Journal of Kidney

OPEN ACCESS Freely available online

Case Study

# A Rare Case of Post-Operative Urinary Retention in Women Due to Detrusor Muscle Weakness: A Case Report

**Arpita Lahoti*, Surekha Tayade, Priti Ghanshyam Verma**

*Department of Obstetrics and Gynaecology, Jawaharlal Nehru Medical College, Datta Meghe Institute of Medical Sciences, Sawangi, Wardha, Maharashtra, India*

## ABSTRACT

**Introduction/Background:** Failure to empty bladder at the volume of 600 mL, a volume at which there is a strong desire to void, is called as urinary retention which is substantially more common in men and rare in women. Presenting complaint and investigations: patient after dilatation and evacuation after missed abortion experienced pain in bilateral flanks and was unable to pass urine. On per abdomen examination, previous Lower segment caesarean section scar was present, bladder was palpable but not tenderness was present. Soft, non-tender abdomen. On Per vaginal examination, uterus was bulky, anteverted and bilateral fornices were free. On admission ultrasonography was done that revealed over distended bladder (volume=600 cubic centimetre). No other abnormalities were seen. No Retained products of conception. further USG, CT scan and MRI was done along with urodynamic studies.

**The main diagnoses, therapeutics interventions, and outcomes:** There was no significant finding seen on CT scan and MRI. urodynamic studies were done which suggested that the cause for urinary retention could be detrusor muscle weakness. catherization was done.

**Conclusion:** Most likely the cause of urinary retention in this case is detrusor muscle weakness which can be secondary to nerve injury. Further studies will be required for the confirmation of the same for which patient is counselled. Although, dilatation and evacuation are a common and simple procedure, complications can happen in some patients. Early diagnosis and proper experience and training of the procedure can prevent such complications.

**Keywords:** Post-Operative urinary retention; Urinary retention; Detrusor damage; Muscle weakness; Detrusor muscle weakness

## OBJECTIVE

Urinary retention is inability of a person to pass urine which is more common in men and rare in women. Objective is to find out the cause of urinary retention in this patient and to treat the condition.

## BACKGROUND

Failure to empty bladder at volume of 600 mL, a volume at which there is a strong desire to void, is called as urinary retention [1]. It is one of the most common urological problem that leads to patients presenting to the casualty department. It is failure to pass urine which can be acute or chronic. Typically, a high post-urination residual, assessed by using a bladder scanner or ultrasound which detects volume of residual urine after urination, is used to make diagnosis. Because of benign prostatic hyperplasia, urinary retention is substantially more common in men. Obstruction and bladder muscle dysfunction are two most common reasons of chronic retention of urine in women [2-5].

### Presentation

A 22-year-old female patient underwent Dilation and evacuation for missed abortion at a Civil hospital. After the procedure she experienced pain in bilateral flank and was unable to pass the urine, for which she was catheterised and was given pain killers, after the removal of catheter she again experienced urinary retention. She was referred to AVBRH for further management. At AVBRH, catheter was re-inserted under all aseptic precautions and around 1 litre of clear urine was removed.

**Past medical and surgical history, and relevant outcomes from interventions:** Previously lower segment caesarean section was done.

**Other histories:** (Family history, habits) No significant Family history was there.

***Correspondence to:** Arpita Lahoti, Department of Obstetrics and Gynecology, Jawaharlal Nehru medical College, Datta Meghe Institute of Medical Sciences, Sawangi (Meghe) Wardha, Maharashtra, India; E-mail: arpita67@gmail.com

**Received:** December 03, 2021; **Accepted:** December 17, 2021; **Published:** December 24, 2021

**Citation:** Lahoti A, Tayade S, Verma PG (2021) A Rare Case of Post-Operative Urinary Retention in Women Due to Detrusor Muscle Weakness: A Case Report. J Kidney 7:256. doi-10.35248/2472-1220.21.7.256.

### Clinical findings

On physical examination, condition of patient was fair. Her pulse rate was 84beats/min; Blood pressure was 110/70. She was afebrile to touch. Her systemic examination was within normal limits.

On per abdomen examination, previous Lower segment caesarean section scar was present, bladder was palpable but not tenderness was present. Soft, non-tender abdomen.

On Per vaginal examination, uterus was bulky, anteverted and bilateral fornices were free. On admission ultrasonography was done that revealed over distended bladder (volume=600 cubic centimetre). No other abnormalities were seen. No Retained products of conception were there.

