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URETEROVAGINAL FISTULA FOLLOWING LAPAROSCOPIC ASSISTED VAGINAL HYSTERECTOMY: CASE REPORT

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SUMMARY

Ureterovaginal fistula following laparoscopic assisted vaginal hysterectomy is reported. The injury was missed in the immediate post-operative period. There was delay in urological consultation. The patient later developed a ureterovaginal fistula which was repaired successfully with a ureteroneocystostomy four months later after the patient was seen in several hospitals. This case is reported to highlight one of the serious complications of laparoscopic surgery that can go unnoticed. The causes of ureteral injuries in laparoscopic surgery, prevention and management protocols are discussed.

INTRODUCTION

Since the introduction of laparoscopic surgery in the 1960s, ureteric injuries have resulted although they were not widely reported until the early 1970s (1). At first laparoscopy was developed and projected only for gynaecologic indications, but its rapid extension to other specialities has meant that the incidence of ureteral injury after minimally invasive surgery has skyrocketed for example, at one centre, from none of the reported ureteral injuries in the early 1980s to 25% only five years later (2).

CASE REPORT

A 45-year-old woman underwent a laparoscopic assisted vaginal hysterectomy at Kenyatta National Hospital in September, 2005. Six days later she noted she was leaking urine from her vagina. She went back to the clinic and was said to have a VVF to which a pelvic examination done four weeks later revealed no urine leakage per vagina. She then went to Tumutumu Hospital where she was admitted for six weeks and put on antibiotics. She would leak urine from vagina on and off.

An IVP done in October revealed no excretion of contrast from the right kidney. A repeat IVP in

December 2005 revealed a right hydroureterophrosis with a right ureterovaginal fistula. Other investigations - U/Es were normal and Hb was 11.98%.

On 13th January 2006 at a Thika Hospital laparotomy revealed a stricture of the right distal ureter with a uretero-vaginal fistula. A right ureteroneocystostomy was done with a submucosal tunnelling as an antireflux manoeuvre. A double J stent was inserted with the aid of an image intensifier, the bladder was closed in two layers. A transurethral and a suprapubic catheters were inserted. A suprapubic abdominal drain was inserted. She did well post operatively. On the 14th day the transurethral catheter was removed and the suprapubic catheter spigotted and patient passed urine well without leakage.

The suprapubic catheter was removed the following day and the patient discharged with a dry vagina.

The JJ stent was removed after six weeks and the patient has no complaints so far.

DISCUSSION

A large percentage of ureteral injuries after gynaecological laparoscopy occur during electrosurgical or laser assisted lysis of endometriosis (1).

Likely reasons: Endometrioma can involve the ureter either extrinsically or intrinsically; long standing endometriosis can cause intraperitoneal adhesions, making ureteral visualisation difficult (3); and the disease can cause the ureters to deviate medially from their normal anatomic position (4). A significant number of ureteral injuries also occur during tubal ligation even when bipolar cautery is used (1); after laparoscopic hysterectomy, the incidence of ureteral injury severe enough to cause ureteral obstruction was 3.4% in a series of 118 patients (3). In large series, with much higher patient numbers and presumably more experienced surgeons, the rate was a more reasonable 1% (5).

In open operation, at least one third of the ureteral injuries are recognised immediately, whereas the number is less after laparoscopy (1). Therefore a high index of suspicion is required and patients must be monitored after laparoscopy for fever, peritonitis and leucocytosis, which herald the possibility of missed ureteral injury. A small number of patients have haematuria or pelvic mass representing urinoma.

Avoidance of injury to the ureter is predicated on the intimate knowledge of its location, especially in relation to the uterine and ovarian arteries if those structures are to be ligated as in hysterectomy. Visualisation of the ureter in the area of the ureterosacral ligaments is thought to be especially difficult (1). In patients with uncontrolled bleeding, adequate intra-operative haemostasis and surgical exposure are critical and should decrease ureteral injuries even in high risk procedures. Intraoperative hydration or diuretic administration may enhance ureteral visualisation and pre-operative ureteral stenting can ease identification, although published data in the gynaecologic population do not confirm decreased injury (6). Fibre optic catheters have been used with good effect (7) although rare complications of ureteral oedema and obstruction have been reported (8).

Direct visualisation of the ureter during the operative procedure, with careful dissection is the best way to prevent ureteral injuries (9).

Some authors have recommended injection of 5 to 10ml of intravenous indigo carmine dye followed by cystoscopy to ensure patency of the ureters after laparoscopic hysterectomy. In 118 patients all four cases of ureteral occlusion (mostly caused by suture

ligation) were identified and repaired immediately without complication (1).

The injury can be either a ligation, a transection, a crush or an excision of a portion of the ureter. Additionally, there may be ischaemic injury to the segment of the ureter (11,12). Presenting signs and symptoms may include flank or abdominal pain persisting fever, drainage from vagina or wound, nausea and vomiting, prolonged ileus, anuria and leukocytosis (10-13). In some cases the diagnosis was made on identifying the ureter histologically in the pathology specimen (12). Once the diagnosis of suspected ureteral injury is made, the patient should have an IVP if renal function is normal, or renal ultrasonography if there is an elevated BUN or creatinine level or both. This will delineate the location of the obstruction and also help to identify any associated fistulas. If there is a leak from the vagina or wound, the administration of IV indigo carmine, with a Foleys catheter in the bladder can help to identify a ureterovaginal or ureterocutaneous fistula.

If the injury is recognised intra-operatively or with three to five days of the surgical procedure, immediate repair can be performed. This may include deligation alone, deligation and ureteroureterostomy or ureteroneocystostomy if the ligated segment appears ischaemic. If the injury is discovered five to seven days post-operatively, placement of a ureteral stent, if possible may be all that is needed. If this is unsuccessful, placement or a percutaneous nephrostomy tube will decompress the obstructed kidney and allow future treatment to be planned. In time the sutures may dissolve and the periureteral edema may resolve, relieving the obstruction and eliminating the need for further management. If these are unsuccessful, additional procedures such as ureteroneocystostomy, with or without a psoas hitch, or ureteroureterostomy may be performed.

In the case presented there was delay in diagnosis and a urologist was not involved in time. This led to delay in repair of the injury with prolonged discomfort to the patient. This was a trying time for the patient and her family with physical and mental stress that would have been avoided.

Post-operative care should always include a high index of suspicion of the possibility of ureteral injury even when the operation appears easy.

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CORRECTION

In the October 2004 issue, volume 81, number 10, page 520, the author's name appeared as **K. Tetteh**. The letter, **I**, was omitted in his name which should read: **I.K. Tetteh**. We sincerely apologise for this error.