

Purple Urine Bag Syndrome and Urologic Complications in a Spastic Quadriplegic

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INTRODUCTION

Urinary tract infections (UTI) are common and approximately 11 million are diagnosed in the United States yearly.¹ Indwelling urinary catheters pose a significant risk to patients for developing catheter-associated urinary tract infections (CAUTI), with longer use leading to higher risk of infection.¹ Bladder spasticity can be managed pharmacologically, surgically or with a combination of treatment options.²⁻³ Intrathecal baclofen has been shown to be effective in managing spasticity with reducing the side effect profile of the medication.² Surgical management options include external sphincterotomy, suprapubic tube (SPT), ileal conduit, and ileovesicostomy.⁴ SPT has shown to have general patient satisfaction. Common complications include urinary leakage and urinary tract infections.⁴ Literature review showed case reports of purple urine caused by CAUTI involving *Providencia stuartii*, *P. rettgeri*, *K. pneumoniae*, *P. mirabilis*, *E. coli*, *Morganella morganii*, and *Pseudomonas aeruginosa*.⁵ Formation of purple urine is associated with alkaline pH as well as a UTI from the listed bacteria containing indoxyl sulphatase and/or phosphatase.⁵



Figure 1 shows the urine's pH to be approximately 8.0

CASE REPORT

A 42-year-old male with past medical history of spastic quadriplegic cerebral palsy (CP) status post intrathecal baclofen pump (IBP), wheelchair dependency, and neurogenic bladder presented to the emergency department with urine leakage from a previous suprapubic catheter stoma. The patient also reported purple urine and gross hematuria. The patient's neurogenic bladder had been managed previously with a SPT for 16 years. His SPT was removed 4 months prior to this ED encounter due leakage, erosion and widening of the stoma secondary to bladder spasticity. Patient underwent cystoscopy with indwelling urethral catheter placement at that time. The patient was medically stable in the emergency department with exception of a purple discoloration of urine. Urology was consulted. Workup showed a UTI with *Proteus mirabilis* infection per culture. He was treated with intravenous ceftriaxone. PM&R was consulted for IBP refill which had no complications. Patient was discharged to his home and followed with PM&R for his regular baclofen pump management. Repeat urine cultures at 3, 6 and 9 months grew *P. mirabilis*.

DISCUSSION

Patients with indwelling catheters are at a high risk of infection. Purple Urine Bag Syndrome from *Proteus mirabilis* in this patient resulted from urethral catheter use. The patient's neurogenic bladder was effectively managed for 16 years with a SPT and only required urethral catheterization due to long term complications from bladder spasticity. Infection and chronic colonization can increase spasticity and should be treated when clinically indicated. There are multiple medical complications associated with both SPT and indwelling urethral catheters.



Figure 2: Purple sediment collecting in Foley catheter tubing

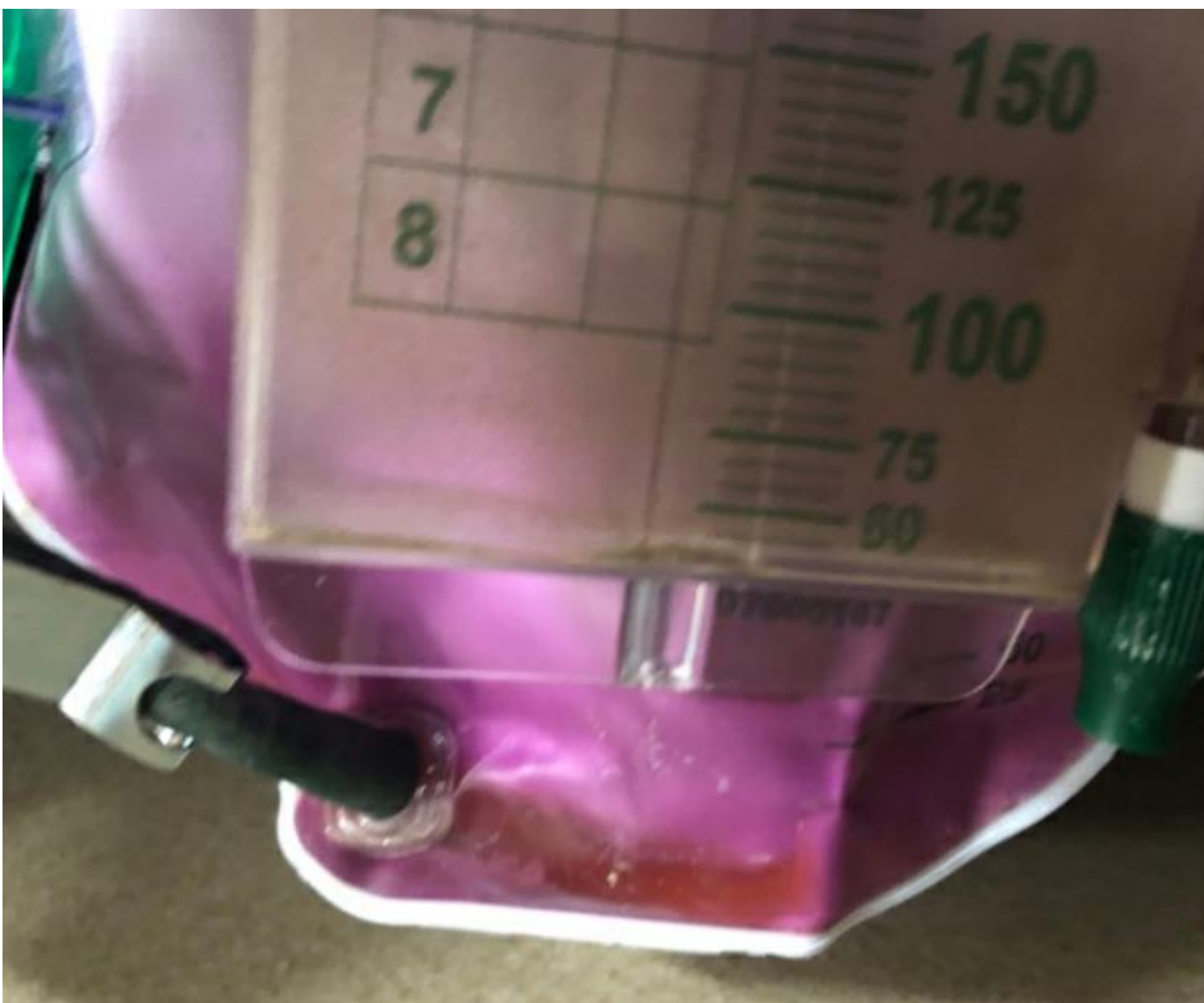


Figure 3 demonstrate the Purple Urine Bag Syndrome

CONCLUSION

Bladder dysfunction from loss of supraspinal control results in higher rates of UTIs, hospitalizations, healthcare costs and a decrease in quality of life. CP patients can be complicated and require an interdisciplinary team for effective management and treatment, particularly in wheelchair dependent patients. An effective multidisciplinary team should discuss management of neurogenic bladder, spasticity, contracture prevention, decubitus ulcer prevention, and normal health maintenance and screening. PM&R often serves as the primary advisor for patients with CP and other neurologic conditions and should discuss erosion and stoma widening as potential complications when recommending SPT for bladder management.

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