

A Technical Description of Modified Wet Barrel Loop Colostomy in A Case of Recurrent Cervical Cancer After Exenteration.

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1. Introduction

The requirement of both fecal and urinary diversions in recurrent cervical cancer and primary or advanced and recurrent rectal cancer mostly has made the series of changes in the techniques (1). First pelvic exenteration was done in advanced carcinoma cervix in 1948. The procedure includes ultra-radical surgery including urinary tract and bowel reconstruction. Morbidity and mortality are the important concerns with this procedure. Perioperative mortality was shown upto 12% cases with morbidity ranging from 50-85% (2). Again in recurrent carcinoma cervix cases who were mostly priorly radiated enhances the complication rate and may need Laterally Extended Endopelvic Resection (LEER) (3, 4) With time there had been practice changing procedures in urinary reconstruction starting with ureterocolostomy at the onset though ileal conduit to double barrel colostomy and at last with wet double barrel colostomy. The complications like urinary tract infection, metabolic abnormalities (hyperchloremic and hypocalcemic acidosis), ascending kidney disease, and large volumes of watery malodorous stool with wet colostomy led to adoption of double barrel modification. Thus with double barrel colostomy, the retrograde urinary infection rate, febrile complications, semiformal stool output, single stoma compliance led to the acceptance of this procedure. (5,6) Exenterative procedures had better survival benefit than conservative surgeries. (7)

Most of the surgeons performed urinary diversion after performing colonic stoma and attached both ureters through 2 separate points in the wet double barrel technique.

Here we describe experience of an alternative technique of the urinary diversion

2. Case Report

A 61 years' women known case of cervical cancer stage IIIb post concurrent chemoradiation (EBRT+3 fraction ICRT) in 2007 in a tertiary centre with diversion colostomy in 2010 for radiation proctitis came to our institute with complaint of fecal discharge in urine and per vagina for one month. She had no co morbidities or significant family history. On physical examination, good performance status and vitals were stable. Kyphoscoliosis was present. Left sided end colostomy was functioning. On local examination, vagina is full of growth with rectovaginal fistula, bilateral parametria was involved with involvement of left pelvic wall, fecal discharge present. On routine investigations, haemoglobin was 11.2 g% and albumin 4.1 g. CT urography showed heterogeneously enhancing lesion in the left hemipelvis with loss of fat plane with rectum, sigmoid, urinary bladder and ileum. CT chest+ abdomen+ pelvis showed same mass with left hydronephrosis, chest was normal. In view of localised disease, patient was planned for exenteration in DMG.

Total pelvic exenteration+ Ileal segment resection+ ileoileal anastomosis+ Bilateral ureteric implantation in distal loop of sigmoid colon (wet barrel colostomy) + Pelvic lymph node dissection was done.

Post-operative histopathology showed adenocarcinoma (mucinous intestinal type) immunopositive for P16, CK7, CK20(focal) and CDX2 (focal) with free margin at lateral pelvic wall, resected

rectum and urinary bladder but close margin (0.2 mm) at vaginal vault.

2.1. Post-operative period: She was extubated on day 1, no vasopressure support was needed intraop or postoperatively. Kept nil per mouth for 5 days, managed with broad spectrum antibiotics, total parenteral nutrition (TPN). Only complication she developed

was deep vein thrombosis in left leg inspite of starting DVT prophylaxis with deltaparin. Therapeutic dose of deltaparin was given. Wet stoma was functioning well, initially mild hematuria was present which settled in due course. Post-operative ultrasound KUB showed no residual hydronephrosis. She was discharged in stable condition on day 12.



