



Case report

Purple urine bag syndrome: A case report

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ABSTRACT

Introduction: Purple Urine Bag Syndrome (PUBS) is purple discoloration of urine and is common in bedridden patients with long-term urinary catheter. Although typically benign, the purple discoloration is alarming to both the patients and their attendants.

Case report: This case report presents an uncommon case of PUBS in a 74-year-old lady with hypertension, type II diabetes and ischemic stroke from last 2 years. She has neurogenic bladder and has been catheterized from last 2 years. Her last catheter was changed 15 days back. She presented to the emergency room with complaints of change in color of urine with low grade fever from last 1 week. On clinical examination there was one bed sore on lumbar region that was grade 1 with pus oozing from base of ulcer.

Clinical discussion: PUBS is generally associated with alkaline urine and in patients who were chronically catheterized as was observed in this patient, although it has also been reported in acidic urine.

Conclusion: PUBS is a rare manifestation of urinary tract infection with an alarming appearance and can be a source of anxiety for patients and their families. Being asymptomatic and comparatively benign, purple discoloration is simply an indicator of underlying bacteriuria and is of no prognostic value.

1. Introduction

Purple Urine Bag Syndrome (PUBS), is a visually frightening medical condition, that is mostly encountered in chronic catheterized patients [1]. Urine that turns a deep purple color from tryptophan metabolites implies a bacterial urinary tract infection. Factors that increase danger include being a woman, using a polyvinyl catheter, eating poorly, and having an underlying health condition or taking certain drugs [2,3]. It was first described in 1978 by Barlow and Dickson, and since then it has been observed repeatedly in bedridden elderly women who have to have their bladders catheterized for extended periods of time [3,4].

We present a case study of the enigmatic “purple urine bag phenomenon.” MAROOF International Hospital Islamabad Pakistan is a private tertiary care hospital near the Margalla hills, and this is the first case of PUBS that we are aware of to have been recorded there. Patients not just from the capital region but also from the provinces of Punjab and KPK are treated there.

2. Case report

A 74-year-old female with a history of hypertension, type II diabetes, and ischemic stroke. Patient presented to ER after 7 days of low-grade fever and a noticeable alteration in the color of their urine. This case was related in accord with SCARE Guidelines [5].

Because of her ischemic stroke, she was confined to bed. Due to a stroke and neurogenic bladder, she has been using a catheter for the past two years. It has been 15 days since her catheter was last replaced. The cachectic, emaciated, pallid female with a urinary catheter was found to have the characteristic purple urine with catheter staining. There was one grade 1 oozing bed sore on the patient's lumbar region. Analysis across systems was normal.

The consultant found Lower limb power was 2/5, tone was spastic with muscular atrophy, and reflexes were not appreciated due to spasticity, according to the results of the neurological examination of a paraplegic female with bilateral upgoing planters. Examination of feeling revealed a bilateral loss of sensation in the lower extremities.

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Rest of systemic evaluation was normal.

Nonetheless, as can be seen in Fig. 1, the most noticeable aspect of the examination was the presence of purple-colored pee in both the tube and the bag, along with a very pungent odor.

According to her family, the patient's urine has been this color for the past week. Her initial lab work indicated a healthy range of leukocytes, hemoglobin, and platelets at 10.7 g/dl and a normal range of were 292/mm³. Her kidney function and electrolyte levels were both typical. Her standard urine test revealed a pH of 8.0, the presence of many RBCs, 2 + leukocytes, 1 + protein, normal urobilinogen, positive nitrates, 2 + bilirubin, bacteria, 3 + WBCs 15–20, and a purple/black hue. When the CRP level is above 18.17 and the D dimer level is above 2524 ng/ml. There was no abnormality in the PT or APTT. HbA1c > 6.2. After 48 h, the results of the urine culture revealed *E. coli*.

The bacteria were susceptible to the antibiotic's ceftazidime, ceftriaxone, ciprofloxacin, cotrimoxazole, levofloxacin, piperacillin + tazobactam, and cefixime. Fosfomycin, imipenem, and nitrofurantoin-resistant. Culture Report is shown in Table 1 below.

