

Methemoglobinaemia with chronic phenazopyridine ingestion

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DESCRIPTION

A 55-year-old Caucasian woman with history of multiple sclerosis and neurogenic bladder with suprapubic catheter presented to the emergency department with suprapubic pain and lethargy for 2 weeks. She was hypoxic, saturating 88% on room air. Her examination was notable for subtle bluish discoloration of the lips. Her urine was amber coloured (figure 1A), and blood was brownish-black colour (figure 1B). She was taking phenazopyridine 200 mg three times a day regularly for the last 5 months for urinary discomfort. With significant clues from her hypoxia, chronic phenazopyridine ingestion, colour of urine and blood, her methemoglobin level (MetHb) using co-oximeter and blood gas analyser was checked which resulted at 9.3% (normal level 1%–3%). She was diagnosed with acquired methemoglobinaemia and advised to stop the medication. Her hypoxia improved and methemoglobin level decreased to 5% the following day. She felt symptomatically better.

Phenazopyridine is a commonly prescribed medication with urinary anaesthetic properties. The use of phenazopyridine for symptomatic relief of pain, burning, urgency and frequency is recommended to be limited to 2 days. It is a known cause of acquired methemoglobinaemia, though only a handful of cases have been reported.¹ We describe a case of acquired methemoglobinaemia secondary to chronic ingestion phenazopyridine for 5 months. Methemoglobinaemia results when iron in the haemoglobin

is oxidised from ferrous to ferric state. Ferric iron has lower affinity for oxygen, thereby more oxygen binds to ferrous form in methemoglobin, resulting in shift of oxygen haemoglobin dissociation curve to the left.² If symptomatic or severe, methemoglobinaemia is usually treated with methylene blue. It is important to know that phenazopyridine is also notorious in causing sulphaemoglobinaemia, and distinction of methemoglobinaemia from sulphaemoglobinaemia has value in treatment strategy.³ While methemoglobinaemia would respond with decreasing MetHb levels with methylene blue, sulphaemoglobinaemia is not reversible (cannot be reconverted to functional haemoglobin) and its management often requires blood transfusion, if severe.³ In our patient, stopping the offending agent decreased the methemoglobin level. Most available co-oximeters are not able to differentiate between MetHb and SulfHb, leading to false-positive diagnosis of methemoglobinaemia. More sophisticated methods of detection and differentiation are needed. It is critically important for an emergency physician and medicine physician to use subtle diagnostic clues like bluish discoloration, change in urine colour and blood colour to appropriately diagnose such medical condition. Our case, therefore, highlights the importance of thorough history and physical examination for a clinician to be an astute diagnostician.

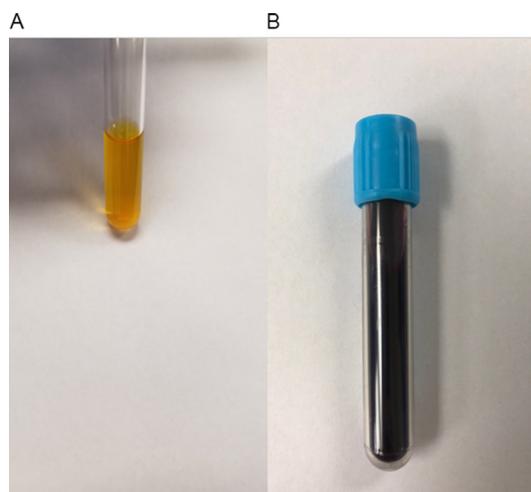


Figure 1 (A) The amber-coloured urine suggesting phenazopyridine ingestion. (B) Presence of dark brownish-black blood raising suspicion for methemoglobinaemia.

Learning points

- ▶ Acquired methemoglobinaemia is a rare occurrence and can be due to various medications including phenazopyridine.
- ▶ A thorough history and physical examination is crucial for a diagnostician.
- ▶ The presence of bluish discoloration of lips, chocolate-coloured blood and history of intake of phenazopyridine pointed towards a diagnosis of methemoglobinaemia.

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