



A CASE OF STONE FORMATION IN ILEAL CONDUIT AND XANTHOGRANULOMATOUS PYELONEPHRITIS OF LEFT KIDNEY AFTER RADICAL CYSTOPROSTATECTOMY AND LEFT OPEN PYELOLITHOTOMY

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ABSTRACT

Ileal conduit (IC) is the standard urinary diversion following radical cystectomy. It is the simplest type of conduit diversion to perform and is associated with the fewest intraoperative and immediate postoperative complications.

The formation of stone in the IC is relatively rare complications of the procedure.

A 45 yr old male patient who presented with 6cm large stone in IC and XGPN changes in left kidney ,10yrs after laparoscopic radical cystoprostatectomy and left open pyelolithotomy. Ileal conduit opened through right paramedian incision and stone extracted and Left subcapsular nephrectomy done through left flank approach. This case suggests that longterm followup is necessary after radical cystectomy and ileal conduit for urinary diversions.

KEYWORDS : Ileal conduit stone,XGPN,Radical cystoprostatectomy

CASE REPORT:

A 45 yr old male patient ,resident of Ganapadu village,Guntur district came with chief complaints of pain in left loin and fever since 20 days.Pain:dull aching ,intermittent,non radiating.Fever:low grade,associated with chills and rigors.He underwent laparoscopic radical cystoprostatectomy with ileal conduit for bladder carcinoma (TCC grade 2)in 2008 at a private hospital.

- Intraop Findings:1.large tumor involving bladder right side with e/o perivesical fat plane edematous
 2.no e/o serosal disease
 3.both ureters normal
 4.no e/o b/l pelvic nodes

followed by left open pyelolithotomy for left renal pelvic calculus after one month in the same hospital. Later he presented with b/l multiple ureteric calculi for which left PCN was done.He has accidentally removed his PCN after 1 month. He hasn't gone for follow up till 2018. He presented to our dept in October 2018 with chief complaints of left loin pain and fever.DM+HTN+. O/E moderately built and nourished . Vitals stable. p/a -,lower midline scar +,left loin scar+,ileostomy site healthy, soft,nontender, mass palpable near ileostomy site—mobile ,smooth ,nontender.finger cant be introduced through ileostomy opening beyond rectus sheath.DRE-no abnormality detected.CVS and RS -NAD. Blood investigations are normal.

USG KUB findings:

Hypoechoic mass in midpole of right kidney.
 XGPN-left kidney.Hyperechoic area 6*4.5 cm in RIF with dense posterior shadowing

Intravenous urogram:

Right:normal uptake and excretion
 Left: multiple ROD's seen at L2 level largest measuring 3.0cm No uptake of contrast seen.non visualized kidney ROD of size 6*5 cm noted in right side of pevis



FIGURE 1:X-RAY KUB



FIGURE 2:XRAY-LATERAL FILM



FIGURE 3:IVP-7 MIN



FIGURE 4:IVP-15 MIN



FIGURE 5:IVP-45 MIN

CT KUB:

Right – solid renal mass arising from lateral aspect of midpole, no e/o calculus or hdun
 Left-multiple renal calcifications with renal pelvic calculus of size3 cm,with perinephric fat stranding noted
 Calculus of size 6.6*5 cm noted in right side of pelvic region- Ileal conduit stone



FIGURE 6:CT KUB-showing left XGPN kidney with calculus and hypodense lesion in right kidney

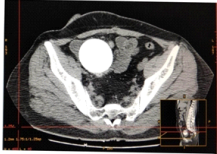


FIGURE 7:CT KUB showing 6.6*5 cm calculus in ileal conduit



FIGURE 8:CT KUB showing calculus in left kidney with XGPN changes and ileal conduit stone

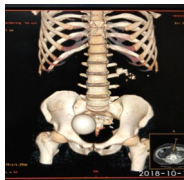


FIGURE 9:CT KUB-3D reconstructed image showing left renal calculus and ileal conduit stone

FNA taken from hypoechoic mass lesion from right kidney.
Report : paucicellular cytosmears show neutrophils and hemorrhage in the background.No e/o malignant cells.

2d echo: normal study with EF-65% Urine culture :E. coli positive sensitive to piptaz,imipenem,nitrofurantoin.Started on antibiotics. Repeat urine culture was negative.

DTPA showed no function in left kidney(0%)
Pt was posted for surgery
Combined EA +GA given
Left open subcapsular nephrectomy +ileal conduit stone removal done

INTRAOP FINDINGS:

11th rib incision given for nephrectomy
Pyonephrosis noted
Left Nephrectomy done and sent for HPE
Right paramedian incision given for extracting stone
Dense bowel adhesions noted
Incision given on antimesenteric border of the bowel
Stone extracted
Malecots kept in ileal conduit after closing bowel wall
Two adk drains kept-one at nephrectomy site,one at ileal conduit site



FIGURE 10:intraoperative image showing right paramedian incision. Ileostomy is visible at the lateral margin



FIGURE 11:Intraoperative image showing extraction of stone from ileal conduit

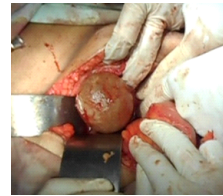


FIGURE 12: Intraoperative image showing ileal conduit stone after extraction



FIGURE 13:6.6*5cm ileal conduit stone

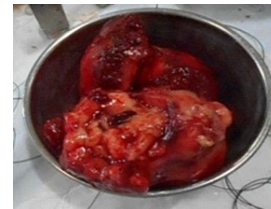


FIGURE 14:nephrectomy specimen

Drain at nephrectomy site-initially 200ml,decreased to <10ml by 7th POD
Pelvic drain-initially 50 ml to nil by 3rd POD
Pelvic drain removed on 5th POD
Drain at nephrectomy site removed on 9th POD
HPE of nephrectomy specimen showed features consistent with chronic pyelonephritis.
Pt condition is satisfactory at the time of discharge.

DISCUSSION

Advances in urinary diversion techniques have greatly improved the health-related quality of life of patients undergoing radical cystoprostatectomy. Longterm complications include stomal stenosis, uretero-intestinal anastomotic stricture, chronic renal insufficiency, vitamin B12 deficiency, electrolyte abnormalities, diarrhoea,UTIs and increased risk of urolithiasis.

The most popular diversions to date are made from ileal or ileocolonic segments. Noncontinent ileocutaneostomy or Bricker diversion is the most frequently used type of diversion, popularized by Bricker [1].

INCIDENCE:

The development of urolithiasis in patients with an ileal conduit is a common complication after radical cystectomy. Its incidence has been reported to be between 2.6% and 15.3%.[2]

RISK FACTORS:

Patients with urinary diversions are at increased risk of upper tract stones as well as calculi within the diversion segment.

Factors promoting stone formation include Bacterial colonization
Diversion-associated urinary metabolic derangements.

Urinary stasis, Reflux of mucus into the upper tract Exposure of nonabsorbable surgical material, such as staples, to urine within the reservoir.

Colonization rates range from 14 to 96%[3]

In patients with conduits, the most common colonizers were skin flora such as *Streptococcus spp.* and *Staphylococcus epidermitis*[4]

Since most patients are reconstructed with refluxing uretero-intestinal anastomoses, the upper tracts often become colonized with urea-splitting organisms.

These bacteria include *Klebsiella spp.*, *Pseudomonas spp.*, *Proteus spp.*, *Providencia spp.*, *Ureaplasma urealyticum*, *Staphylococcus spp.*, *Citrobacter freundii*, *Streptococcus spp.*, and *Enterococcus spp.* They increase the formation of triple phosphate stones.

The use of colonic or ileal segments for bladder substitution results in a hyperchloremic metabolic acidosis. This leads to hypercalciuria, hypocitraturia, alkaline urine, abundant ammonium and phosphate ions, each of which promotes stone formation.

SURGICAL MANAGEMENT:

There are various endoscopic techniques available for management of stones in ileal conduit, including laser and pneumatic lithotripsy, ESWL. Access can be transtomal or percutaneous. But for larger stones, sometimes open approach is needed to prevent residual stone and also for patients who do not come to followup regularly.

XGPN kidney definitely indicates surgical management which includes nephrectomy. When diffuse and extensive disease into the retroperitoneum exists, removal of the kidney and perinephric fat may be needed. It is important to remove the entire inflammatory mass because in nearly three fourths of patients, xanthogranulomatous tissue is infected. So open nephrectomy is a reasonable approach for XGPN.

CONCLUSION:

Urinary diversion is performed frequently in current urological practice. When a diversion is carried out, the patient will undergo metabolic changes. Depending on the bowel segment used, the length of the bowel segment in the type of diversion, these metabolic consequences will be more or less pronounced. An ileal conduit is the diversion of choice when the metabolic changes want to be kept to a minimum. Even this group of patients will have lower bicarbonate levels and will have episodes of severe acidosis. These patients will require sodium bicarbonate substitution. Life-long followup of patients with urinary diversion is mandatory, not only from oncological but also from metabolic perspective. It is unclear whether patients should be screened for bone health but one should be aware of increased risk in certain patient groups.

REFERENCES:

1. E. M. Bricker, "Bladder substitution after pelvic evisceration," *The Surgical Clinics of North America*, vol. 30, no. 5, pp. 1511–1521, 1950.
2. Lindsay L, Hertzog LL, Iwaszko MR, Rangel LJ. Urolithiasis after ileal conduit urinary diversion: A comparison of minimally invasive therapies. *J Urol* 2013;189:2152–2157.
3. Bishop, RF, Smith, ED, Gracey, M. Bacterial flora of urine from ileal conduit. *J Urol* 1971; 105:452–5
4. Wullt, B, Agace, W, Mansson, W. Bladder, bowel and bugs—bacteriuria in patients with intestinal urinary diversion. *World J Urol* 2004; 22: 186–95
5. J. Cohen, K. Giuliano, N. Sopko, N. Gandhi, G. Jayram, B.R. Matlaga. Cystolitholapaxy in ileal conduit. *Urol case Rep*, 3 (6) (2015), pp. 185–187
6. W. Zhong, B. Yang, F. He, L. Wang, S. Swami, G. Zeng. Surgical management of urolithiasis in patients after urinary diversion. *PloS one*, 9 (10) (2014), Article e111371
7. T.D. Cohen, S.B. Streem, G. Lammert. Long-term incidence and risks for recurrent stones following contemporary management of upper tract calculi in patients with a urinary diversion. *J urology*, 155 (1) (1996), pp. 62–65
8. M.L. Parra, P.J. López, V.A. Vega, et al. Urinary stone in a Bricker's ileal conduit. *Arch espanoles Urol*, 57 (8) (2004), pp. 851–853