



## A CASE REPORT OF MULTIPLE VESICAL CALCULI POST AUGMENTATION CYSTOPLASTY WITH MITROFANOFF WITH AN UNUSUAL PRESENTATION OF ACUTE GASTROENTERITIS AND SEPTIC SHOCK

### Urology

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### ABSTRACT

The incidence of calculus in augmented cystoplasty with Mitrofanoff on Clean Intermittent Catheterisation (CIC) is close to 30%. Mostly these patients present with supra pubic pain or urinary symptoms. The case reported here, presented with an unusual presentation of Acute Gastroenteritis and Septic Shock. He was having multiple vesical calculi in an augmented bladder with Mitrofanoff and was on regular CIC. Further, he underwent evaluation and after confirming the diagnosis, we performed Open Cystolithotomy and removed 540 gm of stones from the bladder. Post-operative period was uneventful, and the patient was discharged in hemodynamically stable condition. This type of presentation is unusual and has not been reported in the literature so far, it is to emphasize that high index of suspicion is required for early diagnosis of similar entity and to initiate appropriate management. Moreover, such complex cases should preferably be managed in a tertiary care center with a multidisciplinary team approach for better outcome.

### KEYWORDS

Giant Vesical Calculi, Acute Gastroenteritis, Septic Shock, Mitrofanoff, Clean Intermittent Catheterization (CIC).

### INTRODUCTION:

Any urinary bladder calculus of >4 cm in size or >100 gm in weight is known as Giant Bladder Calculus. The incidence of calculus formation in augmented cystoplasty with Mitrofanoff on Clean Intermittent Catheterisation (CIC) is close to 30 %. Such patients mostly present with suprapubic pain or urinary symptoms like frequency, urgency, and dysuria. Here, we present the case report of a patient who presented with an unusual presentation of Acute Gastroenteritis along with Septic Shock and was having multiple vesical calculi in a post augmented cystoplasty with Mitrofanoff on CIC for last 18 years. There is no mention of similar presentation in the literature so far.

### CASE STUDY:

The case reported here is of a 24-year-old gentleman, known case of Epispadias with Bladder Exstrophy with Posterior Urethral Valve (PUV). There was history of 2 interventions before the age of 2 years for the same with no records being available at the time of admission. Also, gave history of Neurovesical Dysfunction, and at the age of 6, underwent Augmentation Cystoplasty with Mitrofanoff since then he is on regular CIC.

This patient presented to our Emergency Medicine Department (E med) with the chief complaints of fever for 5 days, Abdominal pain for 3 days, Loose stool for 3 days (multiple episodes), Vomiting for the last 2 days (multiple episodes). At the time of arrival in the E med, Patient was drowsy with eye opening to verbal commands. On examination, Pulse was 120/minute, regular and feeble, Blood Pressure of 80/60 mmHg, Saturation 80 % on room air. After triage, he was stabilised in the E med with fluid rush, O<sub>2</sub> and other supportive care. Abdominal examination showed Mitrofanoff opening at the umbilicus, Foley catheterization through the Mitrofanoff drained 1500 ml of turbid urine. Additionally, there was a hard mass palpable in the hypogastric region extending towards both the iliac fossa. Furthermore, biochemical, and haematological analysis showed hemoglobin of 10.4 gm/dl, White Blood Cell count of 18,600/μL, Platelet Count of 35000/ μL, Serum Creatinine was 2.4 mg/dl. Also, sample was taken for culture of blood, urine, and stool. Ultrasonography of the Abdomen and Pelvis, CT-KUB plain (Computed Tomography-Kidney Ureter Bladder) showed bilateral bulky kidneys with mild hydroureteronephrosis, perinephric fat stranding and multiple vesical calculi.

