

## **Comprehensive Clinical Scenario – Contenance**

### Chief Complaint:

82 y/o female referred to APN by LTC facility staff due to urinary incontinence (UI) since removal of an indwelling urinary catheter 3 weeks ago.

### History of Present Illness:

1. An indwelling catheter was placed 6 mths. ago while hospitalized to allow healing of a stage IV sacral pressure ulcer. Since removal, regular offers for toileting assistance have been largely refused “I don’t need to go” but resident is typically wet. Prior GU status Staff reports she often smelled of urine but didn’t require diapers
2. During catheterization, resident had 5 UTI’s (Proteus mirabilis) with delirium, abdominal pain & fever. The staff reports this pattern has been stable x 3 weeks and denies noticing any alleviating or aggravating factors. Staff don’t recall UTI’s & none reported in chart, Prior treatment with Bactrim (trimethoprim/sufamethoxazole) 160/800 PO x 10 days for each UTI. Urinalysis was + with alkaline urine; C&S’s positive for Proteus mirabilis, 1<sup>st</sup> 3 sensitive to Bactrim, last 2 resistant to Bactrim.
3. Erythematous papular rash w/ satellite lesions (contiguous groin, gluteal cleft & upper thigh surfaces) currently treated with Nystatin powder bid x 2 wks and is resolving.

### Past Medical History:

1. GIPI-C section.
2. COPD
3. CVA (location unknown.)
4. Dementia (Alzheimer’s type)
5. Open angle glaucoma
6. Paralytic syndrome r/t meningitis (date onset unknown.) – reports “bladder & walking problems since”
7. Incontinence surgery at ~ 67 y/o (type unknown).

### Current Medications:

1. Lasix 40mg PO daily
2. Multi-Vitamin
3. Iron supplement
4. Advir inhaler daily
5. Colace 100 mg BID

### Pertinent family and social history:

1. Widow
2. Only surviving relative is one adult son who visits regularly and is involved in his mother’s care
3. Other family history unavailable
4. Long term resident of a nursing home.
5. Denies alcohol or tobacco use

### Allergies:

1. NONE per Patient, Chart & Son.

Pertinent Review of Systems:

1. Resident denied Gen, Skin, Resp, CV, GI, GYN, Endo,
2. MS & Neuro: Denies other than “fatigue and difficulty walking some tingling in legs” both may be r/t post Paralytic Syndrome but responses suspect due to dementia
3. GU/voiding: Pt. reports small leaks w/ cough, sneeze & standing but denies urinary frequency & a sensation of incomplete emptying – Stress UI is presumed Dx. Not aware of urinary urge. Does sense voiding. Staff reports significant wetness 3-4 x/ shift requiring bedding change 1-2 x and nocturia at least 2-3 /wk.

Comprehensive Problem Focused Physical Exam

Vital Signs: BP 118/72 P 76 R 18 T 98.4 Wt 134 lbs Ht 5' 3"

General: cooperative, well nourished, older adult white female.

Function: requires 1-2 person assist for transfers (chair, bed, toilet), hygiene & clothing mgmt. Uses wheel chair. Often refuses and never requests toileting

Mental status: AAOX 2 (time) Names 3 common objects. MMSE = 16/30, Follows 2-step directions

Neuro: DTR's - 1+B (biceps, patellar, achilles); Sharp/Dull discrim - Neg @ feet; Gait – wide, unsure

Neck -supple, trachea midline, thyroid WNL

HEENT – Severe bilateral HOH, Wears eyeglasses, PEERLA

Chest – RR – 18, easy and regular, non-labored, lungs CTA bilaterally

CV/Heart – RRR – 76, no murmurs, edema; Nail beds pink w/ brisk refill, Pedal pulses +1 bilateral.

MS – Weak LE bilaterally 2/5, Wide based somewhat tenuous gait. Timed Get Up & Go Test >20 seconds

ABD – Rotund, midline lower abd. scar. Normoactive BS x 4. Dull to percussion - LUQ & SP. Non-tender x 4 w/ palpation, sausage like mass palpated in LLQ, Liver WNL, Spleen non-palpable

Skin – Healing Stage IV sacral pressure ulcer. Resolving rash @ groin, inner thighs & gluteal cleft.

