

Purple urine bag syndrome

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A 52-year-old man presented with small bowel obstruction. He had had a right plastic ureteral catheter inserted through a nephrostomy due to ureteral stenosis caused by ileocolonic Crohn disease. A week later, his urine from the nephrostomy turned purple (FIGURE 1). His blood pressure was 120/62 mm Hg; pulse rate, 72/min; respiratory rate, 15 breaths/min; and body temperature, 36.1°C. Complete blood count showed white blood cell count of 5700/mm³, hemoglobin levels of 11.1 g/dl, and platelet levels of 103 000/mm³. Urinalysis revealed a pH of 7.5, protein levels of 100 mg/dl, as well as 5 to 9 erythrocytes and more than 100 leukocytes per high power field. It was negative for sugar and positive for nitrates. Subsequent urine culture yielded *Providencia stuartii* and *Pseudomonas aeruginosa* (>10⁶ colonies/ml). Purple urine bag syndrome (PUBS) caused by a urinary tract infection was diagnosed. As an entero-ureteral fistula was identified at the site of ureteral stenosis, antibiotics were not administered. Urine color returned to normal after the replacement of the catheter and bag, and the surgery for bowel obstruction was performed.

PUBS is a rare disorder in which the plastic urinary catheter bag turns purple. It occurs in chronically catheterized and constipated elderly bedridden patients. The discoloration is caused by enzymatic degradation of urinary indoxyl sulfate to indigo (blue) and indirubin (red) in the plastic

bag.¹ Several species including *P. stuartii*, *Proteus mirabilis*, *Escherichia coli*, and *Klebsiella pneumoniae*, which produce the indoxyl sulfatase and indoxyl phosphatase enzymes, have been associated with PUBS.^{1,2}

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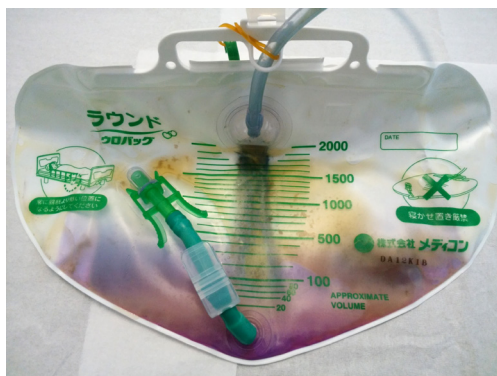


FIGURE 1 Purple urine in a plastic bag