He was admitted, started on broad spectrum intravenous antibiotic. Subsequently, inotropic support was started when the blood pressure did not show any improvement to fluid challenge. Later, antibiotic was changed as per the culture sensitivity report with blood and urine both growing *E. coli*. In view of worsening acidosis with hemodynamic instability and deterioration, patient was intubated, single donor platelets were transfused, Hemodialysis was initiated. In addition, due to ongoing sepsis and increasing requirement of inotropes, after discussion with the Intensivist, Nephrology team and Patient's caretaker collective decision was taken to go ahead with the exploration after maximum possible optimization of the patient. Open Cystolithotomy through infra-umbilical incision was done with extra-peritoneal approach and bladder was opened, small and large put together 24 stones were removed weighing a total of 540 gm as shown in the figure 1 & 1 below. The reservoir was found to be dilated with capacity of close to 2 liters and with multiple folds within. Bladder was closed, and a drain tube placed. Abdominal closure was done. Post-operatively patient's condition showed satisfactory recovery, he was off inotropes and extubated, White Blood Cell count came down to 8700/μL, Serum Creatinine level was 0.5 mg/dl. Drain tube and sutures were removed on post-operative day 5 and 10, respectively. Chemical analysis of the stone came as struvite and we discharged him on CIC again. At present patient is on regular follow-up with no complaints.

Figure 1: CT – Scan images showing multiple large calculi in Antero-Posterior view in image -1 and Sagittal view in image-2



Image:1 Antero-Posterior view



**Image:2 Sagittal view**

Figure 3 : Showing multiple vesical calculi intra-operatively in image-3 and multiple calculi (specimen) after retrieval in image-4



**Image: 3 intra-operatively showing multiple vesical calculi in situ.**



**Image: 4 Showing multiple calculi after retrieval**

## DISCUSSION:

Urinary bladder stone formation in a post augmented cystoplasty with Mitrofanoff is a late complication and is not uncommon. As compared to general population, bladder calculi in augmented bladder with patient on CIC is 5 times more common.<sup>1</sup> Similarly, if its associated with Mitrofanoff it is 10 times more common.<sup>2</sup> Blyth et al. in their study showed that the incidence of bladder stone formation was 30% in entero-cystoplasties with Mitrofanoff conduit, where CIC was used as a method to empty the bladder.<sup>3</sup> On literature search we could only find 1 case reported by Parmar K et al. in 2018 as an unusual presentation of giant bladder calculus in an augmented bladder that had led to acute renal failure.<sup>4</sup> The index case presented with symptoms and signs suggestive of Acute Gastroenteritis and Septic Shock. We could not find any description of such an unusual presentation in the literature for giant multiple vesical calculus in an augmented bladder with Mitrofanoff and on CIC. Even though it is difficult to attribute this kind of presentation to any specific cause in the case reported here, Post-augmentation diarrhoea which is one of the late complications<sup>5</sup> may have contributed along with urosepsis leading to a confusing picture of acute gastroenteritis and sepsis. Indeed, once we found the problems, immediate and right actions by a multi-disciplinary team approach led to an avoidance of untoward complications and positive outcome.

Any urinary bladder calculus of >4 cm in size or >100 gm in weight is known as Giant Bladder Calculus. Arthure H, in 1953, reported the largest calculus in the bladder diverticulum weighing 6294 gm.<sup>6</sup> Similar to the case reported here, Kumar S et al. in 2015 reported a case of having largest vesical calculus weighing 1400 gm formed in the

bladder post augmented cystoplasty.<sup>7</sup> Such large size bladder calculus are not as commonly seen in today's practice probably due to the improvement in the delivery and advances in healthcare.

In the case reported here, Once the patient was stable enough for the procedure, we did Open Cystolithotomy due to large and multiple stones. Importantly, after delivery of all the stones from the bladder, we did the closure in double layer. Intra-operative and Post-operative course were uneventful with satisfactory recovery.

## CONCLUSION:

These patients with augmented cystoplasty with Mitrofanoff and on CIC are at high risk of developing vesical calculus and to avoid such complications it is important to keep such patients on regular follow-up with optimal drainage of the bladder. Given the background history, as this type of presentation is unusual, high index of suspicion is required for correct and early diagnosis of similar problem. Furthermore, such complex cases should preferably be managed in a tertiary care center with a multi-disciplinary team approach for better outcome.

## Conflict of Interest: Nil

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