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LOWER URETERIC INJURIES DURING OBSTETRICS AND GYNECOLOGICAL SURGERY

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ABSTRACT

OBJECTIVE: *To Review and analyze ureteral injuries and their management incidental to gynecologic and obstetric surgeries in urology department Chandka Medical College Hospital Larkana.*
MATERIAL AND METHODS: *A Total of 47 patients are registered during this study period from january2000 to December 2007. Mean age was 40 years (range 18-60 years). All patients were referred from different parts of upper Sindh (with city of Larkana as well.) and adjacent areas of Balochistan and Punjab with itrogenic ureteric injuries associated with obstetric and gynecologic surgical procedures were included. In this study ureteric injuries caused by abdominal hysterectomy, vaginal hysterectomy, cesarian section, cesarian hysterectomy and oophrectomy was seen in 30(63.83%),03(6.39),05(10.64%),07(14.89%) and02(4.24%) patient respectively.*
Main presenting symptoms were abdominal pain, paralytic ileus, leakage in abdominal drains, urinary incontinence, and anuria.History and physical examination was done. Base line laboratory investigations including blood complete picture(Blood CP), urine detailed report(DR), Renal Function tests(Blood urea, Serium creatinine, and Electrolytes) and radiological evaluation by ultrasound kidney,ureter and bladder (K.U.B), intravenouspyIeography(I.V.P), ante grade pyelogram,retrograde pyelogram was performed according to need to define the level of injury. Preoperative cystourethroscopy and ureteroscopy was also carried out. Deligation and stenting was performed in those patients who presented earlier and in patients having partial injury ureteric stenting was performed endoscopically and no further intervention was required. Those patients who presented late ureteric reimplantation by different techniques were performed.
RESULTS: *Forty seven (47) Patients with iatrogenic ureteric injuries related with obstetric and gynecologic surgical procedures were referred to this department. The mean age of patient was 40 years (range 18-60 years).*
Two patients (4.25%) presented with partial injury. In these patients ureteric stenting was the sole form of treatment. Five patients presented with anuria due to bilateral ureteric ligation and these were explored immediately. In four patients on one side deligation was done and on other side ureters were reimplanted by using Boari's flap technique while in one patient ureter was badly damaged and gap was large hence transureterouretrostomy and relmplatation was carried out. Most of the patients presented late. In 24(51.10%) patients ureteroneocystostomy (in 17(36.20%) cohen's procedure and in seven (14.90%) modified Gregory lech tenique) was carried out. In20 (42.56%) patients boari's flap technique was carried out Minor complications were seen during the study. In four (8.50%) patients wound infection was seen in two (4.25%) patients prolong leakage was observed and resolved spontaneously without any other surgical intervention. In 1(2.12%) patient failure of repair was noted and we lost followup.In one (2.12%) patient ureteric stenosis was observed after 2 years, and was dealt by uerteric dilatation.5(10.64%) patients developed transient vesicoureteric reflux was subsided later on spontaneously.
CONCLUSION: *One of the hazards of surgical procedures in obstetrics and gynecology is the injury to urinary tract. Although ureteral injuries are an uncommon occurrence but when they occur, they carry grave consequences if not diagnosed earlier.*

KEYWORDS: Ureteral injuries, Gynaecologic surgery, Ureteral repair.

INTRODUCTION

The close embryologic development and anatomic proximity of urinary and genital organs predisposes the urinary tract to be injured during any gynecologic surgery.[1, 2] Chance of

injury to the urinary tract is present in all cases where radical surgery is performed for cancer or inflammatory disease, when lower abdomen has been previously explored surgically or when patient present with badly ruptured uterus during late night and managed by junior and inexperienced surgeons.[3, 4] These injuries also have been reported when hysterectomy is performed by laparoscopic or vaginal route.[5] Ureteric injuries have been described rarely during the removal of large ovarian cysts as well as during retrieval of oocyte for invitrofertilization (IVF).[6]

Iatrogenic ureteric injury occurs most commonly at the level of pelvic brim where ureter crosses the illiac artery and it courses posterior to broad ligament and ovarian vessels in women.[7]

Early diagnosis and recognition of injury may allow primary definite ureteral repair, however delayed diagnosis may require drainage and proximal urinary diversion before definite repair.[8, 9]

Abdominal pain, fever and ileus are most common symptoms of unsuspected ureteral injury in early post operative period. Some patient may present with incontinence of urine along with normal voiding and some of these patients are diagnosed after years with non functional or hydronephrotic kidneys and are usually asymptomatic. The type of surgical repair depends on timing of recognition of injury as well as level and extent of ureteral injury.