Rectal – circumferential anal sphincter tone, no masses, small external hemorrhoid at 2 o'clock (not inflamed or thrombosed), large amount of firm stool rectum (last recorded BM 5 days ago)

GYN (supine, lithotomy) – Atrophied labia, Erythema (outer & inner labia), Small caruncle w/o bleeding @ urethral meatus; Stenosed vaginal introitus, Mucosa pale, dry; No discharge, odor, petechia, bleeding, tenderness; Adnexa non- palpable, Mild ant. Vag wall relaxation at rest w/ some anterior wall movement by palpation during cough. Cervix palpated posterior and high in vaginal vault.

GU - Unable to contract pelvic floor when requested but intact BCR & Anal reflexes. Toileted w/o desire, did not void, bladder scan read 425 ml and pad saturated with foul smelling urine. Before toileting, resident dribbled urine when turned side to side in bed and when stood for transfers.

Diagnostic Testing/Evaluation:

Recent Labs: B12, TSH, BUN, Cr, Ca, MCV, MCHC, Iron & TIBC all within normal limits. ↓ Transferrin sat. 10%, Hgb 10.5. ↑ - ESR 23mm/hr, Serum ferritin 120 ng/ml & WBC 13 K/μL, Left shift

Differential Diagnoses:

1. Paralytic Syndrome, likely a Chronic Demyelinating Polyneuropathy (CDP) due to its persistent & multifocal LE presentation.
2. Vaginal atrophy r/t reduced estrogen (menopause) & a Grade I Cystocele
3. Recurrent UTI (all Proteus mirabilis) with upper tract Sx's (pyelonephritis). The etiology is likely antegrade via the urethral catheter (common in LTC, esp. in atrophic females w/ alkyl urine). Bacterial clearing was been confirmed so this may, instead, represent Proteus persistence r/t undertreatment (pyelonephritis often requires 14 day) & resistance r/t repeated use of the same antibiotic in a short period. Urinary calculi, however, must be considered anytime a urease forming bacteria is persistent despite therapy
4. Urinary Incontinence, multifactorial, Dif Dx includes:
  - a. Impaired awareness of bladder filling may be afferent r/t the CDP or central r/t the CVA.
  - b. Stress urinary incontinence w/ either Intrinsic Sphincter Deficiency r/t prior incontinence surgery &/or vaginal/urethral tissue atrophy or Urethral Hypermobility.
  - c. Overflow UI: The leaks w/ movement may be r/t Impaired bladder emptying. If present, potential etiologies include Detrusor hypocontractility r/t overstretch or CDP and Bladder outlet obstruction r/t prior UI surgery, a bladder stone, stool impaction or combination. Notably, the upper involvement with the UTI's signals possible ureteral reflux r/t the overfull bladder.
5. Irrespective of type of UI, Functional incontinence is likely superimposed. Etiologies include, Dementia and impaired ambulation
6. Anemia of chronic disease r/t Recurrent/Chronic UTI vs An unknown chronic disorder.
7. Fatigue, difficulty walking & LE tingling may be r/t factors from post Paralytic Syndrome, Anemia &/or subtle CVA residual.

Plan of Care:

1. Additional Testing Needed

- a. Straight cath for U.A. w/ C&S to evaluate for crystals and confirm Proteus clearing now that catheter is out. Will treat based on sensitivity.
  - b. Bladder scans q 6hrs, Straight cath if > 300 ml (to reduce UTI's & leakage and to decompress the bladder). Attempt to get at least one bladder scans w/in 5-10 min of a void to determine Post-Void Residual.
  - c. Renal/pelvic ultrasound (R/O hydronephrosis and hydroureter)
  - d. KUB (R/O Bladder / Ureteral calculi & Fecal impaction).
2. Consultations and referrals
- a. Diagnoses & Plan discussed with Resident, her PCP, primary nurse and son -- all concurred. PCP ↓'d Lasix to 20mg qd and agreed to F/U on anemia if not soon resolved.
3. Evidence Based Therapeutic Interventions
- a. Prompted voiding q 2-3 hours (to improve awareness of bladder filling, facilitate its emptying and reduce leakage)
  - b. Continue Nystatin powder bid to groin & upper inner thighs until free of rash. If > 2 wks, notify ANP.
  - c. MOM 1 container now. Record BM's (to avoid impaction & facilitate bladder emptying).
  - d. Physical Therapy to maximize ambulation
4. Discharge Planning for transfer to next level of care
- a. As a long term care resident – there are no plans for transfer/discharge.
5. Expected outcome and measurement criteria
- a. Treat UTI – prevent recurrence
  - b. Treat constipation – increased frequency of stools
  - c. Decrease incontinent episodes/increase bladder emptying – decreased wetness
6. Advocacy
- a. LTC Residents/family members and nursing staff should be included in the planning of care.
7. Anticipatory Guidance and Teaching
- a. Staff education on prompted voiding, obtaining a true PVR & the rationale for regular bladder scans w/ straight caths. education related to signs and symptoms of UTI and worsening of her overflow UI,
  - b. Patient care givers were given role-specific education on the care of this patient that included measures to: prevent UTI, increase bladder emptying, prevent constipation

### Evaluation of Plan of Care:

One week later: Rash resolved, Bowels – 3 stools over the past week, soft but formed, voiding when toileted, still no awareness of urge, volume of incontinent episodes decreased in the late evening and night, bed linens no longer saturated with urine.

