

Uretero-Cervical Fistula Following Caesarean Section

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Abstract

A 40-year old female presented with an 8-week history of urinary incontinence following a Caesarean Section and bilateral tubal ligation.

Methylene blue dye instilled into the bladder initially did not leak through the vagina or the cervix. A subsequent indigo carmine intravenous dye was excreted into both the bladder and the cervix.

She underwent a hysterectomy, resection of the uretero-cervical fistula and ureteric reimplantation with a psoas hitch procedure to relieve tension on the anastomosis. The postoperative period was uneventful and she regained continence after the catheters were removed. IGM was compared in P+USS and P-USS or NP+USS and NP-USS or P-USS and NP-USS.

Key Word: Urinary fistula, Caesarean Section, Iatrogenic. [Trop J Obstet Gynaecol, 2004;21:183-185]

Introduction

Caesarean Section is a very common operation in our environment and many of them are performed as emergencies by a variety of people with different levels of training and experience. Of the many complications that can occur, one of the more serious ones is injury to one or both ureters. It is best if this is recognized immediately and repair carried out promptly as it prevents subsequent potential damage to the kidney from hydroureter and backpressure.

Presentation

TA, a 40-year-old female who was Para 6⁺⁰ presented upon referral with a complaint of urinary incontinence. The complaints developed 8 weeks earlier, following a Caesarean Section and bilateral tubal ligation performed for transverse foetal lie. Her immediate postoperative period was complicated by a febrile illness. About a week after surgery, she developed urinary incontinence. A urethral Foley catheter did not correct the incontinence.

All of TA's previous pregnancies ended in normal spontaneous vaginal deliveries at term.

Examination

TA was well nourished and her vital signs were within normal limits. A systemic review revealed a lax anterior abdominal wall with a lower midline scar from the recent operation. She wore a sanitary towel that was soaked with urine. Pelvic examination revealed a normal introitus, urethral opening, vagina and cervix. There was no readily visible or palpable fistula to account for the pool of urine in her posterior vaginal fornix. A bimanual examination revealed a normal shaped 6-week sized uterus that felt fixed.

A dye test was performed by instilling 100ml of methylene blue dye into the bladder through a urethral catheter. There was no observable leakage per vaginam. Next, TA received an intravenous injection of 5ml of indigo carmine dye. Twenty minutes later, dye excretion was indicated by the passage of discolored urine via the urethral catheter. A repeat pelvic examination showed the same dye draining from the cervical os. A diagnosis of uretero-cervical fistula was thus made.

Laboratory Investigations

Blood group... O, Rhesus positive

Packed cell volume... 29%

Blood urea nitrogen... 27mg/dl

Creatinine... 1.2mg/dl

An intravenous urograph (Fig.1) showed a normal left renal pelvis (arrowed). The ureter could be traced down to the bladder (double arrow). There was however no evidence of dye concentration or excretion in the right kidney. There was no obvious hydronephrosis or hydroureter on either side.

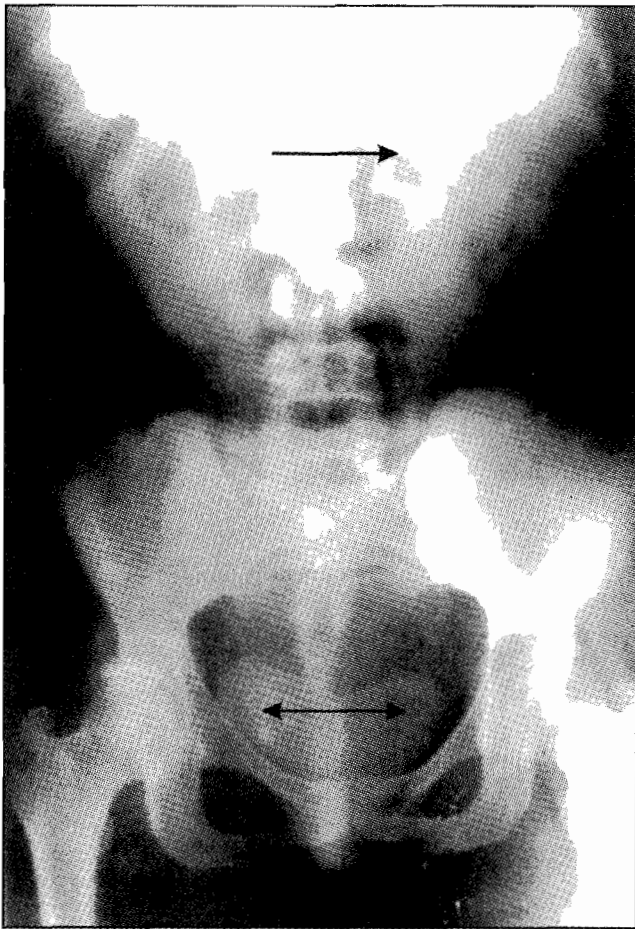
The patient accepted an offer of exploratory laparotomy and uretero-neocystostomy.