Figure 1: CT scan showing hydronephrosis in



Figure 2: Pelvis showing the already present stoma with disease in the left hemipelvis

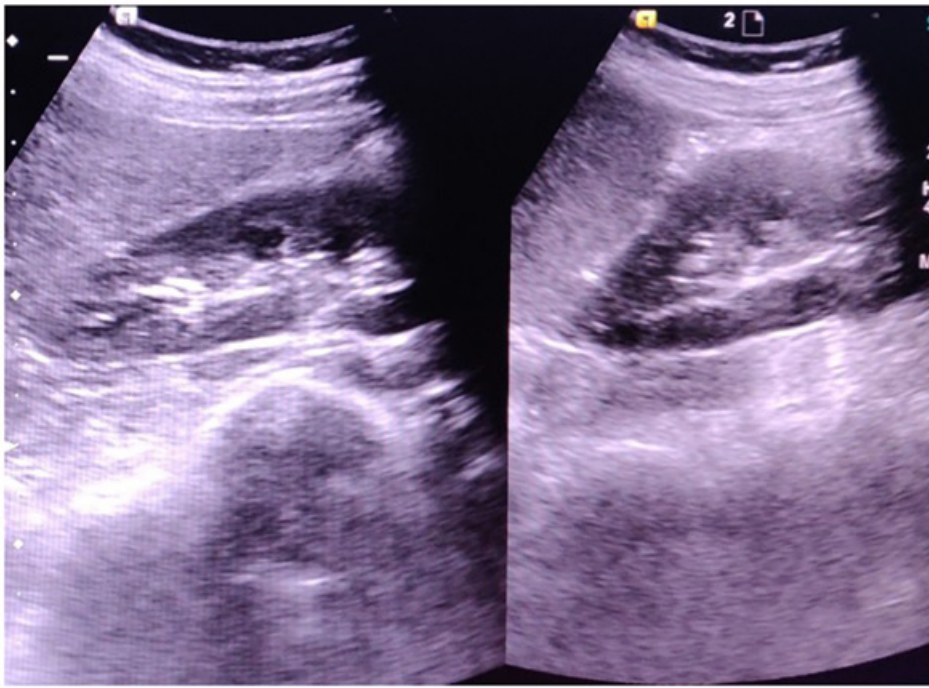


Figure 3: USG KUB postoperatively showing no hydronephrosis

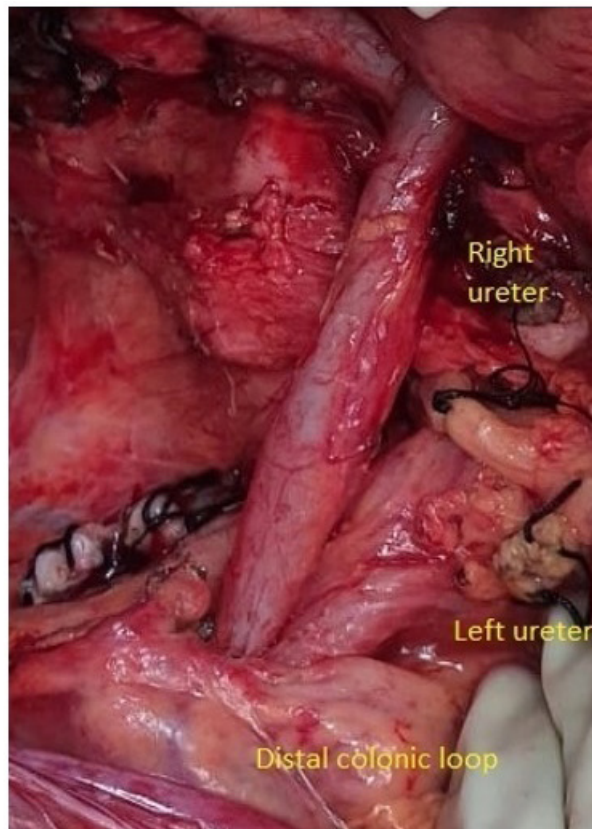


Figure 4: Implantation of ureters into the colon through a single incision

3. Procedure

After anaesthesia and positioning in low lithotomy position, mid-line vertical incision was given. Abdomen was thoroughly examined for disease extent and metastasis. Ileal loop was found to adhere with the conglomerated mass in the pelvis. Retroperitoneum over iliac vessels were opened bilaterally and both ureters were identified, dissected maintaining its vascularity and held with separate sling for both. Internal iliac artery and vein was dissected and cut 2 cm below the origin sparing its posterior branches. Diseased ileal segment was resected and 10 cm of the distal loop (POUCH) of sigmoid double barrel colostomy already present was preserved for ureteric implantation. Posterior exenteration was performed with total mesometrial resection. Both ureters were traced to its entry into bladder and both ureters were clipped and cut at appropriate position maintaining its vasculature. Anterior exenteration was performed after dissecting bladder from retropubic space also requiring to dissect left lateral pelvic wall to clear the disease. Specimen containing urinary bladder with segments of ureter, sigmoid with rectum and anal canal, uterus, ovaries and tubes were delivered enblock. Now the vaginal orifice, anal canal orifice was closed using delayed absorbable suture.

