

AUGMENTATION CYSTOPLASTY IN AN UNUSUAL CASE OF URETERIC AND BLADDER RUPTURE

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INTRODUCTION

Gynaecological surgeons are well aware of peroperative injuries to the lower urinary tract resulting in vesicovaginal, ureterovaginal or complex fistulae with or without cutaneous leakage. Such a fistula is one of the most devastating complications after surgery. There is high emotional distress of the patient as well as the surgeon. The incidence of ureteric and bladder injuries has increased since the advent of abdominal hysterectomy in 1940s also an increase has occurred in the number of fistulae related to "vaginal hysterectomy".¹

Other causes include urologic surgery, trauma and radiation therapy for pelvic malignancies. Goodwin and Scardion² (1980) reported seventy four percent fistulae resulting from gynaecologic surgery, fourteen percent from urologic surgery, and five percent directly and sixteen percent indirectly related to radiation therapy.

The case presented here is a unique example of injuries to both the ureters as well as bladder during abdominal hysterectomy resulting in cutaneous (suprapubic

and vaginal leakages and previous attempts on repair were not successful.

CASE REPORT

A lady of 26 years with history of three consecutive C-Sections three times was admitted in the department of urology, Postgraduate Medical Institute, Lady Reading Hospital Peshawar on 16.10.1999 as a case of post hysterectomy urinary leakages through the vagina and suprapubic wound. A general surgeon at the DHQ Hospital Bannu had tried to repair the urinary bladder after performing bilateral ureterostomies. As reported by the surgeon, the bladder was found torn into pieces and he could repair the shattered bladder with difficulty, left ureter was found ligated and there were irreparable injuries of the right lower ureter. She was referred to us for further work up and management.

After a difficult exploration and dealing with adhesions in the pelvic organs due to previous surgeries, we decided to perform Boaris flap ureteroneocystostomy, although the urinary bladder was not ideal due to its small capacity. On the third post

operative day she developed faecal fistula through the suprapubic wound. This was probably due to unnoticed injury to the sigmoid colon, which was badly adherent to the urinary bladder. A surgical team on 02.11.1999 mobilized the sigmoid colon as loop colostomy, once again performing intubated ureterostomes at the level of sacroiliac joints.

For more than four weeks our attention was to improve the general condition of the patients which was badly deteriorated due to repeated operations and associated complications. After improvement in the clinical and biochemical status of the patients substitution of pelvic ureters and augmentations of the urinary bladder was decided. This major procedure was planned for 6.12.99 the abdomen was opened through the previous Pfannenstiel incision which was converted into an T shape incision by an additional midline abdominal incision. Both the ureters were mobilized at the level of the sacroiliac joints after removing the ureterostomy tubes. Sigmoid colon was partly excised at the site of colostomy and end to end continuity of the sigmoid reestablished. The aim of the operation was to achieve.

- a. Ureteric substitution for the short ureters.
- b. Utilize ileocaecal valve to avoid urinary reflux.
- c. Increase the bladder storage capacity.

A segment of bowel consisting of distal ileum, caecum and ascending colon was mobilized maintaining its blood supply through iliocaecal artery. Both the ureters were anastomosed end to side with the ileal segment after closure of its open proximal end. The ileocaecal junction was intussuscepted into the caecum by applying seromuscular sutures. Appendectomy was performed. The bladder was excised at the trigonal level. The intestinal segment was

then turned and inverted 180 degrees for anastomosis with the bladder. A three ways foleys catheter was retained and the wound closed after securing polythene drain in the space of Retzius.

DISCUSSION

Most of vesicovaginal, ureterovaginal and complex fistulae result in continuous day and night incontinence following a pelvic operation.

Diagnosis is not very difficult. The bladder may be distended with saline dyed with indigocarmine. If leakage through the vagina is seen, the diagnosis of vesicovaginal fistula is made. When there is continuous leakage of urine without dye, a ureteric fistula must be suspected. Cystoscopy and vaginoscopy may demonstrate the size, site and relation to the ureteric orifices as well as the collateral fistulae. Intravenous urogram may demonstrate the associated partial or complete obstruction and the site of ureteric involvement. However, retrograde uretero-gram is sometime needed.

Usually uncomplicated vesicovaginal fistulae can be corrected by multilayer tension free repair with through abdominal or vaginal route. However very often it is needed to reinforce a routine closure by several adjuvant measures like:-

- a. Martius flap
- b. Rotation flaps of the entire labia and/or gluteal skin,
- c. Myeocutaneous gracilis muscle flaps³ and
- d. Peritoneal flaps in the repair of high vesicovaginal fistulae,
- e. Omental interposition which is routinely employed by some surgeons.⁴

Ureterovaginal and ureterocutaneous fistulae can be repaired with procedure

like Boari's flap, bladder hitch ureteronecystomy, and ureteroureterostomy, if the contralateral ureter is intact. However substitution with bowel is some time needed.

Bowel is frequently used in reconstructive urologic surgery for ureteric substitution, bladder augmentations and bladder replacement. The appropriate use of these techniques require a thorough knowledge of surgical anatomy, methods of bowel preparation, techniques of isolating segments of the intestine and reconstituting its continuity, problems and techniques of uretero-intestinal anastomosis and complications that may occur.⁵

The selection of the proper intestinal segment depends on the patient's condition, renal function, history of previous abdominal procedures and type of diversion or substitution required. In reconstruction of the urinary tract it is usual to select the ileum, colon, and caecum. The distal ileum is most suitable for ureteric substitution although loss of its significant portion results in *vit. B12* mal-absorption, diarrhoeas and fat mal absorption besides its surgical complication.⁶

The colon can be mobilized without difficulty in to any position of the abdomen or pelvis and with fewer nutritional problems. However, utilization, of iliocaecal valve may cause mal absorption and fluid and bicarbonate loss.

The segment of bowel used is not necessarily as important as its size and configuration.^{7,8} The patient's medical history and the surgeons preference may direct the surgeon toward a particular bowel segment.

The case presented was of complex nature. Both the ureters were short. The bladder was of a very small capacity, with significantly low storage potential, there were suprapubic and vaginal leakages,

further complicated by faecal fistula. Hence we decided to utilize the distal ileum along with the caecum and ascending colon as a single segment to achieve ureteric continuity with ileal replacement, avoid reflux by intussuscepting the ileum into the caecum, and increasing the bladder capacity by augmentation cystoplasty. If we apply the concept of lower urinary tract (LUT) function to our patient, we have been successful in achieving,

- a. The continuity of urinary conduits
- b. Safety against reflux (by intussusception of the ileum into the caecum).
- c. Increased storage capacity (by augmentation cytosplasty).

Clean intermittent self catheterization (CIC) as generally recommended by Lapides and colleagues⁹ (1972) in cases of augmented bladder was recommended to our patient. However, she is not careful to follow this instruction. Even then the patient is without any complication for sixteen months follow up. Augmentation cystoplasty can create a larger bladder with better-compliance⁷ however, reduced emptying efficiency, infection, chronic retention and reduced bladder wall strength are the usual complications. CIC and check on infection is recommended in all cases.¹⁰

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