Surgery

The intraoperative finding was as follows: The pelvic anatomy was particularly distorted on the right side with Adhesions involving the lower uterine segment, the bladder, the fallopian tubes and right ovary. The ureter was identified and found to be about 2cm thick due to a

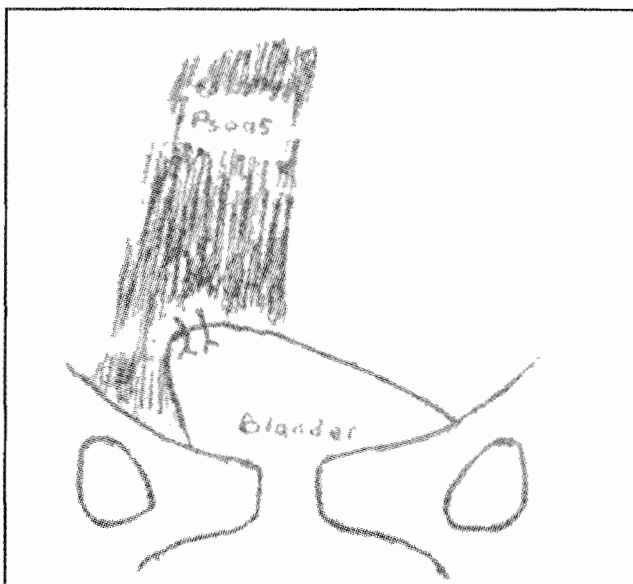
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Figure 1.- Intravenous Urograph



Hypertrophied muscular coat. It terminated in the matted right adnexa. A hysterectomy was performed in order to ensure adequate exposure and debride the infected fistula area. Some length of the distal ureter was lost in the adhesions. The proximal segment was mobilized for reimplantation into the bladder.

Figure 2.A – Psoas Hitch

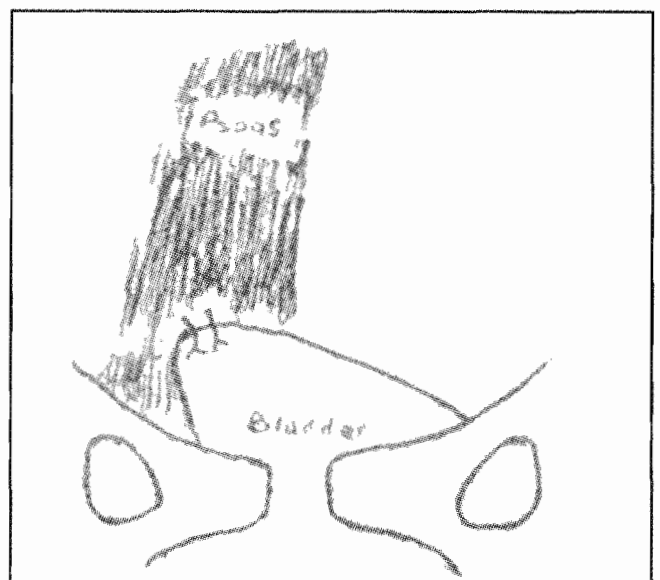


Unfortunately, it fell short of the convenient point of implantation at the trigone of the bladder, and could not be implanted without tension. A psoas hitch procedure was therefore performed first. Thus, the apex of the bladder was anchored to the aponeurosis of the right psoas muscle using two O-chromic catgut sutures (Fig 2A). The distal end of the ureter was tied off, while double needle sutures were placed at 12, 3, 6 and 9 O'clock positions around the end of the proximal ureter. A small round opening was made in the bladder muscle and mucosa at the designated implantation site superior to the right ureteric orifice. The procedure was facilitated by a wide cystostomy incision. The proximal ureter was pulled through the bladder opening and fixed to the bladder using the earlier placed sutures (Fig.2B). In addition, the external bladder wall and the ureter were carefully co-opted with atraumatic chromic catgut sutures encompassing only the ureteric adventitia (Inset Fig 2B). A ureteric catheter stent was passed into the implanted ureter through the neo-ostium and exteriorized through the urethra. The cystostomy wound was repaired with continuous 0-chromic catgut, and the bladder was drained with a Foley catheter.

