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CLINICAL IMAGE

Not all that is red is blood: a curious case of chromaturia

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Key Clinical Message

Hydroxocobalamin causes reddish discoloration of the urine, mimicking hematuria. Clinicians should be aware of this common side effect of the rarely used drug to prevent unnecessary consultations and work-up. Additional benign causes of red urine include foods such as beets, rhubarb, and medications such as rifampin, phenazopyridine.

Keywords

Hematuria, hydroxocobalamin, side effect, urine.

A 70-year-old woman with a history of multiple abdominal surgeries in the past was admitted for incisional hernia repair and adhesiolysis. The procedure was complicated by bowel injury leading to peritonitis and refractory septic shock with a mean arterial pressure <60 mmHg. A trial of intravenous Hydroxocobalamin 5 g was given, in an attempt to improve the blood pressure as a last resort, as she was hypotensive despite being on multiple vasopressors. Subsequently, she developed reddish discoloration of the urine, which appeared to be gross hematuria (Fig. 1). However, urine microscopy was negative for red blood cells and the chromaturia was due to hydroxocobalamin administration.

Hydroxocobalamin is the hydroxylated active form of vitamin B12, which is approved for the treatment of cyanide poisoning. Approximately 18–28% of healthy subjects receiving hydroxocobalamin develop elevated blood pressure as a side effect [1]. This moderate pressor effect is likely due to its nitric oxide scavenging effects [2] and this drug is sometimes used as an off-label treatment for vasoplegic syndrome [3]. While there is no corroborative clinical trial data, animal experiments suggest that hydroxocobalamin produces a time and organ-dependent, selective regulation of nitric oxide synthases during endotoxemia and regulates downstream inflammatory mediators, thereby having a potential role in the treatment septic shock [4]. Hydroxocobalamin can impart reddish to purple color to the urine, which can persist for

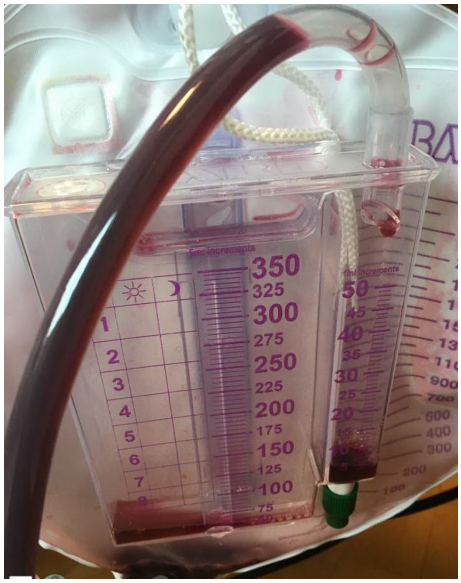

Figure 1. Foley catheter tube and bag demonstrating dark red/cola-colored urine.

up to 35 days following intravenous infusion [1, 5]. While this side effect is benign, it is important to note that it can alter colorimetric laboratory measurements and interfere with hemodialysis by triggering a false blood leak alarm [6].

Informed Consent

Patient expired. Obtained from next of kin.

Authorship

All the authors have made substantial contribution to the preparation of this manuscript. AK: drafted the manuscript, performed literature search; GC: provided the image and participated in patient care; MS: attending Nephrologist on the case, critically reviewed, and revised the manuscript for important intellectual content.

Conflict of Interest

The authors have declared that no conflict of interest exists.

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