INTRODUCTION

Purple Urine Bag Syndrome (PUBS), a visually stunning medical phenomenon, is observed in long-term catheterized patients.1 The intense purple discoloration of urine, a result of tryptophan metabolites, signals the presence of bacterial urinary tract infection. Predisposing factors include female gender, use of polyvinyl catheter, diet, medications, and underlying medical illnesses.2,3

First reported in 1978 by Barlow and Dickson, it has been transcendently observed in bed-bound elderly women who require long-term urinary bladder catheterization.3,4

We herein, present a case report of the given phenomena. To our knowledge, this is the first case of PUBS reported from Khyber Pakhtunkhwa, Pakistan.

CASE REPORT

A 60-year-old lady, who is a known case of hypertension, type II diabetes, and chronic kidney disease stage 5, presented to emergency department with bilateral diabetic foot ulcers of 3 months duration, dry gangrene of ring finger and infected middle and little fingers with abscess over the palmar aspect of right hand of 20 days duration. Patient was dialysis dependent but had not received any for the last 1 year. Furthermore, she had an indwelling catheter for past 2 - 3 months and her current Foley's was 5 days old. On general physical examination, the patient was pale with peri-orbital edema bilaterally. Systemic review revealed normal heart sounds, decreased air entry bilaterally, a non-significant abdominal examination and absent peripheral pulses. However, the most striking feature of the examination was purple colored urine, both in the tube and the bag, as shown in Figure 1.

The patient herself and nor could her attendants give a clear history as to how long the purple discoloration had been present. Her baseline investigations showed bicytopenia with hemoglobin of 5.69 g/dl while platelets were 57,730/mm3. Her renal profile was deranged with urea of 348 mg/dl and creatinine of 10.51 mg/dl. Her potassium was in the upper end of normal at 5.3 mmol/l while bicarbonate was 15 mmol/l. Her urine routine examination showed pH of 8.0, with numerous red blood cells, 3+ leukocytes, 2+ albumin, normal urobilinogen and was negative for nitrates and bilirubin. She was started on intravenous (IV) Meropenem 1g and Vancomycin 1g and received few sessions of dialysis. Orthopedic consultation was obtained for the dry gangrene and amputation was advised which the patient refused. She was discharged on IV Meropenem 1g and

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Vancomycin 1g for 10 days with calcium and vitamin D supplements.

DISCUSSION

PUBS is a rare relatively benign condition that can seem alarming. The prevalence rate of PUBS in literature ranges from 8 - 16% in different studies. However, no local data has been found in previous studies.

It is an outwardly striking and infrequently observed side effect of urinary tract infection. The discoloration has been consistently noted in patients who have long-term suprapubic or urethral catheters. The purple colour can be appreciated in both the Foley's tube and the urinary bag. Our patient was bedridden and had a long term catheter in place.

As evidenced by the current patient, purple discoloration of urine has mostly been described in alkaline urine (pH ≥ 7.5), which is considered an important risk factor. However, its association with acidic urine has also been documented.

The discoloration is the result of generation of tryptophan metabolites through sequential chemical reactions by intestinal bacteria with interaction of tryptophan in food. Gram negative bacteria produce sulphatase and phosphatase, hence play an important role in the pathogenesis of PUBS. The bacterial species commonly associated are: Providencia spp., less often Citrobacter spp., staphylococcus spp., streptococcus spp., and even methicillin-resistant Staphylococcus aureus (MRSA) have also been reported. Occasionally, it is difficult to isolate a single organism responsible for the finding as multiple organisms are cultured from urine. A urine culture, however, could not be obtained in our case.

The association of PUBS with constipation has long been documented. Increased transit time during constipation allows more time for deamination. However, this alone is not the sole contributory factor as discoloration has also been reported in association with diarrhea, a finding observed in the given patient. There have also been reports where neither diarrhea nor constipation is a feature.

In 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.

REFERENCES