Ureteric reimplantation: Both ureters previously mobilized were ensured of their intact vasculature and peristalsis. If required added mobilisation can be done for a tension free implantation. About 2 cm from the resected end of distal loop, transverse incision of one centimeter was given in the posterior surface. Each ureter was spatulated and replaced into the incision line separately and sutured with delayed absorbable suture with mucosa-muscular of the sigmoid at least 4 points. Similarly, each ureter was sutured with seromuscular layer of sigmoid at least 4 points. Infant feeding (6Fr or 8Fr) tube was introduced through the ureters separately till 25 cm and both the tubes were taken out of distal stoma. Infant feeding tubes were sutured with the skin separately and urine flow was confirmed. Stoma was covered with stoma bag.

3.1. Cautions: Adequate mobilisation and preservation of ureteric vasculature required for good functioning of the urinary diversion. Kidney function need to be optimum.

3.2. Advantage: The translocation of ureters inside the colon favours more support rather than its implantation on the serosal surface through a single opening.

Less chance of ureteric prolapsed.

Easy to locate the ureteric openings in case of missing tubings.

Less chance of fecal contamination.

The thick muscular layer of the sigmoid pouch facilitates the construction of anti-reflux valves for ureteric anastomoses

Double-barreled wet colostomy does not require bowel anastomosis, therefore reducing the risks of leakage

It can be done in irradiated bowel as no anastomosis is required.

3.3. Disadvantage:

Adequate colonic length required for the technique.

Proper ureteric length is also an issue.

4. Discussion

Recurrence rate of locally advanced cervical cancer ranges from 28% - 64% inspite of having receiving treatment with radiotherapy (8). Total Pelvic exenteration needs urinary reconstructive procedures. Post radiotherapy patients has compromised bowel vascularity mainly those portions in pelvis received radiotherapy like sigmoid colon. So ureteric implantation in already irradiated sigmoid pouch in wet double barrel colostomy is an issue to be addressed. In our case we performed implantation of both the ureters through a single incision and implanted well inside the pouch, most of the literatures showed implantation at two different points. (9) Our procedure has the advantage of more secure implantation, more anti-reflux urinary flow and without compromising vascularity with extra incision. As the chance of DVT in any pelvic malignancy is quite high with prior radiotherapy and as our case had developed DVT inspite of prophylaxis, so we need to consider starting prophylaxis perioperatively (10,11).

Considering two old techniques Bricker and Wallace ureteroileal anastomosis, first one anastomosed bilateral ureters separately over the serosa of the bowel segment, whereas the later technique involved anastomosis of both ureters first followed by anastomosis to bowel segment. Both have complications of stricture. Comparing our technique to that with ileal conduit, has short operative time, shorter hospital stay. The morbidity relating to pouch leak, sepsis, requirement of percutaneous nephrostomy was all reduced with our technique. (12) Whereas our technique has the advantage of single stoma without need for small bowel anastomosis in irradiated bowel segment and thus prevent leak, moreover easier to manage single stoma.

Moreover, the sigmoid colon is the least irradiated area due to its anatomy and the radiation related complications were least in this area. Again the patients undergoing this type of procedure mostly cachectic and debilitated, with complications like enterovesicovaginal fistula leading to pelvic abscess; so the less invasive surgery like ours has added benefit. (13,14)

Our technique has the disadvantage in case of already operated colon, or where ureteral length was small.

5. Conclusion

Reconstruction of urinary system through this modified wet double barrel colostomy can be an option in prior irradiated pelvis in recurrent cervical cancer. Patient selection and complete resection of the disease should always be considered before performing exenterative procedures. The advantage of the procedure than other described in the literature is its utility in irradiated pelvis with less complications and compliance.

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