### Diagnostic assessments

Further, CT scan and MRI was done, there was no significant finding seen. No any calculi or other cause of obstruction or retention was noted.

Further, urodynamic studies were done which suggested that the cause for urinary retention could be detrusor muscle weakness.

Urosurgery opinion was taken and patient was managed conservatively, catherization was done, oral fluids and antibiotics were advised.

## DISCUSSION

Postoperative urinary retention (POUR) is not able to empty bladder even when having full bladder following a surgical treatment. It ranges from 5% to 70%, possibly due to absence of a uniform explanation of POUR used across studies [6]. Roughly, patients having general surgical procedures had 3.8 percent chance of developing post-operative Urinary retention [7]. Every year, around 3 instances per 100000 women are reported, with male to female ratio 3:1 [8].

## PATHOPHYSIOLOGY

The innervation of the bladder which are sympathetic and originates from the thoracic and lumbar part of spinal cord (Thoracic 10 to Lumbar2) stimulates hypogastric nerves which further stimulate base, bladder neck, and urethra all through the filling stage. It also supresses the detrusor muscle. pelvic nerves give parasympathetic innervation to the bladder (S2-S4) acts on the detrusor muscle and relaxes smooth muscle of the urethra at some stage in the emptying stage.

Simultaneously, the somatic or volitional neural system relaxes the outside sphincter of urethra through a nerve called as pudendal nerve which gives voluntary control to micturition. Surgeries can regulate the urinary signalling pathway in many other ways [9,10].

Nerve harm during any surgical procedure, cystotomy at the time of surgical operation, obstruction (due to collection of blood in vagina that is known as hematoma, vaginal packing by a gauze piece, sling, foreign body in urethra pelvic organ prolapse, any damage urethra, faecal impaction, and when floor of the pelvis fails to relax.) are a few different reasons of urinary retention. Medications used during and after surgical treatment such as glycopyrrolate, bupivacaine, atropine etc. may cause urinary retention [2] [11-13].

Anaesthesia, medicinal drugs, pain, and the physiologic modifications of surgical procedure itself in addition to nearby destruction, all have capacity to cause effect on a patient's ability to micturate.

Anaesthesia can also affect normal physiological micturition. General, local and spinal anaesthetics can all bring about Retention through suppressing urination control and reflexes at every levels of nervous system (pontine micturition center) and the volume of the PNS via stopping neural communication within the sacral spinal cord [9,10]. General anaesthetics relaxes smooth muscle and decreases the ability of bladder to contract whilst along with interrupting with the autonomic control of the muscle [14]. Spinal and epidural anaesthetics affect draining in an completely terrific way through interrupting the efferent and afferent nerves and micturition reflex arcs as they flow in and out of the cord and way up to primary centre of urination. [9] [14]

Perioperative drug treatments might also additionally moreover play a component in evolution of retention. Opioids, especially, decrease the sensation of distension of bladder through manner of approach of stopping the parasympathetic servicing of the bladder and additionally raise the tone of bladder with the aid of using overstimulation of the sympathetic nervous system resulting in hike in outlet block [15].

### Prognosis

The forecast of the retention is good, early detection and prompt treatment can cure it. Some troubles associated with longer urinary retention are renal inadequacy, infections of the urinary tract [12] [8] [16,17].

Most sufferers with retention of urine are treatable as an outpatient, there is no need for admission. Indications for admission include infections, malignancy, acute diseases of spinal cord or acute kidney failure [8] [18].

### Differential diagnosis

Causes of retention of urine and conditions that could mimic this are not restrained to obstruction. A blockage may additionally cease end result from pelvic mass/masses, stone in urethra, infection-causing inflammation in urethra, and narrowing, constipation, diverticulum(urethral)and neurological disorders or dysfunction [19].

## TREATMENT

If it develops, the bladder requires emptying. There is some controversy inside facet the writings regarding the placement of an indwelling catheter in preference to handling retention with intermittent catheterization. Some centers recommend later one as it reduces the chances of bacteriuria and theoretical infection [20]. Others tout the maximal decompression and bladder rest associated with indwelling catheterization and fear that intermittent catheterization can bring about over distension of the bladder, which has been verified to cause both acute and chronic detrusor decompensation [20,21].

