

# Purple urine bag as indicator of multidrug-resistant vulvar abscess: Lessons for primary caregivers

Dear Editor,

Purple discoloration of urine, urinary bag, or tubing has been an uncommon entity reported in the setting of prolonged indwelling catheterization. The condition is incidental finding in most circumstances with no significant problem apart from distress to patient and family members. Most of the cases are nursing home inhabitants, females, elderly, or those constipated with limited mobility and urinary tract infection.<sup>[1,2]</sup> The alkaline nature of urine has been found in most cases; however, acidic urine may be exceptionally associated.<sup>[3]</sup> Mostly considered a benign condition, the occurrence of it still warrants a careful observation for subsequent morbidity.<sup>[1,4]</sup> We hereby describe a case with initiation of purple discoloration of the urinary catheter that was later complicated into multidrug-resistant vulvar abscess resulting in prolonged stay and cost of treatment along with higher antibiotic consumption.

A 42-year-old female was admitted for fixations of her lower extremity fractures and was catheterized given nonambulatory status as she waited for surgery at primary care center. Purple discoloration of the urine bag and tubing was noted in the 9<sup>th</sup> day along with dark and concentrated appearing urine owing to reduced fluid intake by the patient [Figure 1]. The catheter was changed, and the tip along with urine sample was sent for culture and sensitivity. There, however, were no clinical features of regional pain, fever, or other “red flags” present. Two days later, she complained of mild fever and painful micturition and subsequent blood counts were indicating increased total leukocyte and neutrophil counts. Vulvar abscess was diagnosed clinically following due surgical and gynecological references. Left labia majora was swollen with purulent collection that was drained for culture and further evaluation by surgery team. Regular dressing was advised along with repeat swab sampling of affected area along with urinary routine and microscopy evaluation. Broad spectrum empiric antibiotics including coverage for Gram-negative infection were administered during the course of treatment. The urinary examination was unremarkable except alkaline urine while the swab culture showed MRSA infection with *Escherichia coli* and *Proteus vulgaris* coinfection. The infection was resistant to most broad-spectrum antibiotics including linezolid and sensitive only to imipenem and chloramphenicol.



**Figure 1:** The purple color of urinary catheter tubing draining inside urinary bag with concentrated dark-colored urine

The treatment with imipenem intravenous for 6 days resulted in marked reduction of infection, and she was discharged on oral therapy for three more weeks. The follow-up saw no remote complication or recurrence of the condition.

The pigments indigo and indirubin have been causative factor for purple or bluish discoloration of urinary bags through altered tryptophan metabolism.<sup>[5,6]</sup> The gut bacteria process tryptophan into indoles which are later converted into indoxyl sulfate in liver. Indoxyl in urine is the precursor of aforementioned pigments responsible for the color purple as end result of combination of indigo (blue color) and indirubin (red color). Reports of grave complications as aftermath of this entity have been reported like infective gangrene of scrotal area.<sup>[7]</sup> *Proteus mirabilis*, *Klebsiella pneumoniae*, *Providencia* sp., *E. coli*, and *Enterobacter* sp. have been common associated organisms.<sup>[2,6,8]</sup> Avoidance or limiting the use of indwelling catheters or proper care if used is mainstay of the treatment. Training of intermittent catheterization to the patient and attendants is another important step. The immunocompromised patients require more cautious assessment for complications. Associated urinary infection may require culture-specific antibiotics along with symptomatic care. Our case highlights the importance of knowledge of this uncommon condition associated with a common ward procedure with special reference to primary care settings where adherence to proper catheterization instructions and knowledge of complications and follow-up shall go long way avoid and counter sinister complications.

### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand

that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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### Conflicts of interest

There are no conflicts of interest.

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