

Purple Like a Glove

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A 90-year-old female nursing home resident was admitted for hyponatremia and altered mental status. A Foley catheter was placed on admission. On hospital day 2, the Foley catheter was found to be draining violet urine. Urinalysis showed a pH of 9.0, numerous white cells, leukocyte esterase, and bacteria. Urine culture grew *Proteus mirabilis*. Purple Urine Bag Syndrome (PUBS) is a rare phenomenon associated with alkaline urine due to a urinary tract infection. The patient was treated with ciprofloxacin, and her urine returned to a pale yellow color. While alarming to patients and providers alike, PUBS is a benign herald of urinary tract infection, often in an elderly woman with constipation. In normal individuals, tryptophan is metabolized to indole by gut flora, which is in turn conjugated to indoxyl sulfate (IS) by the liver. Urine excretion of IS varies by individual. Sulfatase-containing bacteria, notably *Providencia*, *Klebsiella*, and *Proteus* species, then catabolize IS to indoxyl. In an alkaline environment indoxyl isomers interact to alternately yield indigo or indirubin which jointly create the urine's characteristic violet color.

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FIGURE 1. Striking violet color indicative of Purple Urine Bag Syndrome.

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REFERENCE

1. Dealler S, Hawkey P, Millar M. Enzymatic degradation of urinary indoxyl sulfate by *Providencia stuartii* and *Klebsiella pneumoniae* causes the purple urine bag syndrome. *J Clin Microbiol.* 1988;26(10):2152–2156.