Purple urinary bag syndrome
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DESCRIPTION
A 75-year-old woman presented reporting of feeling generally unwell. She had a history of cervical cancer, radiation enteritis and chronic urinary tract obstruction managed with a long-term urinary catheter. She was hypovolaemic and her urine was strikingly purple in colour (see figure 1) and malodorous. Urine dipstick was positive for nitrites and leucocytes; inflammatory markers were raised; and subsequent urine culture grew Escherichia coli, Klebsiella pneumoniae and Morganella morgani. She was treated with intravenous antibiotics and fluid resuscitation, her urinary catheter was changed, and the urine returned to a normal colour over 24 h.

Discolouration of the urine may indicate significant pathology, and visual inspection of the urine should form part of routine clinical examination. The purple urinary bag syndrome was first described in 1978 and refers to the rare but potentially alarming phenomenon of the urine and catheter bag turning purple in response to urinary tract infection.1 It usually occurs in elderly patients with long-term urinary catheters. Intestinal bacteria metabolise tryptophan to indole, which is absorbed and conjugated to indoxyl sulfate (IS). IS is excreted in the urine where it may be converted to indigo (blue) and indirubincin (red) by indoxyl sulfatase and phosphatase enzymes. Indigo and indirubincin precipitate on to the catheter and catheter bag together as an intense purple colour.2 The syndrome occurs due to high levels of IS in the urine and the presence of bacteria that are capable of producing these enzymes: E. coli, K. pneumoniae, Providencia stuartii and Providencia rettgeri, Proteus mirabilis, and M. morgani.

Learning points
▸ Visual inspection of the urine should form part of routine clinical examination.
▸ Purple discolouration of the urine and catheter bag signifies urinary tract infection with organisms capable of producing indoxyl sulfatase and phosphatase enzymes.

Competing interests None.
Patient consent Obtained.
Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCES