



Urological Injuries during Pelvic Surgery in Women, Gezira, Central Sudan

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Abstract

Injuries to the ureter and bladder are common in female pelvic surgery, sometimes extremely common to be considered as traditional.

This is a retrospective study conducted in Gezira Hospital for Renal Disease and Surgery, Medani Teaching Hospital and Medani Maternity Hospital, Wad Medani, Sudan. We included 82 patients with urological injuries following obstetrical gynecology intervention in the previous 5 years. The intraoperative injuries constituted 20/82 (24 %), while the remote injuries were 62/82 (75.6 %).

We conclude that the urological injuries are common complications during pelvic surgery, associated mainly with abdominal hysterectomies and Cesarean section.

Keywords: Urological injuries, Gezira, Sudan

INTRODUCTION

Injuries to the ureters and the bladder are common complications in female pelvic surgery⁽¹⁾.

They are also hazardous in vaginal operations^(2,3), C/S and hysterectomy^(4,5). They are sometimes described as extremely common⁽⁶⁾ and traditional⁽⁷⁾. It is estimated that 0.5 – 2.5% of all gynecological procedures have been reported to cause injury⁽⁸⁾ and some another up to 30%⁽⁹⁾.

Most of these injuries are associated with attempts to secure haemostasis⁽²⁾ and tissue, incision ruptured uterus extension of C/S⁽¹⁰⁾. Endoscopy⁽⁶⁾ hysterectomy, adenectomy. Treatment of tubal pregnancy⁽¹¹⁾ ovarian hysterectomy, endometriosis distorted anatomy.

Women with injury have greater blood loss, longer operative time, longer postoperative stay, more febrile morbidity, and more blood transfusion⁽¹²⁾ they also have secondary invasive intervention⁽¹³⁾, loss of renal function⁽¹³⁾, poor quality of life⁽¹³⁾, fistula, fever, bank pain, vaginal discharge and peritonitis⁽¹⁵⁾.

Ureters are the organs of concern. The proper identification and isolation are crucial in reducing the incidence of ligations and injury. Delayed diagnosis and treatment are associated with poor end results⁽²⁾.

Otherwise bladder and ureteral catheterization must be the performed to prevent injury⁽¹⁶⁾.

Bladder injury is usually discovered on table or soon after associated with ruptured uterus, vaginal, cervical tear and \ or C/S⁽¹⁷⁾.



The ureteral injury commonly presents with leakage of urine. In the majority of cases I.V.U. was sufficient to make the diagnosis ⁽¹⁸⁾. Sonography is very efficient ⁽¹⁾. Vaginography may be more useful than pyelography in diagnosing ureterovaginal fistula ⁽¹⁹⁾ and ureteroneocystostomy ⁽¹⁹⁾. Diagnostic cystotomy with I.V. indigo carmine is a rapid method in evaluating ureteral patency.

Management of ureteral ligation is by removal of the stitch and assessment of ureteral patency ⁽²⁾. For partial transection primary closure is suggested ⁽²⁰⁾. For injuries the pelvic brims in below ureteroneocystostomy is recommended ⁽²⁰⁾ or end to end anastomosis ⁽⁹⁾.

It is ureterovaginal re-implantation using the psoas hitch ⁽²⁰⁾ Procedure and Boari, and others.

Vesico-vaginal fistula of gynecological origin is successfully repaired by the O'connor transvesical technique in 2-3/12 interval ⁽²¹⁾.

MATERIALS AND METHODS

This is a retrospective study conducted in Gezira Hospital for Renal Disease and Surgery, Medani Teaching Hospital and Medani Maternity Hospital, Wad Medani, Sudan. We included 82 patients with urological injuries following obstetrical gynecology intervention in the previous 5 years.

This information was retrieved from files and discharge clinic reports in combined surgical specialties which have been adopted for two decades every Thursday, on a weekly basis.

All patients reported with urological injuries counted to a urological help and/ or referred to a surgical department else where.

Though this number was significant yet we dare tell that the problem of injuries were more than this number and this is either because patients used to deal with their clinical problem as gynecological and or the patient moved to other health subsets or disappeared completely.

We got contact to the patients either directly by a call to the maternity hospital. This call usually used to be done through private phones request. There was no definite systematic theme for emergent call for help in our practice.

We used to be told the status quo and the diagnosis they put they thought of and we evaluate the injury and take over the path of management according to the circumstance and the type of injury and the follow up of the patients was shouldered by both departments.

In case of remote injuries, the patient came to us either as a referred case or by self initiation as primary urological problems.

The diagnosis of urological injuries was furnished through history, clinical examination and serial investigations including renal function tests, urinalysis, cystoscopy, imaging with or without contrast e.g. U/S - I.V.U and contrast CT especially the ureterovaginal fistulae.

For those with remote complications we conducted investigations and imaging to clarify the definite diagnosis. In case of V.V.F we used to prepare the patients with predetermination of the type of repair. Most of these fistulae of high types i.e. beyond the line ureteric orifices; were approached abdominally with O, Connor's repair with slight modification by augmentation by peritoneal sleeve and stenting of both ureters to 10 days post operative.

In case of ureteral ligation on \or structure due to severing on entanglement in ligation we are accustomed to do either Baori's or Leich gergoire procedures of re-implantation.