Regardless of catheterization choice, the sufferer has to take an alpha-blocker, along with tamsulosin. Tamsulosin can take up to seventy hours to show maximal medicinal effect. Therefore, the recommendation for catheter removal and/or voiding trial should be done within 1 to 3 days of catheterization [22]. If an indwelling catheter is in place, there is no need for "bladder training" for the patient but if intermittent method is used then training is required [23]. Also important to maintain in thoughts is that POUR itself isn't always an indication for hospitalization as there may be no distinction in results among sufferers who continue to be within side the clinic earlier than a tribulation without catheter as opposed

to folks that pass domestic and go back to the health center for an ordeal without a catheter [24]. If an affected individual then fails to void after 72 hours or there is intuition for excessive voiding problems, then there is a need of urology opinion.

## Complications

Animal studies that exhibited detrusor muscle injury and reduced contractility demonstrated that an episode of retention of urine, whether after any operative procedure or otherwise, is an injury to the bladder [25].

The incidence of retention of urine in bladder can lead to variety of complications like:

1. Sudden retention can be very hurting.
2. Autonomic response over distension of bladder can cause vomiting, low blood pressure or high blood pressure, or even irregular heartbeats [9].
3. Urinary tract infection can result from post-operative Urinary retention by these 2 mechanisms: a) due to poor bladder emptying urine inside can cause infection (direct), b) by existing or intermittent catheterization (indirect) [6].
4. Undetected or late-detected After surgery might lead to bladder over distension and myogenic alterations in the bladder [26-31].

## Consultation

Further checking out and assessment rely upon bodily examination findings. The clinician must carry out a gynaecological examination and look for to vaginal defects. The clinician has to seek advice from neurosurgery Department for spinal trauma and Department of urology for further Urodynamic studies [8].

## CONCLUSION

Retention of urine after any surgical procedure is mostly due to nerve injury and obstruction. Other causes along obstruction were ruled out by examination and investigation. Therefore, most likely the cause of urinary retention in this case is detrusor muscle weakness which can be secondary to nerve injury. Further studies will be required for the confirmation of the same for which patient is counselled.

Although, dilatation and evacuation is a common and simple procedure, complications can happen in some patients. Early diagnosis and proper experience and training of the procedure can prevent such complications.