- U/A – WBC - 50-100, +4 Bacteria, +Nitrite, +Leukocytes , pH 7.0.
- C & S – >100,000 E-Coli, resistant to TMP/SMX;
- Random Bladder Scans: ranged 300-400 mls; PVR = 200 mls.
- Renal Ultrasound & KUB – no hydroureter, hydronephrosis, calculi, upper urinary tract obstruction or fecal impaction.
- Physical exam unchanged

#### Revised Diagnosis/Interventions

1. Recurrent & Complicated UTI –
  - a. Ciprofloxacin 500 mg BID x 7 days (difficult to assess if LUT symptoms due to cognitive status so its assumed she has Sx's & it's a true UTI, complicated by incomplete emptying & age)
  - b. Estring 2mg ring to attempt to enhance urethral resistance to bacterial translocation.  
Insert in vagina, remove after 90 days. No refills, if renewed, we will consider progestin opposition.
2. Functional UI - Continue prompted voiding & PT. Reinforce staff education
3. Impaired bladder emptying w/ Overflow UI
  - a. Bladder scans twice a day – morning and early afternoon.
  - b. Straight cath if greater than 400 ml
  - c. CMG at next visit (if free of UTI x 2 weeks) to explore etiology of impaired bladder emptying- detrusor hypocontractility vs bladder outlet obstruction as above
4. Constipation - Monitor bowel pattern, MOM PRN if no BM in 3 days.
5. Anemia of chronic Disease – Hgb remains at 10.5
6. Consultation: Diagnoses & Plan (esp. the Estring) discussed with Resident, her PCP, primary nurse and son -- all concurred. PCP agreed to explore cause of anemia.
7. Follow-up in one month

Follow-up One Month Later: No UTI symptoms. Bowels continue to move 3-4 times week, rash now resolved. GU findings:

- Bladder scans – 200-400 mls, commonly 200 ml. PM scans tend to be higher at 300-500mls.
- Staff has straight cathed at least 3-4 times a week for volumes > 400ml.
- Frequency of positively responses to offers of toileting assistance have increased  
Leakage is reduced, seems to be using ½ as many briefs.

Additional testing: Bedside CMG - Small bladder contraction at 250 ml filling, possibly worsened by the supraphysiological filling rate.

- Capacity – small (r/t overactive bladder, impaired compliance &/or Long Term catheter),
- Compliance – poor (likely r/t long-term catheterization),
- Sensation – Negative for filling, Positive externally for voiding.

#### Revised Diagnosis/Interventions:

1. Neurogenic bladder (sensory and motor) w/ impaired bladder emptying & Overflow UI –
  - a. Continue prompted toileting schedule

- b. Stop daily bladder scans
  - c. Daily straight cath at 2pm (4-6 hours after diuretic dose).to avoid bladder overstretch
2. Functional UI – continue prompted voiding / toileting schedule.
3. Risk for UTI (LTC resident, incontinence/wears containment product, incomplete emptying, catheterizations & hypoestrogenation
  - a. Monitor for s & s of UTI (especially changes in mental status, fever & abdominal pain).
4. Constipation - Resolved, continue current bowel plan, monitor for decreased stool frequency.
5. F/U in 2 weeks to eval for UTI and effectiveness of cath schedule.

#### Final Evaluation of Plan of Care

Bladder emptying improved with decreased diuretic dose and once a day straight cath (2 pm cath values 200-300 ml). Amount of UI improved (continued to be wet in the am but the volume of incontinence decreased, nighttime wetness decreased to only “saturated” early morning, damp at 12 midnight change, no bed changes needed) Risk of UTI reduced with regular toileting (includes staff giving GU hygiene) and reduction of urine stasis in the bladder so the Estring will not be renewed. Resident continues to need regular monitoring of bladder emptying. Although a full work up of her peripheral neurologic impairment seems excessive considering her age and health status, it should be considered if her neurological status declines in a way that is unexpected given her dementia.

#### Pertinent references

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