

Case Report

Purple Urine Bag Syndrome: A Case Report of An Elderly Nigerian Woman

Ibitrokoemi Faye Korubo¹, *Ekechi Stella Amadi¹, Chikeka Chimaroke Ukachi¹.

¹Department of Internal Medicine, Rivers State University Teaching Hospital, Port Harcourt, Rivers State, Nigeria.

Abstract

Purple urine bag syndrome (PUBS) is an unusual presentation of urinary tract infection (UTI). Few cases have been reported in Africa. We present a case report of Purple Urine Bag Syndrome from the Niger Delta region of Nigeria. The patient was a bedridden catheterized 71 -year-old quadriplegic female patient with a history of hypertension, and ischemic stroke. She was treated with a course of appropriate antibiotics and by changing her urinary catheter and bag. The patient's caregiver refused further care and signed against medical advice after forty-eight hours of admission without doing the requested investigations. Purple urine bag syndrome (PUBS) is a rare benign condition with a good prognosis.

Keywords: Purple Urine Bag; Urethral Catheterisation; Nigeria.

***Correspondence:** Ekechi Stella Amadi, Department of Internal Medicine, Rivers State University Teaching Hospital, 6-8 Harley Street Old GRA Port Harcourt, Rivers State, Nigeria. **Email:** ekechiamadi@yahoo.com

How to cite: Korubo IF, Amadi ES, Chikeka CU. Purple Urine Bag Syndrome: A Case Report of An Elderly Nigerian Woman. Niger Med J 2025; 66 (1): 385-.388.<https://doi.org/10.71480/nmj.v66i1.693>.

Quick Response Code:



Introduction

Purple urine or purple urine bag syndrome is a syndrome that was first described in 1978 by Barlow and Dickson [1]. It is found among patients on long-term urinary catheterization and bedridden patients [2]. It is a benign condition but could be alarming to the patient, caregivers or even healthcare workers who may be experiencing it for the first time in their careers [3]. This index case is the first ever reported case from the centre. This report aims to demystify the cause of purple bag syndrome highlighting the challenges faced with the index case.

Case report

We present a 71-year-old widow and retired food seller, a known hypertensive who had been bedridden for the past two years following a stroke presented to the accident and emergency with a one-day history of several episodes of vomiting which consisted mainly of recently digested meals associated with frequent non-bloody stools. On examination, she was noted to be chronically ill-looking, severely dehydrated, afebrile, pale, and conscious but aphasic with global hypertonia and hyper-reflexia. There was generalised abdominal tenderness and a purple urine bag in situ draining 700mls of concentrated urine. On further enquiry, the caregiver (patient's daughter) indicated that this was not the first time she had noticed the colour of the bag hence she was not alarmed. Her perception was that the colour depended on the kind of urine bag used. Her mother had her catheter changed monthly and the purple colour was not noticed all the time. A diagnosis of acute bacterial gastroenteritis with urinary tract infection complicated by purple urine bag syndrome on background residual stroke with quadriplegia was made. She was adequately rehydrated with intravenous fluids, essential electrolytes replaced and given broad-spectrum intravenous antibiotics (levofloxacin 500mg daily and tinidazole, 800mg daily). The purple urine bag was changed and the new one drained dark yellow (concentrated) urine. Various investigations were requested including urinalysis, urine microscopy, culture and sensitivity with urine bag for swabbing and culture. The caregiver declined doing any of the investigations and after 48 hours of her mother's admission signed against medical advice to take her mother back home. Since then, patient has been lost to care.



Figure 1: Bedridden Elderly patient with Purple Bag Syndrome

Discussion

Purple urine bag syndrome is a rare benign condition which could be alarming to the patient, caregivers and healthcare workers who have not experienced it before [2,3]. In this index case the patient is bedridden with quadriplegia with aphasia hence it may be difficult to assess her level of awareness of her environment. Purple colour is a colour that signifies royalty and penitence. It is not a threatening colour, unlike red colour which is perceived to be dangerous probably because it is the colour of blood. Purple is

