

Why is this urine turning blue? An uncommon alarm, but a common disease.

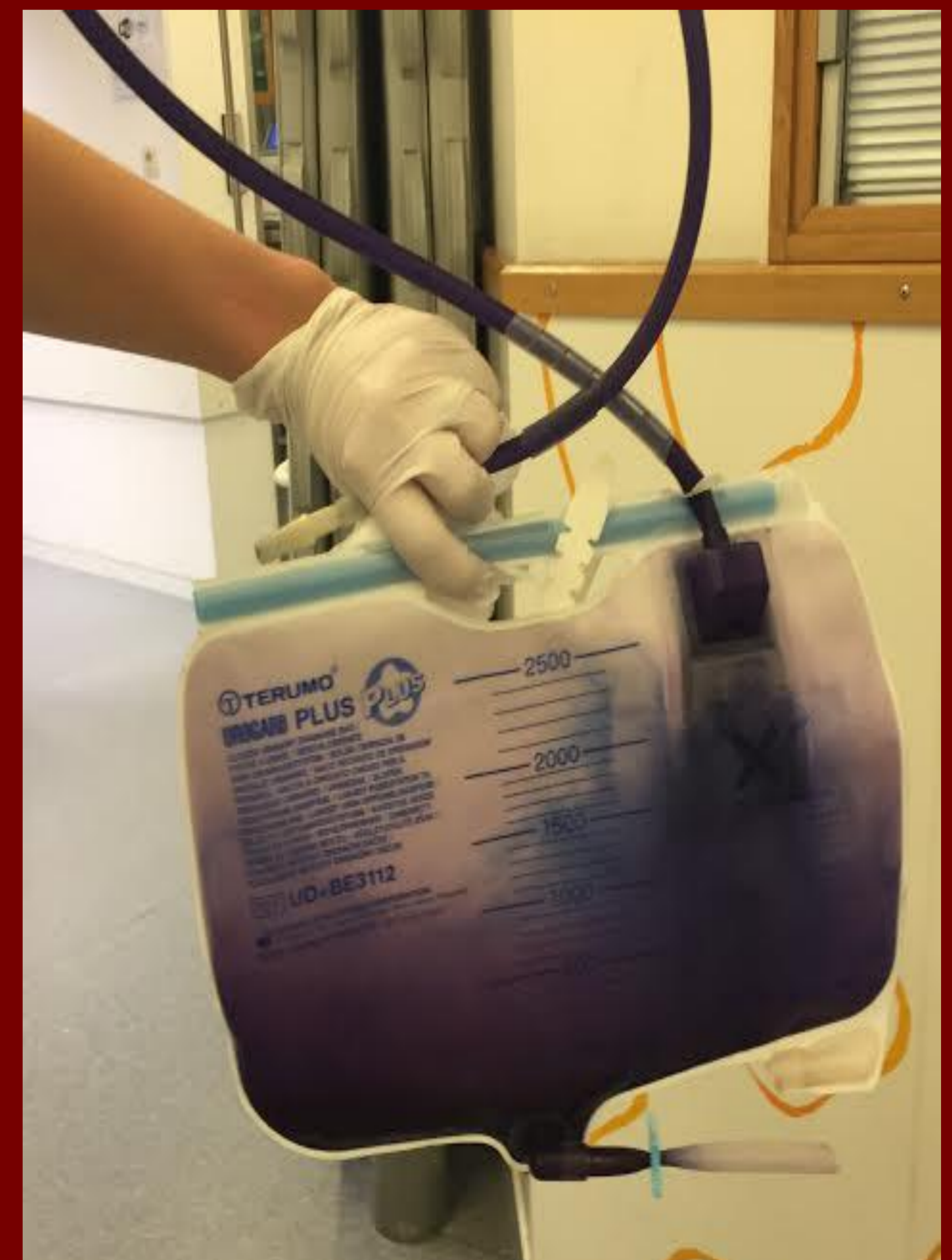
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Turning purple-blue urine is an alarming phenomenon uncommonly seen in patients with chronic urinary catheterization. Such discoloration, often misdiagnosed as haematuria, frequently causes concerns for the nurses, the doctor, the patient and his family.

A 74-year-old female patient with severe multiple sclerosis diagnosed forty years ago, constipation and chronically urinary catheterization was admitted to the emergency room for surprising purple-blue turning urine since the morning (figure 1). She complained of nausea and vomiting for five days, weakness and dehydration. Urinary analysis did not revealed haematuria but indicated the presence of large leukocytes, gram negative bacteria and a pH of 8.5. Urine culture revealed a mixed flore without infection. Re-hydration and antibiotics were responsible for complete resolution of this condition.

Barlow and Dickinson were the first to describe purplish or bluish discoloration of urine collecting bags in 1978. Purple Urine Bag Syndrome (PUBS) is the result of a tryptophan catabolism defect and a gram-negative bacteria urine infection. Tryptophan from food chain is metabolized by gut bacteria, producing indole, which is absorbed into portal circulation, conjugated in indoxyl sulfate by the liver and further excreted into the urine. In an alkaline urine environment, sulfatases or phosphatases producing bacteria may produce indirubin (red) or indigo (blue) hue. Although these pigments are insoluble, purple urine coloration appears when they adhere and react with the plastic catheter and urine bag. Predisposing factor for this disease are female gender, permanent urinary catheterization, constipation, alkaline urinary tract infection and maybe a high protein diet.



This unusual discoloration should therefore be considered as an uncommon alarm for the more common presence of an underlying urinary tract infection, prompting the initiation of an adapted therapy.