In low V.V.F and urethral loss, we did Marti's Flap through trans-vaginal approaches.

In case of severe renal impairment, patients were subjected to immediate relief of the obstruction by either PCN (Percutaneous Nephrostomy) which was done by U/S guided maneuver and renal replacement therapy was instituted according to the condition of patients.

Antibiotic and blood transfusion were given when necessary. Patients were followed till the renal function was corrected, the obstruction was relieved and the fistula was successfully repaired.

Diversion was done in 4 cases with contracted bladder in elderly where Indiana Pouch was adopted with optimal results after complete 14 months clinically and biochemical and radio logically. There was one case of mortality which was due to bladder cancer.

RESULTS

We enrolled 82 patients with urological injuries following obstetrical gynecology intervention in the previous 5 years. They are all females, ranging between 16-60 years of age; where the mean age was 32.5. Regarding the indication of surgery; out of the 82 patients included in our study, pregnancy was indicated in 42, tumors 24 and 16 patients for reconstruction. The intraoperative injuries constituted 20/82 (24 %), while the remote injuries were 62/82 (75.6 %).

Type of intraoperative injuries	No.
Bladder injuries	7
Inadvertent ligation of ureters	5
Ureteric severing	3
Trigonal avulsion	2
Erratic diagnosis (exploration of bladder tumor)	2
Bladder descent	1
Total	20

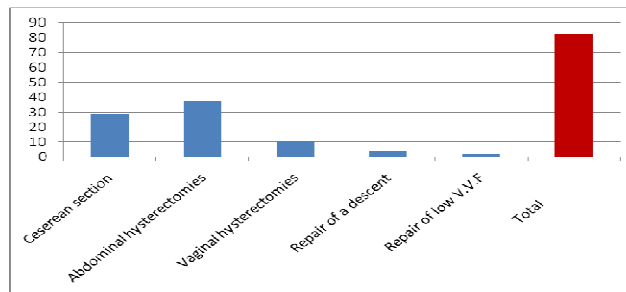
Table 1: Types of intraoperative injuries

Table 1 showed the type of intraoperative injuries among the studied patients. The most common intraoperative injuries are bladder injuries 7/20 (35 %), inadvertent ligation of ureters 5/20 (25 %), trigonal avulsion and erratic diagnosis (exploration of bladder tumor) each one 2/20 (10 %) and bladder descent the less common 1/20 (5 %) as shown in table 1.

Type of injury	%
V.V.F	30
Uretero vaginal fistula	16
Unilateral ligation	7
Bilateral ligation of the ureters	5
Urethral injuries	4
Total	62

Table 2: Remote injuries

The remote injuries were 62/82 (75.6 %). V.V.F. were 20/62 (32 %), Uretero vaginal fistula 16/62 (26 %), unilateral ligation 7/62 (11 %), bilateral ligation of the ureters 5/62 (8 %) and urethral injuries 4/62 (6 %), as shown in table 2.



Graph 1: Type of surgery

Graph 1 showed type of surgery performed to the 82 patients included in this study. In most of them abdominal hysterectomies were performed 37/82 (45 %), Cesarean section 29/82 (35 %), vaginal hysterectomies 10/82 (12 %), repair of a descent 4/82 (5 %), and repair of low V.V.F for 2/82 (2 %).

DISCUSSION

The vast majority of these injuries are operative; other wise may be associated with obstructed labour. These are fistulas resulting from Ischaemic necrosis, mainly V.V.F⁽²³⁾. In our series around 2/3 of injuries were discovered intra operatively. The high incidence of bladder injury may be explained, the fact that it is incisional, an associational with ruptured uterus, obstructed labour and cervical tears⁽¹⁷⁾. We believe that bladder catheterization helps in diagnosis on table, and possibly prevention⁽¹⁶⁾. Ureteral serving or ligation is having the same intra operative incidence as bladder injury, especially in cases when homeostasis is vital as in ruptured uterus, hysterectomy and tubal pregnancy⁽²⁾ ⁽¹⁰⁾ ⁽¹¹⁾. The awareness of ureteric injuries explains soon discovery of its injury,⁽¹⁾⁽⁶⁾⁽⁷⁾. Early diagnosis improves end results⁽²⁾, prevents complications such as morbidity, blood transfusion , longer operative time⁽¹²⁾, loss of renal function⁽¹³⁾, fistulas, fever and peritonitis⁽¹⁵⁾.

Remote injuries in our series are commonly V.V.F or Uretero vaginal fistulae. These may be related to emergency intervention in obstructed labour⁽²³⁾. Ruptured uterus⁽¹⁰⁾, tubal pregnancy⁽¹¹⁾, and

condition when homeostasis is crucial (2). Ischemia necrosis may also participate in high incidence of V.V.F as a remote injury. Unilateral ureteric ligation is a common remote injury; the fact is that it passes unnoticed. Improper identification of the ureter may result in high incidence of bilateral ligation (2). Abdominal hysterectomy is the leading surgery among these injuries, when the bladder is properly identified with a catheter as we don't apply the ureteric catheterization (16). This is comparable to 30% incidence of injuries in gynaecology (9). Emergency Caesarean section is associated with high incidence of urological injuries (4)(5)(23) more over in cases of obstruction, rupture uterus, bleeding (2) (10) (23). Distorted ureteric anatomy in vaginal hysterectomy predisposes to its injury.

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