranes 18 hours prior to delivery, a positive urinary group B Streptococcus screen, and received prophylactic penicillin. On that day, a second COVID-19 PCR test was negative. The electronic fetal monitoring revealed fetus bradycardia during the second stage of delivery that did not require any intervention, but at birth the baby was healthy with Apgar scores at 8-9-9.

Dermatology consultation was requested on the first day of life for a congenital skin eruption. On physical examination, the baby presented about 30 violaceous petechial, 2-mm macules scattered on the lower half of the back bilaterally, as well as two larger purpuric papules. A skin biopsy confirmed the diagnosis of extramedullary hematopoiesis (Figure 1). Baby's biological, hematological parameters, and hemoglobin electrophoresis were within normal limits except for elevated platelets (536×10^9/L, normal 140–440 $\times 10^9$/L). The baby evolved well, and all macules and papules disappeared within 2 days.

Infectious origins leading to extramedullary hematopoiesis showed no maternal exposure to toxoplasmosis, positive rubella IgG serology, and negative Cytomegalovirus PCR in the baby's urine.

Discussion

Neonatal extramedullary hematopoiesis characterized by blueberry muffin baby may be secondary to congenital infections,

[1]Department of Dermatology, Centre Hospitalier Universitaire Sainte-Justine, University of Montreal, Montreal, QC, Canada
[2]Department of Pathology, Centre Hospitalier Universitaire Sainte-Justine, University of Montreal, Montreal, QC, Canada

Corresponding Author:
Nicolas Caudrelier, 402-21 rue des Vaisseaux-du-Roi, QC G1K 8Y3, Canada.
Email: nicolas.caudrelier@outlook.com

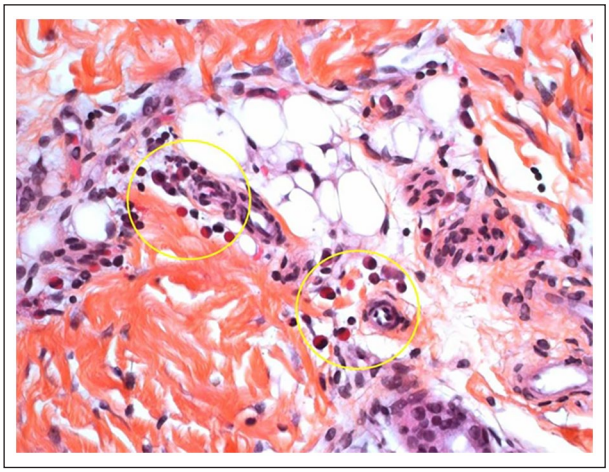

Figure 1. High-power view revealing deep cutaneous extramedullary hematopoiesis, as identified within the yellow circles.

hemolytic disease, twin-twin transfusion syndrome, neoplastic, autoimmune, or hematological disorders.[1–3] Most frequent are infections of the TORCH complex (toxoplasmosis, rubeola, cytomegalovirus, herpes).[4,5] This case was unique in that the mother had a confirmed case of COVID-19 (positive PCR test) shortly before giving birth, and this was the only risk factor explaining why COVID-19 was the likely cause of extramedullary hematopoiesis.

In conclusion, we suggest that COVID-19 infection should be considered in the differential diagnosis of blueberry muffin babies.

Declaration of conflicting interests

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References

1. Holland KE, Galbraith SS and Drolet BA. Neonatal violaceous skin lesions: expanding the differential of the "blueberry muffin baby." *Adv Dermatol* 2005; 21: 153–192.
2. Mehta V, Balachandran C and Lonikar V. Blueberry muffin baby: a pictorial differential diagnosis. *Dermatol Online J* 2008: 14(2): 8.
3. Gaffin JM and Gallagher PG. Blueberry muffin baby (extramedullary hematopoiesis) due to congenital cytomegalovirus infection. *Arch Pediatr Adolesc Med* 2007: 161(11): 1102–1103.
4. Neu N, Duchon J and Zachariah P. TORCH infections. *Clin Perinatol* 2015; 42(1): 77–103.
5. De Carolis MP, Salvi S, Bersani I, et al. Fetal hypoxia secondary to severe maternal anemia as a causative link between blueberry muffin baby and erythroblastosis: a case report. *J Med Case Rep* 2016; 10(1): 155.