



Case Study

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Purple Coloured Urine Bag as the Only Clue for A Urosepsis – A Case Report

Sampath WE^{1*}, Fonseka CL²

¹Teaching Hospital, Karapitiya, Galle, Sri Lanka

²Faculty of Medicine, University of Ruhuna Galle, Sri Lanka

*Corresponding Author: Sampath WE, Teaching Hospital, Karapitiya, Galle, Sri Lanka

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ABSTRACT

Purple urine bag syndrome is an alarming medical phenomenon detected in patients with long term indwelling urinary catheters. Urinary catheter bag turns into purple colour, but the urine collected from the catheter bag shows no purple colour. It's associated with urinary tract infections and commonly seen in debilitated geriatric patients. Presenting a case of purple urine bag syndrome which was the clue for the underlying urinary tract infection.

Keyword: Purple urine bag syndrome; geriatric

INTRODUCTION

Purple Urine Bag Syndrome (PUBS) refers to the purple discolouration of urinary catheter bag of the patients who are having indwelling urinary catheters long term [1]. The mechanism thought to be responsible is the interaction of indigo and indirubin pigments of dietary tryptophan metabolism, with constituents of the urinary bag. Urinary tract infections due to sulphatase or phosphatase producing bacteria is associated with the production of above pigments [2]. Although the PUBS itself is a benign condition, the underlying medical conditions should be looked into [3]. We present a case of PUBS which was the cue for underlying urinary tract infection. Although cases of purple urine bag syndrome were reported in patients with chronic vascular dementia with delirium this is a case of delirium solely due to urinary tract infection with no classic features of urinary tract infection [3].

CASE REPORT

A 90 year old female patient, who was bed bound for one and half year following a fall, admitted for the urinary catheter change. She has had an ischaemic heart disease and hypertension for eight years ago and was on regular follow up. She was on a 16-gauge urinary Foley catheter for the last eight months, which was changed monthly. The care givers complained that the patient has a markedly reduced oral intake for the last week and she was drowsy. The rest of the history was unremarkable with no fever, dysuria and loin pain. The patient looked ill and she was afebrile. There was no supra pubic tenderness. Her Foley catheter bag and tube was purple in colour (Fig.1). But the urine collected from the catheter bag for visual examination and sampling was straw coloured (Fig.2). The catheter was changed and the urine within the new catheter bag was clear. The urine sample

was positive for coliform species with more than 10^5 colony forming units. Her haemoglobin level was 12g/dl, WBC count was 12000/ml, serum creatinine was 0.89 mg/dl.

According to the ABST pattern she was started on oral cefuroxime 250 mg 12hourly for 5 days. The patient improved dramatically achieving satisfactory oral intake. During the next visit for the urinary catheter removal the patient was well looking and the urinary catheter bag was clear.

DISCUSSION

The PUBS was first reported in 1978 [1]. According to the suggested aetiopathogenesis of the PUBS, the dietary tryptophan is converted to indole within the gut and is absorbed into the portal circulation. It is converted to indoxyl sulphate in the liver and bacterial sulphatases or phosphatases produced within the urinary tract converts the indoxyl sulphate into indoxyl which is further metabolized into indigo and indirubine. The reaction of these two constituents with the material of the urinary bag forms the purple colour [2] (Fig.3).

According to a case control study, the bacterial counts in urine were significantly higher in patients with PUBS than who didn't have the PUBS, suggesting the higher bacterial load in

the urine is associated with its development [4]. *Escherichia coli*, *Klebsiella pneumoniae*, *Providencia stuartii*, *Proteus* species, *Enterococcus* species, *Morganella morganii*, *Citrobacter spp.*, *Staphylococcus spp.*, and MRSA have been demonstrated in the urine cultures of the patients with PUBS [2]. The risk factors described are chronic catheterization, female gender, old age, significant disability, cognitive impairment, constipation, and alkaline urine [3]. PUBS per se appears to be a benign condition and urine culture and antibiotic therapy are indicated only for suggestive urinary tract infections [5]. Awareness of the PUBS may warrant early treatment for urinary tract infections, preventing the morbidity and mortality due to systemic septic sequelae [5].

In our patient, we initially suspected delirium and investigated for other causes of delirium in an elderly. The colour of the urine bag was the only clue which made us suspect a urosepsis in the clinical examination and she did not have any other history or examination clue which could suggest a urosepsis. The knowledge about this clue directed us to look for a urosepsis directly without getting distracted to perform investigations to look for other causes for delirium.



Fig. 1: Purple colour urine in the Catheter bag



Fig. 2: Normal colour urine when taken to a separate container

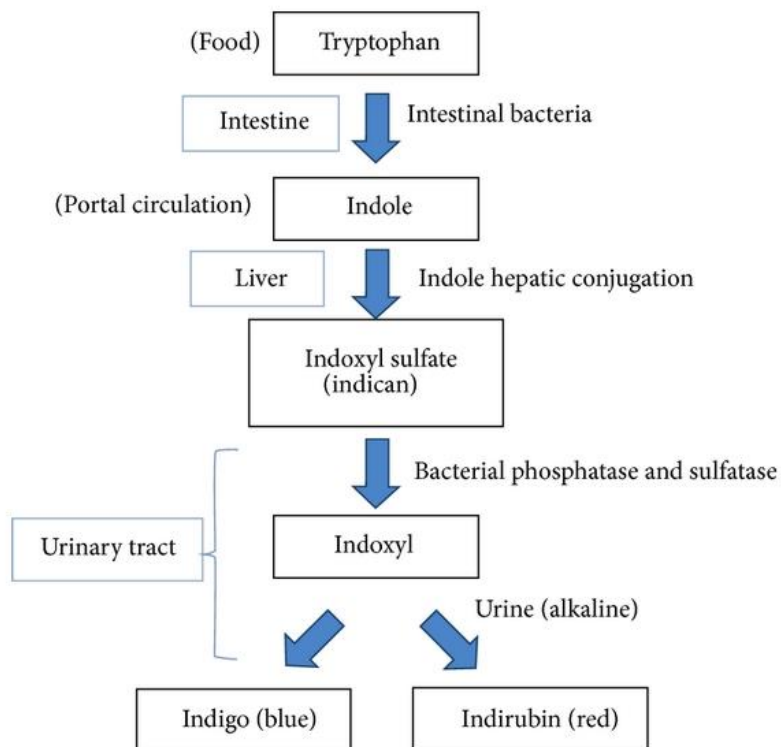


Fig.3: Metabolism of Tryptophan [2]

CONCLUSION

PUBS is prevalent among elderly females with significant comorbidities. It's associated with urinary tract infections due to certain strains of bacteria. Although the condition itself is benign, health care workers should be aware of it as it causes significant patient anxiety and may be the only cue for underlying urinary tract infection, especially in a geriatric patient with significant comorbidities.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interests regarding the publication of this paper.

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