The catheter was replaced and she was given 1 gramme of ceftriaxone intravenously (IV) twice daily. It was recommended to see a urologist about the change in hue, and they prescribed medication based on cultural norms, along with a catheter replacement. She was given a prescription for 1 gramme of IV ceftriaxone every 12 h and sent home suggesting to change her catheter daily.

3. Discussion

It's true that PUBS is a rare, harmless condition. Depending on the method used, PUBS prevalence might be anywhere from 8 % to 16 % [1]. The problem is that there is a lack of regional specifics in the aforementioned research. A urinary tract infection often has this unwelcome side effect. Patients who have had supra pubic urethral catheters for extended periods of time routinely exhibit this discoloration. The urinary bag and Foley catheter both become discolored by the purple urine [6]. Since our patient could not move from bed, a permanent catheter had to be inserted.

Purple urine, as seen in the current patient, is typically described in alkaline urine (pH 7.5), female bed-ridden with long-term kidney disease. Catheterization is a major contributor to risk. In contrast, acidic urine has been linked to increased danger [7].

Intestinal bacteria cause the coloring by a chemical reaction with tryptophan metabolites, which leads to the interaction of tryptophan in the meals we eat. Both sulfatase and phosphatase are enzymes produced

Table 1
Urine culture report.

Specimen	Urine
Test	Culture & sensitivity
<i>E. coli</i> sensitive to	Ceftazidime Ceftriaxone Ciprofloxacin Co-trimoxazole Gentamicin Levofloxacin Piperacillin + tazobactam Cefixime
<i>E. coli</i> resistant to	Fosfomycin Imipenem Nitrofurantoin

by Gram-negative bacteria; these enzymes are crucial in the pathogenesis of PUBS, as was the case with me; *E. coli* was the primary offender. Pseudomonas, *Escherichia coli*, Providencia, and Citrobacter are the most commonly reported associated organisms, though staphylococcus, streptococcus, and even methicillin-resistant staphylococcus aureus (MRSA) have also been reported [8,9].

A similar case with neurogenic bladder and chronic constipation who also experienced nausea, fever, and a purple urine bag was treated with cefixime at The Kidney Center Karachi [10]. In the era of patient-centered medicine, it is no longer sufficient to treat catheter-associated urinary tract infections (CAUTIs) as a minor issue. Therefore, we need to shorten the time spent with a catheter, enhance catheter care, and implement preventative technological breakthroughs, particularly for the elderly in nursing homes [11].

4. Conclusion

PUBS is a rare manifestation of urinary tract infection with an alarming appearance and can be a source of anxiety among patients and their families. Being asymptomatic and comparatively benign, purple discoloration is simply an indicator of underlying bacteriuria and is of no prognostic value.

Patient perspective

It would not have been necessary for me to go through this much discomfort and inconvenience if I had changed my urine catheter sooner and paid closer attention to any changes in the color of my urine.

Provenance and peer review

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NA.

Ethical approval

This case report didn't require review by ethics committee of Maroof International Hospital.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

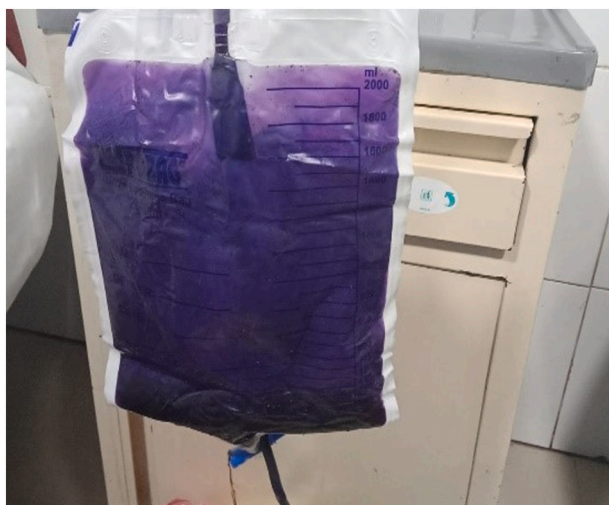


Fig. 1. Purple discoloration of urine. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)

Research registration

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Guarantor

Sabeel Iftikhar Ahmed

ORCID iD authorship contribution statement

All authors have contributed equally to the manuscript & have approved the final version to be published.

Declaration of competing interest

NA.

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