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Purple Urinary Bag Syndrome

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ABSTRACT

Purple Urinary Bag Syndrome occurs due to the precipitation and reaction of indigo and indirubin pigments with the synthetic materials in the catheter and urinary bag which gives the characteristic purple color. We report a case of a 59 years old woman with this rare entity.

Keywords: Purple Urinary Bag Syndrome, Urinary Tract Infection.

INTRODUCTION

Purple urinary bag syndrome (PUBS) is a rare and interesting phenomenon occurring in patients with urinary tract infection.[1] It occurs due to the precipitation and reaction of indigo and indirubin pigments with the synthetic materials in the catheter and urinary bag which gives the characteristic purple color.[2] We report a case of a 59 years old woman with this rare entity.

CASE REPORT

A 59 year old female presented to the casualty with history of fever of two days duration associated with chills and rigor. There was no other localizing symptoms of fever. She also had history of constipation. Her past medical history included poorly controlled diabetes mellitus with diabetic nephropathy, coronary artery disease and dyslipidemia. She was hospitalized 20 days back for her diabetic control and urinary tract infection following which she was discharged with the urinary catheter in situ. On examination she was febrile and was mildly dehydrated. Her vitals and systemic examination was normal. The urinary bag was purple in color [Figure 1] but when the urine was collected directly from the catheter for analysis, it was of straw color [Figure 2]. Patient's urinary bag was changed following which straw colored urine continued to drain. A diagnosis of Purple Urine Bag Syndrome (PUBS) was made.

Her blood investigations revealed neutrophilic leukocytosis (WBC count 17,340 cells / µL, neutrophils – 86%, lymphocytes – 10%, monocytes – 3%, eosinophils – 1% and basophils – 0%). Urine analysis showed a highly alkaline urine (pH – 8.6) with plenty of pus cells and bacteriuria. Urine culture grew significant growth (> 105 CFU) Klebsiella pneumoniae which was sensitive to amikacin, meropenem and linezolid. Patient was started on intravenous Meropenem and continued for 7 days. After the course of antibiotics, her total counts returned to normal and urine analysis showed pH of 6.5 and no pus cells. Her symptoms subsided and she was discharged without any complications.

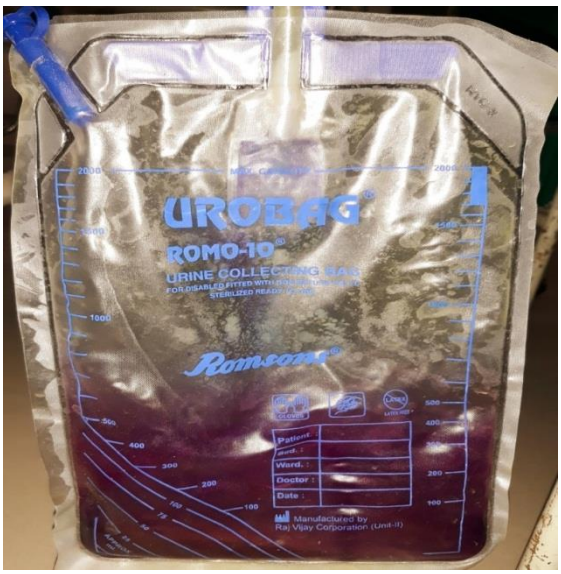

Figure 1: Urinary bag containing purple color urine

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Fig 2: Urine sample collected directly from the patient catheter appearing straw colored

DISCUSSION

Purple Urine Bag Syndrome (PUBS) is a relatively uncommon phenomenon which was first described by Barlow in 1978.[3] Historically it dates back to 1812 when physicians treating England's King George III noted a bluish tinge to the king's urine, which left a pale-blue ring on the glass near its upper surface.[4]

PUBS has been shown to be associated with female gender, chronic catheterization, high urinary alkalinity, high bacterial load and chronic constipation.[5,6] Dietary tryptophan taken by the patient is acted upon by the intestinal bacteria and converted into indole which upon sulphation by the liver is converted into indoxyl sulphate. It is then excreted in the urine and metabolized into free indoxyl by sulphatase produced from certain gram negative bacteria. Oxidation of free indoxyl in an alkaline urine will produce two main pigments - indigo and indirubin which dissolve in the plastic of the urine bag and result in the purple discoloration.[7]

Gram negative bacteria producing sulfatase enzyme are involved in the pathogenesis of PUBS. The common pathogens isolated include Providencia stuartti and rettgeri, Proteus mirabilis, Pseudomonas auruginosa, Klebsiella pneumoniae, Escherichia coli, Morganella, Citrobacter species, Enterococci and Group B Streptococci.[8,9]

Even though PUBS is a benign condition it is often distressing and alarming to the patients, family members and also the treating physicians if they are unaware of the condition. It is important to inform them that it is a benign condition and can be prevented by improving the urinary sanitation and treating the urinary tract infection.[10]

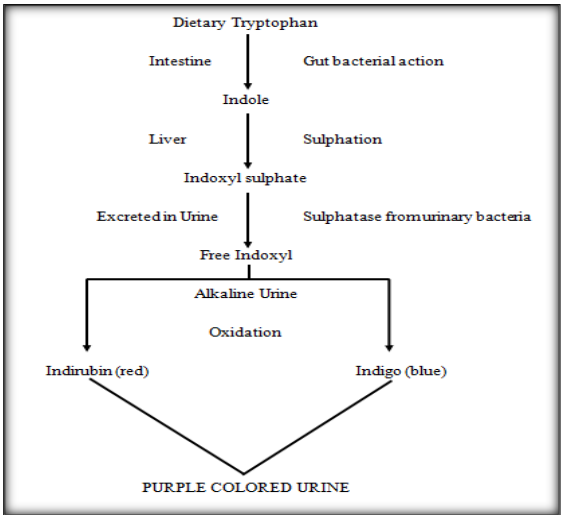

Fig 3: Steps involved in formation of Purple colored Urine

CONCLUSION

Purple Urine Bag syndrome is being identified more commonly in recent times due to increased awareness about the condition. It is a simple to treat condition if identified correctly.

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