



## CLINICAL IMAGE

# Purple Urine Bag Syndrome (PUBS): A Rare Disease

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A 68-year-old female with a known hypertensive, diabetic, and neurogenic bladder was brought to the hospital with complaints of fever and constipation. The urine bag and urine colour were found to be purple (Figure 1). The urinalysis showed alkaline urine, and the urinary sediment contained 15-20 white blood cells per high-power field. She was admitted under the impression that she had a Urinary Tract Infection (UTI) and constipation. The patient was empirically started on oral tablet nitrofurantoin. Urine cultures yielded *Escherichia coli* and *Proteus mirabilis* growth rates greater than 130/mL and 110/mL respectively. The antibiotic therapy was continued with ceftriaxone 1 gm intravenous injection every morning and evening and gentamicin 80 mg intravenous injection every 8 hourly, according to the antibiotic sensitivity tests of the urine cultures, for 10 days. A lactulose-containing oral preparation was given for her constipation. The

Foley catheter was also changed. The purple urine disappeared, and the following constitutive urinalysis was sterile. She was discharged in stable condition.

Purple urine bag syndrome is a rare phenomenon in patients with UTIs with symptoms showing purple coloured urine. Barlow and Dickson published the first report on it in 1978 [1]. Purple urine is a mixture of indigo and indirubin, which are derived from the metabolites of tryptophan. Tryptophan is metabolized in the gastrointestinal tract by gut bacteria, and it produces indole that is absorbed into the enterohepatic circulation. Indole is then converted into indoxyl sulphate by indole hepatic conjugation in the liver. Most of the indoxyl sulphate is excreted into the urine and digested into indoxyl by bacterial sulphatase and phosphatase in urinary tract. When indoxyl is formed in the urinary tract, it transforms into the blue pigment



Figure 1: Showing Patient having purple urine bag syndrome.

indigo and the red pigment indirubin in alkaline urine. These colours then combine to form purple coloured urine [2,3]. Physicians need to be aware that this syndrome is a warning indication for underlying recurrent Urinary Tract Infections (UTIs), which are brought on by inappropriate hygienic practices and urinary catheter maintenance. Knowledge of this rare phenomenon can prevent the over- and under treatment of such benign pathology.

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### Conflict of Interest

No Conflicts of interest.

### References

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