

Editorial on purple urinary bag syndrome

Editorial

First clinical description of bluish discoloration of urine is credited to Sir Henry Halford, a physician of King George III. He noted that King's urine was of a deeper colour and found a pale blue ring upon the glass near the upper surface.¹ Edward Schunck has shown that this blue ring may have been indigo. Drummond et al.,² have reported the blue diaper syndrome in 1964 in children with autosomal recessive due to the defect in intestinal absorption of tryptophan. Barlow and Dickson first reported Purple Urine Bag Syndrome (PUBS) in 1978.³ Up to date, approximately 100 cases have been reported in the literature.

PUBS is generally considered to be a rare clinical phenomenon. However, some reports have suggested a prevalence of 8.3-27% in geriatric patients with long-term urinary catheterization.^{4,5} A female gender, alkaline urine, constipation or intestinal obstruction and bacteriuria associated with long-term urinary catheterization using indwelling catheter have been reported as risk factors for PUBS, although Enganti et al found PUBS to be more frequent in males and in patients with slightly acid urine (pH 6.7±0.7). Citrobacter species, Enterobacter species, Enterococcus species, Escherichia coli, Klebsiella pneumoniae, Morganella morganii Proteus species, Providencia species, and Methicillin-resistant Staphylococcus aureus have been common isolated strains associated to PUBS.

Owing to enzymes indoxyl sulphatase and indoxyl phosphatase, these bacteria are capable of converting a metabolite of tryptophan, indoxyl sulfate to indoxyl (indican) which oxidize to indigo (blue) and indirubin (red). These water soluble pigments interact with polyvinyl chloride (PVC) producing purple coloration of a urinary bag. Size and localization of the drainage catheter (urethral, suprapubic or nephrostomy) do not seem to have any influence on PUBS, but the material of catheter matters because those of PVC also could be colored. As the authors rightfully stated, PUBS do not have a significant prognostic importance because it seems to be harmless and mostly has an indolent clinical course. It may be considered as an indicator of catheter-associated urinary tract infection.

Up to date, recommendations for diagnostic procedures and treatment of this condition are still lacking. However, white blood cell count, C-reactive protein, urinalysis and urine culture are considered to be a minimal requirement for diagnostic evaluation of patients with PUBS. The patient should be advised to improve control of constipation by appropriate nutritional management, to increase water intake and to change the long-term indwelling catheter and urinary bags more regularly to prevent PUBS. Certainly, some proportion of these patients should be encouraged to start with clean intermittent

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catheterization, when it couldn't be avoided. Some authors have recommended ciprofloxacin in the initial treatment of the underlying (catheter associated) urinary tract infections following sampling of urine for urine culture. However, immunocompromised patients with PUBS need more attention because of previous reports of threatening complications in this particular group of patients. Further investigations are necessary to determine the prevalence, morbidity, and mortality of PUBS, and to establish indications for treatment.

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Conflict of interest

The author declares no conflict of interest.

References

1. Arnold WN. King George III's urine and indigo blue. *The Lancet*. 1996;347(9018):1811-1813.
2. Drummond KN, Michael AF, Ulstrom RA, et al. The blue diaper syndrome: Familial hypercalcemia with nephrocalcinosis and indicanuria; A new familial disease, with definition of the metabolic abnormality. *Am J Med*. 1964;37:928-948.
3. Barlow GB, Dickson JAS. Purple urine bags. *Lancet*. 1978;311(8057):220-221.
4. Dealler SF, Belfield PW, Bedford M, et al. Purple urine bags. *J Urol*. 1989;142(3):769-770.
5. Ga H, Park KH, Choi GD, et al. Purple urine bag syndrome in geriatric wards: two faces of a coin? *J Am Geriatr Soc*. 2007;55(10):1676-1678.