Follow-up

TA's postoperative period was uneventful. She was placed on intravenous antibiotics for 24hours, after which these were converted to oral antibiotics for a further week. Urine output measurements were kept and remained adequate for a week at the end of which time the catheters were removed. She was continent after the catheters were removed and was discharged. Follow-up visits at two weeks and six weeks showed that continence was maintained and there were no fresh problems. A repeat intravenous urography done after five months still showed an absence of dye concentration and excretion on the right side.

Figure 2.A – Ureteroneocystostomy



Discussion

The risk of ureteric injury should be borne in mind in any abdominal surgery. It is particularly apt to occur following pelvic procedures. Open gynaecological operations are still the leading cause of ureteric injuries in Nigeria.¹ Even in the western industrialized nations where the last decade has witnessed major advances in laparoscopic surgery, the rate of ureteric injuries has not changed.² These iatrogenic injuries are important because they worsen the morbidity resulting from the primary surgical intervention and may require secondary invasive interventions. There may also be impaired renal function and a compromise in the patient's quality of life.

Ureteric injuries are best prevented or else diagnosed early and treated promptly. In the case in question, a delayed surgical intervention restored continence but failed to restore renal function. To decrease the incidence of iatrogenic ureteric injury, a sound knowledge of abdominal and pelvic anatomy is essential. If the proposed operation is likely to be close to the ureter, the ureter should first be identified at the pelvic brim. If the dissection is likely to be difficult, preoperative intravenous pyelography may help in identifying and protecting the ureter.¹ Even though the value of placing a ureteric catheter has been questioned, proponents believe that such a preliminary measure makes it easier to see and feel the ureter.³ In the above case, it is probable that an extension occurred, of the transverse lower uterine incision into the parametria where the ureters run. Alternatively, the ureters may have been caught in haemostatic stitches applied in a blood-filled and distorted surgical field. It is to avoid this possibility that classical uterine incisions are recommended for delivery of transverse lying fetuses.

For ureteric injuries below the pelvic brim, an important consideration is the loss of ureteric length. The consequence of ureteric shortening is that repair cannot be done without excessive tension on the anastomosis.

This is undesirable, as tension impairs healing and increases the chances of failure. The tension relieving options are mobilization of the kidneys, a Psoas hitch, or a Boari flap construction from the bladder wall. In even more severe shortening, transureteroureterostomy or interposition of a loop of bowel or the appendix may be required. With the degree of shortening in the above case, the choices were a Psoas hitch or a Boari flap. The former is simple and effective even in relatively inexperienced hands.⁴ It simply involves hiking the urinary bladder and anchoring it to the aponeurosis of the psoas muscle on one side. This approximates it with the proximal end of the injured ureter. The more technically difficult Boari procedure (Fig.3) fashions a distal ureter from a bladder wall flap. The "neoureter" is then anastomosed with the proximal ureter thus compensating for loss of length.

The case presented shows that Caesarean Section should not be taken lightly, even though it is a common obstetric operation. Of the possible complications that may arise from the procedure, ureteric injury should be highly regarded and care taken to avoid it. When this complication occurs, it helps to identify it early and treat it promptly. The failure of the affected kidney to recover function as seen in the repeat IVU shows the importance of addressing ureteric injury before it takes its toll on the kidney.

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Figure 3.A – Bladder wall flap

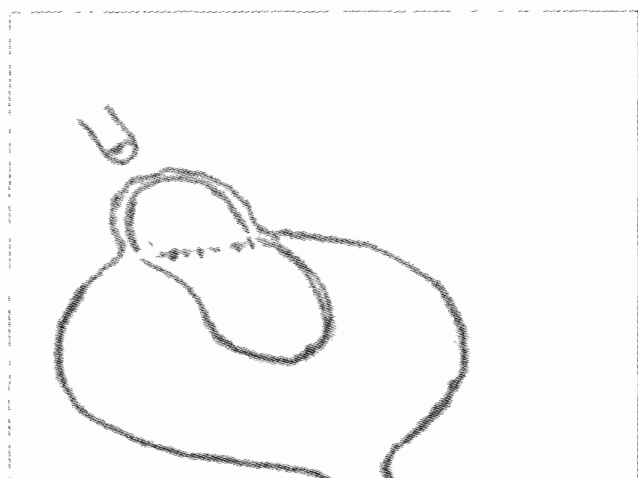


Figure 3. – Tension-free anastomosis

