

Short Report

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Recrudescence of pouch calculi in cutaneous continent diversion

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Abstract

Reservoir pouch calculi are the most common complication following continent urinary diversion. The presence of calculi in the neobladder can be silent or provoke flank pain, hematuria, and urinary tract infections. Minimal invasive interventions like endoscopic or percutaneous retrieval in smaller calculi to open surgical approaches in large calculi is some of the treatment modalities. Here we present a 34-year-old patient who is a known case of exstrophy-epispadias complex, underwent bladder closure at one year of age and continent cutaneous urinary diversion (Modified Indiana pouch) 26 years ago. Plain and contrast computerized tomography showed multiple large calculi six in number, inside the pouch. In this case, the calculi were successfully managed through an open surgical approach.

Keywords: Pouch calculi; Modified indiana pouch; Poucholithotomy.

Introduction

Reservoir pouch calculi are the most common complication following continent urinary diversion. In the continent cutaneous diversion, calculi appear to be more prevalent than orthotopic diversions [1]. The formation of pouch calculi is driven by urinary stasis caused by poor voiding, urinary infection with urea-splitting bacteria, encrustation on a foreign body, mucus, and metabolic acidosis [2]. After Indiana pouch modification, the reported incidence of stones associated with urinary diversion ranged from 11% to 12.9%. Furthermore, within 3-5 years of prompt treatment, these stones have a recurrence rate of 33-63% [3]. The presence of calculi in the neobladder can be silent or provoke flank pain, hematuria, and urinary tract infections. Minimal invasive interventions like endoscopic or percutaneous retrieval in smaller calculi to open approaches in large calculi are some of the treatment modalities [4]. We present a case of recurrent pouch calculi in post-cutaneous continent diversion and its successful management through an open surgical approach.

Case history

A 34-year-old male presented with fullness in the flank and intermittent left flank pain for two months. Patient is a known case of exstrophy-epispadias complex who underwent bladder closure at one year of age and continent cutaneous urinary diversion (Modified Indiana pouch) 26 years ago. The patient had a history of Poucholithotomy 12 years back for similar complaints. A plain X-ray showed radiopaque shadow in the right lumbar region. Plain and contrast computerized tomography showed multiple large calculi six in number, with the most giant measuring 5 cm × 3.6 cm hyperdense calculi (1035 HU) inside the pouch (Figure 1). Open poucholithotomy was performed through a right-sided paramedian incision, medial to the stoma. Neobladder was identified and was opened along the teniae coli. Complete stone clearance was achieved. Six calculi were removed intact (Figure 2). The neobladder was closed in two layers, and a 24 Fr abdominal drain was placed. Neo-bladder was catheterized with 14 Fr Foleys. The perioperative period went off without a hitch, and the drain was removed on day four after surgery. On the fifth day, the patient was discharged

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with instructions for regular catheterization and follow-up. After three weeks, the catheter was removed and regular clean intermittent catheterization was resumed. Calcium phosphate, calcium carbonate, and urate were found in the stone.



Figure 1: The continent urinary reservoir with numerous calculi, as shown on computed tomography.



Figure 2: Multiple calculi retrieved from the pouch.

Discussion

The management of urinary calculi in the neobladder is challenging. However, the therapeutic concepts are essentially unaltered from those used to treat calculi in a regular bladder. Laparoscopic and Endoscopic retrieval, percutaneous removal of calculi have all been recorded in patients with modest stone burden [5]. Endoscopic management using a Mitrofanoff catheterizable conduit is not encouraged since the continence mechanism may be disrupted [6]. For large stone loads, open cystolithotomy is often preferable. Despite the fact that urolithiasis is managed in such cases, recurrence is common. Cohen et al. observed a 63% recurrence rate after a 5-year follow-up period [7]. The reservoir's constant mucus production creates a nidus for stone recurrence. This emphasises the need of proper reservoir drainage and irrigation in preventing stone recurrence.

Stone recurrence is fostered by persistent mucus production in the reservoir. This emphasises the need of proper reservoir drainage and irrigation in minimizing recurrence of stones [8]. Open poucholithotomy was preferred in our case, as it seemed the best option for managing such an enormous stone burden in the pouch. Regular and efficient reservoir draining, can help to reduce stone recurrence within continent diversion.

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