## REFERENCES

1. Evidence based practice of Anesthesiology (2nd edition), 2009.
2. Cheung F, Sandhu JS. Voiding dysfunction after non-urologic pelvic surgery. Curr Urol Rep. 2018;19(9):1-6.
3. Polat M, Şentürk MB, Pulatoğlu Ç, Doğan O, Kılıççı Ç, Budak MŞ. Postpartum urinary retention: Evaluation of risk factors. Turk J Obstet Gynecol. 2018;15(2):70-74.
4. Marinkovic SP, Ford JC. Improving clinical outcomes for women with overactive bladder or urinary retention symptoms: a comparison of motor response voltages (1–9 V) during Stage 1 sacral neuromodulation. BJU Int. 2018;122(3):472-479.
5. Justo D, Schwartz N, Dvorkin E, Gringauz I, Groutz A. Asymptomatic urinary retention in elderly women upon admission to the Internal Medicine department: A prospective study. Neurourol Urodyn. 2017;36(3):794-797.
6. Baldini G, Bagry H, Aprikian A, Carli F, Warner DS, Warner MA. Postoperative urinary retention: Anesthetic and perioperative considerations. J Am Soc Anesthesiol. 2009;110(5):1139-1157.
7. Tammela T, Kontturi M, Lukkarinen O. Postoperative urinary retention: II. Micturition problems after the first catheterization. Scand J Urol Nephrol. 1986;20(4):257-260.
8. Marshall JR, Haber J, Josephson EB. An evidence-based approach to emergency department management of acute urinary retention. Emerg Med Pract. 2014;16(1):1-20.
9. Kamphuis ET, Ionescu TI, Kuipers PW, de Gier J, van Venrooij GE, Boon TA. Recovery of storage and emptying functions of the urinary bladder after spinal anesthesia with lidocaine and with bupivacaine in men. J Am Soc Anesthesiol. 1998;88(2):310-316.
10. Matsuura S, Downie JW. Effect of anesthetics on reflex micturition in the chronic cannula-implanted rat. Neurourol Urodyn. 2000;19(1):87-99.
11. Sungur M, Baykam M, Calışkan S, Lokman U. Urethral calculi: A rare cause of acute urinary retention in women. Turk J Emerg Med. 2018;18(4):170-171.
12. He H, Tang C, Yi X, Zhou W. Herpes zoster-induced acute urinary retention: Two cases and literature review. Niger J Clin Pract. 2018 Apr 4;21(4).
13. Prattley S, Voss J, Cheung S, Geraghty R, Jones P, Somani BK. Ureteroscopy and stone treatment in the elderly (≥ 70 years): prospective outcomes over 5-years with a review of literature. Int Braz J Urol. 2018:750-757.
14. Darrah DM, Griebling TL, Silverstein JH. Postoperative urinary retention. Anesthesiol Clin. 2009;27(3):465-484.
15. Elsamra SE, Ellsworth P. Effects of analgesic and anesthetic medications on lower urinary tract function. Urol Nurs. 2012;32(2):8.
16. Declemy A, Chesnel C, Charlanes A, Le Breton F, Ismael SS, Amarenco G. Specificity of lower urinary tract symptoms in neuromyelitis optica in comparison with multiple sclerosis patients. Int Neurourol J. 2018;22(3):185.
17. Čadková I, Huvar I. Vaginal reconstruction for the remedy of pelvic organ prolapse: The effect, influence on urinary and sexual function and quality of life in two-years follow-up Part II-Urinary tract: Function and complications. Ceska Gynekol. 2018;83(2):94-102.
18. Chapman GC, Sheyn D, Petrikovets A, Mahajan ST, El-Nashar S, Pollard R, et al. Tamsulosin to prevent postoperative urinary retention after female pelvic reconstructive surgery. Female Pelvic Med Reconstr Surg. 2020;26(11):682-687.
19. Chern BZ, Rajaraman S, Verma G, Heng KW. Unusual case of acute urinary retention in a young female. Case Rep. 2017.
20. Oishi CS, Williams VJ, Hanson PB, Schneider JE, Colwell Jr CW, Walker RH. Perioperative bladder management after primary total hip arthroplasty. J Arthroplasty. 1995;10(6):732-736.
21. Bross S, Schumacher S, Scheepe JR, Zendler S, Braun PM, Alken P, et al. Effects of acute urinary bladder overdistension on bladder response during sacral neurostimulation. Eur Urol. 1999;36(4):354-359.
22. Yoon PD, Chalasani V, Woo HH. Systematic review and meta-analysis on management of acute urinary retention. Prostate Cancer Prostatic Dis. 2015;18(4):297-302.
23. Zhengyong Y, Changxiao H, Shibing Y, Caiwen W. Randomized controlled trial on the efficacy of bladder training before removing the indwelling urinary catheter in patients with acute urinary retention associated with benign prostatic hyperplasia. Scand J Urology. 2014;48(4):400-404.

24. Djavan B, Madersbacher S, Klingler C, Marberger M. Urodynamic assessment of patients with acute urinary retention: Is treatment failure after prostatectomy predictable?. J Urol. 1997;158(5):1829-1833.

25. Gosling JA, Kung LS, Dixon JS, Horan P, Whitbeck C, Levin RM. Correlation between the structure and function of the rabbit urinary bladder following partial outlet obstruction. J Urol. 2000;163(4):1349-1356.

26. Pavlin DJ, Pavlin EG, Gunn HC, Taraday JK, Koerschgen ME. Voiding in patients managed with or without ultrasound monitoring of bladder volume after outpatient surgery. Anesth Analg. 1999;89(1):90-97.

27. Bhokardankar PS, Rathi B. Indigenous wisdom of Ayurvedic drugs to treat Urinary tract infections. Int J Ayurved Med. 2020;11(3):370-377.

28. Jankar JS, Harley KN, Mohod KM, Babar VY. Association of Urinary Albumin with HbA1c Levels in Subjects of Type 2 Diabetes Mellitus in Central India. J Evol Med Dent Sci. 2020;9(52):3921-3926.

29. Wadekar A, Gupte Y, Godhiwala P, Lahole S, Agrawal S, Kumar S. Emphysematous cystitis an unusual case of urinary tract infection in long standing rheumatoid arthritis; A case report. Med Sci. 2020;24(105):2993-2996.

30. Palkrit S, Naqvi WM, Burhani T. Physiotherapeutic Approach in Stress Urinary Incontinence with Prolapsed Uterus: A Case Report. Journal of Pharmaceutical Research International. 2021;33(34)54-59.

31. Bele AW, Qureshi MI. Impact of Electrotherapy or Muscle Training on Quality of Life in Urinary Incontinence of Male Geriatric Population-A Protocol. J Clin Diagn Res. 2021;15(3).