

Blue Baby Blues: Post-Circumcision Acquired Methemoglobinemia

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Introduction

- Methemoglobinemia is a condition where iron in hemoglobin is converted from its ferrous (Fe^{2+}) to ferric (Fe^{3+}) state, leading to reduced oxygen-carrying capacity
- This can be caused by oxidizing agents, including topical anesthetics¹
- Lidocaine-prilocaine (EMLA) cream is a topical anesthetic commonly and safely used during neonatal circumcisions²
- We present a case of acquired methemoglobinemia in a neonate following post-circumcision exposure to EMLA cream

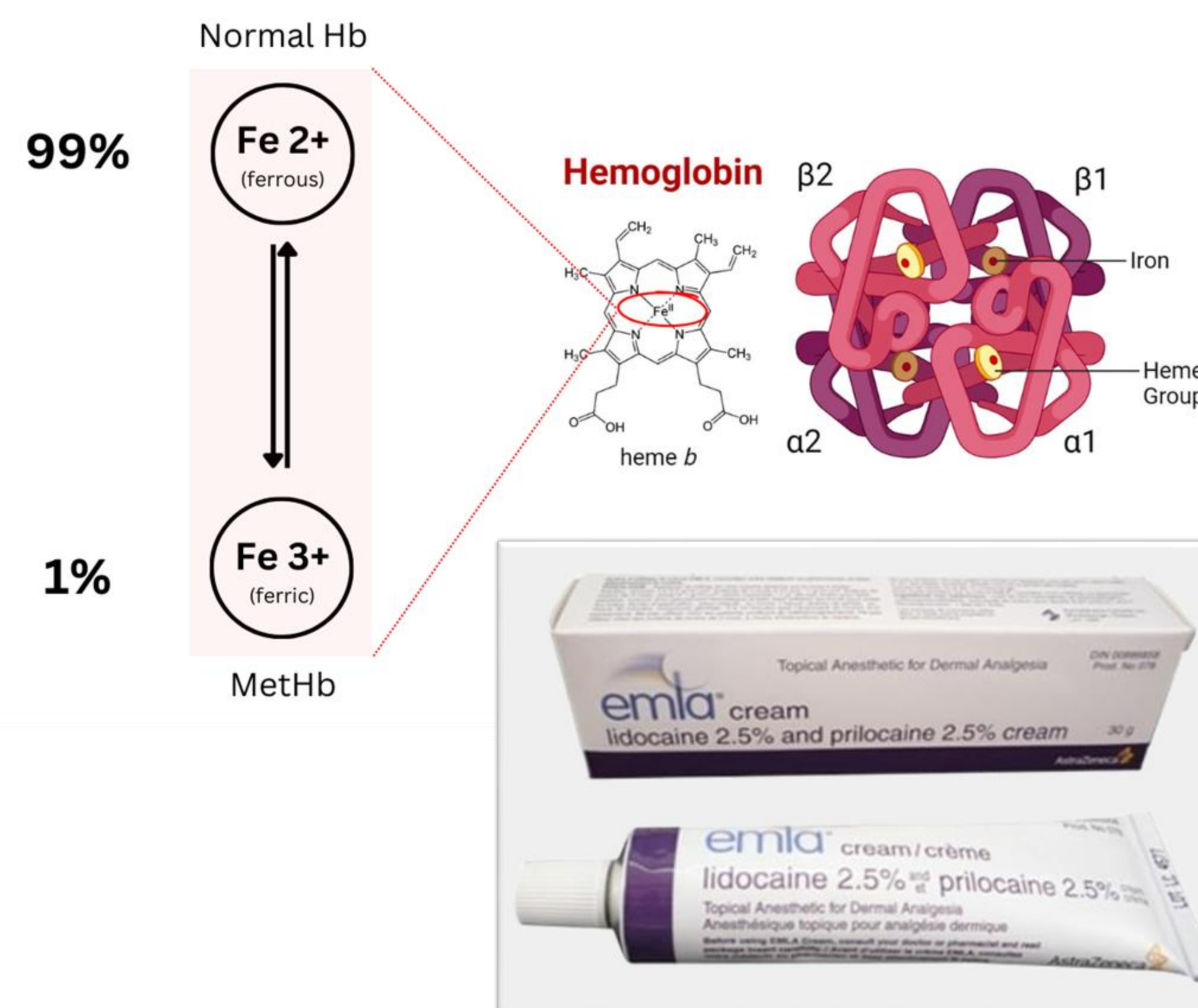
Presentation

- A 14-day-old, 2.95 kilogram male was brought to a community emergency department by parents for evaluation of progressive color change
- Following circumcision that morning, he was prescribed a 30 gram tube of 2.5% lidocaine/2.5% prilocaine EMLA cream for pain control
- The patient's parents applied 15 grams in total over one hour, exceeding the recommended dose of one gram. They reported receiving no education about dosing from their physician or pharmacist
- Initial vitals revealed an oxygen saturation of 82% on room air. Physical examination showed central cyanosis and intact circumcision sutures, with the patient appearing well and not in respiratory distress
- Methemoglobinemia was suspected given the patient's topical anesthetic exposure. Venous blood gas analysis revealed a methemoglobin level of 14.8% (normal <0.4%) without acid-base abnormalities
- Additional labs and x-ray imaging were unremarkable



Appearance before (left) and after (right) EMLA cream application

Hemoglobin and Methemoglobin



Outcome

- After toxicologist consultation, methylene blue was not administered as the patient was otherwise asymptomatic
- The patient was transferred for observation at a pediatric center and was discharged the next day after methemoglobin levels improved

Discussion

- This case highlights a rare presentation of methemoglobinemia, which could become more common with the increasing use of EMLA cream for neonatal procedures³
- Proper dosing and parent education should be emphasized when using EMLA cream after neonatal procedures
- Unlike most other reported cases of circumcision-related neonatal methemoglobinemia in the medical literature, this case resulted from a parent-administered dose after the procedure rather than a provider-administered dose⁴⁻⁶

References

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