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Purple Urine Bag Syndrome: A Case Report

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Abstract

Purple Urine Bag Syndrome (PUBS) is a rare and often under recognized phenomenon where a urine collection bag turns a distinct purple or blue hue. This condition is typically associated with urinary tract infections (UTIs) in patients with long-term indwelling catheters. There have been few reported cases. In this report, I present an 82-year-old male, A.A., who was admitted to the hospital with worsening bilateral hip pain and leg weakness following a fall and a series of imaging tests that showed mild atelectasis, unremarkable knee findings, and degenerative lumbar disease but no fractures. Despite initial assessments indicating no immediate intervention was needed, his symptoms escalated, leading to difficulty walking and reduced intake of food and fluids. The patient had a significant medical history including stage IV CKD and prostate cancer with multiple surgeries. During hospitalization, he developed PUBS and lab tests showed cloudy urine with signs of bacteria but no definitive UTI. He also experienced altered mental status, likely from acute metabolic encephalopathy due to worsening renal function. Ceftriaxone was started with some improvement noted, but the patient's condition continued to decline likely due to his progression of metastatic cancer, leading to a transfer to comfort care where he passed away a few days later. The resolution of PUBS could not be fully assessed due to the transition to comfort care. This case aims to highlight the importance of recognizing and familiarizing healthcare providers about this rare syndrome.

Introduction

Purple Urine bag syndrome (PUBS) is a rare condition, which results in purple discoloration of urine. This condition is common in elderly, bedridden individuals who have chronic in-dwelling urinary catheters. This condition is generally benign, but when encountered can cause concern to healthcare providers, patients' families, and the patient. It is thought to result from the interaction between certain bacterial enzymes and compounds in the urine. This phenomenon can also be linked to specific dietary factors. Urine discoloration can be a common sign among patients who are hospitalized but purple urine remains to be a rare colour that is not as well understood as other potential urine discolorations.

Case Presentation

A.A is an 82-year-old male who was admitted to the hospital due to bilateral hip pain and leg weakness resulting in difficulty walking. One month prior to admission, the patient had fallen on his right side when entering a physical therapy office. Following the fall, he had imaging done a few days later; this included a chest x-ray, right knee x-ray, and a pelvic x-ray. The chest x-ray showed some mild atelectasis, the right knee was unremarkable, and the pelvic x-ray showed some lower lumbar degenerative disease. There were no fractures or displacements, and the joints were unremarkable. It was determined no further intervention was needed at the time. On admission, the patient stated he had worsening bilateral hip pain, with the right hip being worse than the left, which had progressed to cause bilateral leg weakness and difficulty walking. The escalation of pain and symptoms prompted him to go to the hospital. The patient denied any heavy lifting or activity prior to the onset of symptoms. The patient also mentioned over the past few days prior to admission that he been eating and drinking less due to ongoing pain.

The relevant past medical history included stage IV CKD, stage IV prostate cancer status post radical prostatectomy, cystectomy, urostomy, and colostomy.

On the third day of admission, the patient who has chronically been using a urostomy bag for 5 years developed PUBS. Additional labs were ordered at that point including UA, Urine chemistry, and Urine culture. UA revealed cloudy urine with 1 RBC, 55 WBC, trace blood, negative nitrites, positive leukocyte esterase, and many bacteria. Urine chemistry was unremarkable. Initial urine culture was reported to be contaminated, and a repeat was not ordered as the patient had continued to decline in clinical condition since the day of admission. The patient was determined to have asymptomatic bacteriuria as he did not mention or show any signs or symptoms indicative of a UTI or pyelonephritis. The patient did develop altered mental status likely secondary to acute metabolic encephalopathy likely secondary to uremia as the patient had ongoing AKI on top of his stage IV CKD. Ceftriaxone 2g once daily was started at that time and two days later changes were seen in the urine bag. The urine bag now had a layer of yellow urine sitting on top of the previous purple layer. Several days later after starting the antibiotics the patient was transferred to comfort care as he continued to decline, likely secondary to progression of metastatic prostate cancer and then passed away a few days later. After the patient was transferred to comfort care his medications were reconciled to be consistent with goals of comfort care so ultimately, we were unable to determine if the antibiotics were able to completely resolve his PUBS.

Discussion

PUBS is often benign and resolves with appropriate antibiotic treatment and management of underlying conditions [1-3]. It is important for healthcare workers to recognize this condition as a diagnostic clue rather than a direct indicator of more a severe underlying pathology. Management involves treating the urinary tract infection and addressing any contributing dietary factors.

Conclusion

Purple Urine Bag Syndrome, although rare, should be considered in patients with long-term urinary catheters presenting with discoloured urine bags. Recognition of this condition is important to avoid unnecessary apprehension and ensure appropriate management. This case emphasizes the importance of understanding the microbial and biochemical factors involved in PUBS. This case also highlights the need for awareness of PUBS among clinicians as a potential indicator of specific bacterial infections and dietary influences. Timely recognition and management can alleviate patient concerns and prevent unnecessary investigations.

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