known to be a calming colour and one of the favourites amongst women [4,5]. The common risk factors for PUBS include older adults, chronically immobile women, urinary tract infection, and chronic kidney disease [6]. This index case is known to have most of these risk factors. Other risk factors include increased tryptophan foods such as eggs, spinach and chicken, chronic constipation, alkaline urine and high bacteria load. The organisms commonly implicated are *Escherichia coli*, *Proteus mirabilis*, *Klebsiella pneumoniae*, *Enterococcus*, and *Pseudomonas aeruginosa*. Other less common ones are *Providencia rettgeri*, *Morganella morganii*, group B *Streptococci* and *Proteus vulgaris* [2]. The aetiology of the purple colour has been attributed to the presence of indigo (blue) and indirubin (red) pigments produced by bacterial enzymes (sulphatase/phosphatase) which precipitate and react with the synthetic materials of the catheter and urine bag. These pigments are breakdown products from the bacterial protein called tryptophan [2, 6]. There are cases where the urine was also purple unlike this case where it was just the bag [7, 8, 9]. Other differentials for purple urine include Blue Diaper Syndrome or Drummond's syndrome which is an X linked metabolic syndrome seen in babies and Hartnup disease which is an autosomal recessive metabolic disease [2]. PUBS have sometimes been misdiagnosed as haematuria depending on the shade of purple [8]. Studies have shown that this syndrome can occur with any type of catheter such as nephrostomy and cystostomy catheters and not just urethral catheters [10]. PUBS has been reported in a Nigerian of the same age as this index case with gastrointestinal bleeding which is one of the few case reports from Africa [11]. Management includes controlling underlying risk factors, avoiding chronic catheterization, and proper urologic sanitation in patients with PUBS. Antibiotic treatment is only recommended for patients with symptomatic urinary tract infection (UTI) [2, 7-12]. The patient received antibiotics because she had gastrointestinal symptoms which can share similar causative organisms for UTI. Counselling and psychosocial support are necessary parts of management particularly in our African environment where some persons may misinterpret it as a spiritual curse however this was contrary in this case.

Conclusion

Purple urine bag syndrome (PUBS) is a rare benign condition with a good prognosis. It can cause significant anxiety for patients, caregivers and healthcare workers. Awareness of this syndrome among healthcare professionals in Nigeria and Africa as a whole is important so as to adequately manage the condition. Counselling and psychosocial support is a necessary part of management.

Key Learning points

- PUBS is a rare benign condition, but it has a serious underlying pathology
- Caregivers, healthcare workers and relatives need to be counselled
- It is a pointer to the need for regular care for the older immobile patient.
- Antibiotics have an important place in management
- Other differentials are also rare but the history, physical examination and investigations such as urine microscopy, culture and sensitivity would help exclude this.

References

1. Summon H, Skinner C, Fields, J, Phyne B, Grant A. The Purple Urine Bag, Lancet, 1978; 80 (62):50
2. Rogers, J. Cadojan, F. Purple urine'[Internet] Life in the fast lane; 2024 Oct, [Cited 2024 Oct 24] Available from <https://litfl.com/purple-urine/>

3. Pandey S, Pandey T, Sharma A, Sankhwar S. Purple urinary bag syndrome: what every primary healthcare provider should know. *BMJ Case Rep.* 2018;2018: bcr2018226395 Published 2018 Jul 18. doi:10.1136/bcr-2018-226395
4. McCoy, J. Why Purple is a Royal Color in Africa [Internet] 2024 Oct [Cited 2024 Oct 23] Available from <https://medium.com/@nellieoak/why-purple-is-a-royal-color-in-africa-a9540cdc068f#>
5. Babich N. Color Psychology – How color influences decisions [Internet] 2020 Jan 16 [Cited 2024 Oct 23] Available from <https://www.shopify.com/ng/partners/blog/color-psychology>,
6. Montasir AA. Mustaque AA. Purple Bag Syndrome, *J Family Med Primary Lane*, 2013 Jan – Marc (1) 104-105
7. Ahmed SI, Waheed MA, Shah S, Muhammad Shah SY, Mumtaz H. Purple urine bag syndrome: A case report. *Int J Surg Case Rep.* 2022; 99: 107721.doi: 10.1016/j.ijscr.2022.107721
8. Saraireh M, Gharaibeh S, Araydah M, Al Sharie S, Haddad F, Alrababah A. Violet discoloration of urine: A case report and a literature review. *Ann Med Surg (Lond).* 2021; 68:102570. doi: 10.1016/j.amsu.2021.102570
9. de Menezes Neves PDM, Coelho Ferreira BM, Mohrbacher S, Renato Chocair P, Cuvello-Neto AL. Purple urine bag syndrome: a colourful complication of urinary tract infection. *Lancet Infect Dis.* 2020;20(10):1215. doi:10.1016/S1473-3099(20)30323-
10. Neniwal VK, Swain S, Rulaniya SK, Hota D, Agarwal P, Yadav PK. Purple urine bag syndrome: An unusual manifestation of urinary tract infection, our experience at a tertiary care center. *Curr Urol.* 2023;17(2):125-129. doi:10.1097/CU9.0000000000000044
11. Ndulue C, Jisieike-Onuigbo NN, Anyanor A, Ozuemba BC, Osakwe N, Oguejiofor F, et al. Purple Urine Bag Syndrome in a Nigerian with Gastrointestinal Bleeding: Case Report, *Tropical Journal of Nephrology* 2022; 17(10):29-31
12. Agbor VN, Njim T, Oben HB, Aminde LN. Purple Urine Bag Syndrome in an 80-year-old Female Cameroonian. *Niger Med J.* 2017 May-Jun; 58(3):119-121.