Abstract:
Twenty three year old gentleman who is known case of exstrophy with epispadias had undergone cystectomy with catheterisable LeBag ileocolonic pouch construction in 1999. Epispadias repair was performed in 2004. He has had history of recurrent pouch calculi for which he had undergone open pouchotomy and stone removal twice. Examination revealed a battlefield abdomen. His Renal Function Tests were within normal limits. USG and CT revealed a very large capacious pouch with multiple hyperechoic shadows. Both kidneys showed mild PCS dilatation with no hyper echoic shadows. In view of the scarred abdomen we opted for a percutaneous endoscopic preserving the continent mechanisms. We used the PCNL sheath and scope for the same. We report it for the rarity of intervention and difficulties we faced.

Keyword: pouch calculus, lebag, percutaneous, lithotripsy, exstrophy

Introduction:
Advances in urinary diversion techniques have greatly improved the health-related quality of life of patients who require diversion. While most patients do well after surgery, various long-term complications can occur, including stomal stenosis, ureterointestinal anastomotic stricture, chronic renal insufficiency, vitamin B12 deficiency, electrolyte abnormalities, diarrhoea, and UTIs depending on the type of diversion. These patients are at increased risk of urolithiasis, which can cause sepsis, pouch infection, pyelonephritis, renal insufficiency, haematuria and pouch perforation.

The prevalence of urolithiasis in patients with urinary diversions varies from 3 to 43% depending upon the series.
The incidence of upper tract stones in patients with urinary diversions is comparable with the general population.

Case History:
A twenty three year old gentleman, a known case of exstrophy with epispadias had undergone cystectomy with catheterisable LeBag ileocolonic pouch construction in 1999.
Epispadias repair was performed in 2004. He has had history of recurrent pouch calculi for which he had undergone open pouchotomy and stone removal twice. Examination revealed a scarred abdomen. Urine culture was of growth of Proteus. His Renal Function Tests were within normal limits. He presented to our OPD with complaints of right lumbar region pain. He was on clean intermittent catheterization of the stoma. USG and CT revealed a very large capacious pouch with multiple hyperechoic shadows. Both kidneys showed mild PCS dilatation with no hyper echoic shadows. In view of the scarred abdomen a percutaneous endoscopic preserving the continent mechanisms was opted.

Under fluoroscopic control, a transstomal pouch ureteroscopy was performed which revealed the multiple pouch calculi. After introducing an infant feeding tube into the stoma, pouchography was performed which revealed a very large capacious pouch extending from the subhepatic region to the iliac crest. A point 4cms lateral and above the stoma was chosen for the puncture and a safety Terumo guidewire was placed in the pouch. After placing a metal guide rod, telescopic dilatation of the tract was done using Alkens Dilators. 24 Fr nephroscope was introduced through the...
Amplatz and the stones were broken into fragments using pneumatic lithotripsy. They were removed by a combination of grasping and irrigation – suction. A 28 Fr drain was placed through the operative site at the end of the procedure. The pouch was also drained by 14 Fr silicone catheter through the stomal site.

Fluoroscopy revealing the radioopaque shadows in pouch Pouchogram

Initial puncture Amplatz Sheath placement
Post Pneumatic lithotripsy Coaxial Telescopic dilatation of the tract
The postoperative period was uneventful. The percutaneous puncture site was slowly downsized to 14Fr and removed and strapped on the fourth postop day. Stomal catheter was removed the next day and CIC was restarted. The patient was taught to irrigate the pouch with soda bicarbonate solution and started on oral sodamint.

Postoperative Xray
Discussion:
Risk factors for stone formation in continent reservoirs are directly related to residual urine, build-up of mucus, acidic urine and bacterial colonization. These factors are exacerbated by not irrigating the pouch and in not alkalanising the urine. Different methods have been described to manage reservoir and neobladder stones. Access to stones within the reservoir can be accomplished in many ways. The simplest and least invasive is a transstomal approach; however, the continence mechanism incutaneous reservoirs is often fragile, placing the patient at risk of stomal stenosis or incontinence when a transstomal approach is used. This approach is therefore discouraged except for very small stones requiring minimal manipulation. In most cases, the stoma should only be used as a means of filling the pouch.

Percutaneous access is often ideal in neobladder or reservoir patients because it allows the greatest flexibility for instrumentation. Before access, preoperative imaging should be carefully reviewed to delineate the location of adjacent bowel and vascular structures that may be encountered with access and instrumentation. Ultrasound guidance is useful as adjacent bowel can be clearly determined when introducing the percutaneous finder needle. Additionally, placement of a flexible endoscope transstomally allows visualization of the access and dilation process. One or two Amplatz sheaths may be placed as needed to facilitate stone removal. Laparoscopic trocars can also be used. To avoid damage to the intestinal mucosa, stones can be placed into a laparoscopic endocatch bag. Stone fragmentation can then proceed inside the bag, or widening the skin incision and removing the bag and stones together can remove the stone intact. Fluoroscopy is a useful adjunct during these cases as it can help detect residual fragments, which often hide within mucosal folds. If intracorporeal lithotripsy is inevitable, ultrasonic lithotripters are preferable to the electrohydraulic variety. The ultrasound waves cause far less mucosal trauma compared with electrohydraulic lithotripters. Another distinct advantage of the ultrasonic lithotripter is the ability to simultaneously suction out stone fragments, making the process more efficient. Stones as large as 5 cm and multiple calculi can be treated successfully using these techniques.

References:

