



**A case report of bladder stones associated with spinal cord injury (SCI)**

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**Abstract**

Bladder stones are common in people who have had a spinal cord injury. Recurrent urinary tract infections with urease-producing organisms, poor bladder emptying, use of permanent catheters, immobilisation, and hypercalcuria all raise the risk of bladder stones. Appropriate bladder management can help patients avoid subsequent problems and improve their quality of life. We reported a case of bladder stone formation after 4 years in a patient with a history of spinal cord injury. On x-ray of the kidney-urinary bladder, a radio-opaque shadow was seen. On ultrasonography, echogenic foci of 4.3 cm in the urinary bladder with cholelithiasis were observed. On that basis, the patient planned for cystolithotomy. Intra operative-tansverse incision given, bladder opened after taking stay sutures, and about 4 cm of stone retrieved.

**Keywords:** Bladder Cancer, SCI,

**Introduction**

Recent medical advancements have significantly improved the long-term survival of those who have had a spinal cord injury (SCI). However, because patients with SCI are predisposed to a variety of urological problems such as urinary tract infection, incontinence, renal failure, morphologic alterations of bladder and urethra, and bladder cancer [1-2], urologists continue to have difficulties managing these patients. Urinary stone illness is a serious and common complication of SCI. In the first eight years following an injury, it was projected that 7% of patients would acquire their first kidney stone [3] and 36% would develop the first bladder stone [4].

Bladder stones are common in people who have had a spinal cord injury. Recurrent urinary tract infections with urease-producing organisms, poor bladder emptying, use of permanent catheters, immobilisation, and hypercalcuria all raise the risk of bladder stones [2, 5]. Although bladder stones may be efficiently handled once they form, doctors continue to face substantial challenges

with predictive and preventative interventions. The appropriate bladder management can help patients avoid subsequent problems and improve their quality of life.

### Case Report

A 65-year-old female presented to Dr. RPGMC, Tanda, with acute urinary retention for the previous 12 hours. On history taking, she had a history of increased frequency of micturition and burning micturition for the last 1 month. There were already 2 episodes of urinary retention managed at the peripheral institute by catheterization at that time. The patient had a history of spine surgery four years ago, but no history of urinary incontinence after surgery. The lower abdomen was distended on examination, with the bladder palpable, and the rest of the systemic examination was within normal limits. The patient was catheterized and admitted for further workup. About 1000 ml drained slowly after catheterisation. On x-ray of the kidney-urinary bladder, a radio-opaque shadow was seen. On ultrasonography, echogenic foci of 4.3 cm in the urinary bladder with cholelithiasis were observed. On that basis, the patient planned for cystolithotomy. An intraoperative transverse incision was made, the bladder was opened after stay sutures were placed, and approximately 4 cm of stone was removed. The bladder was closed in two layers, and the drain was kept in a retro public space. On the fifth post-operative day, the drain was removed, and the patient was discharged on the seventh day.



Figure 1: Image showing X-ray of previous spinal cord injury and bladder stone

### Discussion

Bladder stones are a common urological problem for people with SCI [6]. Recurrent urinary tract infections with urease-producing organisms, poor bladder emptying, use of permanent catheters, immobilisation, and hypercalcuria all raise the risk of bladder stones [2, 5]. The risk of bladder stones varies depending on how well the bladder is managed. A greater risk of stone development is related with indwelling catheters. In SCI patients with indwelling catheters, the absolute annual risk of bladder stone formation is 4%, compared to 0.2% for those on intermittent self-catheterization [7]. Within eight years, it is anticipated that 36% of patients with indwelling catheters acquire bladder stones, and indwelling catheters for more than a month were proven to be a risk factor for bladder stone development in SCI patients [8-9].

In our case, we observed that the patient had developed a bladder stone within four years of SCI. One plausible explanation is that the SCI patients we followed were getting older, which leads to greater rate of bladder management with indwelling catheters due to the increased morbidity of the elderly. This must be considered when following up on SCI patients in order to detect bladder stones early and avoid complications. Appropriate bladder management can help patients avoid subsequent problems and improve their quality of life.

### Conclusion

In people who have a long-term spinal cord injury, the way the injury happened is important for the development of a bladder stone. In this case study, we observed bladder stones formation within four years of SCI. The first step is to ensure that these patients are getting enough fluids and are able to empty their bladder properly, especially if they are on an intermittent

catheterization as well as periodic evaluation of bladder stones is necessary, even if they are asymptomatic. Therefore, appropriate bladder management can help patients avoid subsequent problems and improve their quality of life.

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