CASE REPORT

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Purple Urine Bag Syndrome
Mor İdrar Torbası Sendromu

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ABSTRACT
Purple bladder syndrome is a rare condition. It usually occurs in older women with urinary catheters and is associated with urinary tract infection. Although not clinically significant; it can be threatening for patients.
In this article, we aimed to present a case which includes a having both chronic renal failure and purple urine in order to make the issue clearer.

Keywords: *Chronic kidney disease, purple urine bag syndrome, urinary catheter, urinary tract infection*

ÖZET
Mor idrar torbası sendromu nadir görülen bir durumdur. Genellikle idrar sondası olan yaşlı kadınlarda görülür ve idrar yolu enfeksiyonuyla ilişkilidir. Klinik olarak anlamlı olmasa da; hastalar için korkutucu olabilir.
Bu yazıda konunun daha net anlaşılması amacıyla hem kronik böbrek yetmezliği olan hem de mor idrarlı bir hastayı içeren bir olguyu sunmayı amaçladık.

Anahtar Kelimeler: *İdrar sondası, idrar yolu enfeksiyonu, kronik böbrek hastalığı, mor idrar torbası sendromu*

INTRODUCTION

Purple bladder syndrome (PUBS) is very rare and was first described in 1978. It has usually seen in older women with chronic constipation, indwelling urinary catheterization, and purple coloration of the urine as a result of the production of indigo (blue) and indirubin (red) pigments due to bacterial colonization in the urinary catheter. *Pseudomonas aeruginosa, Proteus mirabilis, Providencia spp., Klebsiella pneumoniae, Escherichia coli, Morganelli morganii, Citrobacter spp.,* methicillin-resistant *Staphylococcus aureus, group B streptococci* and *Enterococcus spp.* are bacterial species commonly isolated in patients (1,2).

Indole deamination of dietary tryptophan by bacteria in the intestinal microbiota plays a role in the pathogenesis of PUBS. Indoxyl sulfate secreted into the urine is converted to indoxy by the bacteria colonized in the urinary catheter by the enzymes sulfatase and phosphatase. The oxidation of indoxylin produces indigo (blue) and indirubin (red) pigments. When these pigments come into contact with a plastic catheter, they produce a purple color in the bladder (3). Alkaline urine accelerates development.

Mor bladder syndrome is not observed in every urinary tract infection due to factors such as the type and severity of the infection, individual variations, and the characteristics of the urine.

Although it is not clinically threatening, it is a discomfortable situation for the patient's relatives. We presented purple bladder syndrome in a patient with chronic renal failure.

CASE REPORT

A 57-year-old female patient applied to the emergency department with the complaints of nausea, vomiting and dyspnea. She was followed up with heart failure, hypertension, operated ovarian cancer and stage 4 chronic kidney disease.

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In the examinations of the patient, it was determined that she had acidosis and passed into end-stage renal failure. Hemodialysis treatment was started by inserting a juguler catheter. An urinary catheter was inserted in the patient due to immobilization.

Her white blood cell count was 7.26, hemoglobin level was 11.4 g/dL, platelets 279,000, her serum creatinine level was 5,31 mg/dL, her blood urea nitrogen level was 86 mg/dL, sodium level was 130 and potassium level was 4.1 mmol/L. The patient had no history of medication or food intake that could alter the color of the urine.

On the 5th day of her hospitalization, purple color was detected in the urinary bladder of the patient (Fig. 1). The drugs she used were reviewed. Her clinical condition was stable, and no fever was present.

In urine tests, hemoglobin: negative, pH: 8, leukocyte count: 5/HPF, erythrocyte count: 4/HPF, bacteria: 1636/HPF.

Empirical ciprofloxacin treatment was given to the patient. Escherichia coli 100,000 CFU/ml growth was observed in the urine culture. The urinary catheter was removed. The patient's urine color returned to normal and responded to treatment (Fig 2).

DISCUSSION

PUBS is a very rare syndrome. This syndrome is a benign condition. When the bacterial infection is resolved and the urine is acidified, the urine returns to its normal color.

In our patient, the color of the urine was normalized with the treatment of infection and removal of the catheter.

Numerous factors; especially advanced age, female gender, constipation, dementia, end-stage renal disease, dehydration, chronic catheterization, use of polyvinyl chloride urinary catheter or bag, recurrent UTI, high bacterial count in the urine and alkaline urine have been associated with purple discoloration of the urine (4).

This syndrome has also been observed in patients who had previously undergone dialysis. Decreased glomeruler filtration rate in choronic kidney disease (CKD) results in higher serum and urine concentrations of indican (5). Indican removal is limited, especially in CKD patients on hemodialysis, as it is highly bound to albumin. As a result, the serum indoxyl sulfate concentration is further increased (6,7).

Conclusion

Purple urine bag syndrome (PUBS) is rare but can occur in patients with indwelling urinary catheters and impaired

Figure 1. Purple urine bag

Figure 2. Normal urine

kidney function. Although not clinically severe, it can cause discomfort. Effective management involves treating the infection and removing the catheter, which usually resolves the condition. Early diagnosis and appropriate management are essential for improving patient comfort and care outcomes.

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Conflict of Interest: The authors declare no conflict of interest in this study.
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