PATIENTS & METHODS

A total of 47 patients were included in this study from JAN 2000 TO DEC 2007. All the patients had been referred with ureteral trauma caused by gynecological or obstetric surgery. (See table 1) A detailed history with particular reference to surgical procedures was noted. In every patient history, physical examination was carried out. Base line laboratory investigations including blood CP, urine DR, urine CS and renal function tests were done. Radiological evaluation by ultrasound KUB, IVP, retrograde or ante grade pyelogram was performed in all cases to define the level and extent of ureteral injury.

Preoperative Cysto urethroscopy was performed in all patients. Injuries recognized intraoperatively by gynecologists were repaired on stents. Delayed repair of ureteric injuries were made on those who reported late and duration of injury varies from 8 weeks to one year, all repairs were stented. All patients were discharged on the 5th post operative day and were followed monthly for 6 months.

Table 1

SURGICAL PROCEDURES CAUSING URETERIC INJURY

Procedure	No	%
Abdominal Hysterectomy	30	63.83%
Vaginal Hysterectomy	03	6.39%
Cesarian section	05	10.64%
Cesarian Hysterectomy	07	14.89%
Oophrectomy	02	4.25%
Total	47	100%

Table 2

SURGICAL PROCEDURES PERFORMED TO REPAIR THE URETERIC INJURIES

Procedure	No	%
Ureteroneocystostmy		
(A)Cohen's Procedure	17	36.20%
(B)Gregory Modified Lesh	07	14.90%
Boari's Flap	20	42.56%
J J stenting only	02	4.25%
Transureterouretrostomy	01	2.12%

Table 3

COMPLICATIONS

Wound Infection	04	8.50%
Prolong Leakage	02	4.25%
Ureteric Stenosis	01	2.12%
Failure	01	2.12%

RESULTS

Forty seven patients with ureteric injury were registered during the study period. The mean age was 40 years (range 18-60). Five patients were with bilateral ureteric ligation while in forty two patients had unilateral injury. Two patients presented with partial injury and were stented under vision by ureteroscopy and they did not require other surgical procedure. In five patients who had bilateral ureteric ligation referred earlier due to anuria though their referral time was between 3-5 days, they were explored immediately. In four patients on one side deligation was performed, stent was placed prophylacticlly while on other side the defect was larger hence Boaris flap technique repair was carried out .In one patient defect was quite large and ureteroneocystostomy was not possible therefore transureterourertrostomy was performed.

Delayed surgical repair was carried out on 40 patients, different surgical procedures were adopted according to requirement and decisions were taken introperatively (See table 2)

Minor complications were noted in this study. In three patients prolong leakage was noted later subsided without any intervention, five patients developed wound infections. In one (1.12%) patient ureteric stenosis was developed after three years and treated endoscopiclly.In one (1.12%) patient failure of repair was noted and when asked about second repair she failed to respond back. In five (10.64%) patients transient ureteric reflux was noted which was subsided spontaneously (See Table 3).

DISCUSSION

Ureteral injury is one of the most serious complications of gynecologic surgery less common than injuries to the bladder or rectum but ureteral injuries are far more serious and troublesome and are often associated with significant morbidity, the formation of ureterovaginal fistulas, and the potential loss of kidney function, especially when recognized postoperatively.[10] Despite the close anatomical association between the female reproductive organs and the

ureter, injury to the ureter is relatively uncommon. Nevertheless, when a ureteral injury does occur, quick recognition of the problem and a working knowledge of its location and treatment are essential in providing patients with optimal medical care.

Most of these injuries occur at the time of haemostatic suturing, when sutures are placed at the side of the uterus during hysterectomy especially when bleeding is excessive and blind clamps are applied to stop the bleeding.[11]

The aim of repair these injuries are to prevent the renal function in obstructed kidneys and to prevent from fistula formation. Therefore early surgical intervention is advocated.

The type of repair depends on the time of diagnosis, nature and the extent of injury. In patients who are diagnosed intra operatively only deligation and stenting may be the sole form of the treatment.[12, 13] In those patients in whom found to be ureter is ruptured or transected, immediate repair over the stent can easily be done.[14] Delayed diagnosis iatrogenic injuries can be treated by percutaneous drainage and are retrograde placement of ureteral stent, provided that the ureter is partially intact[15]. We have observed same in our cases. It is general agreement that lower one third ureteric injuries are best managed by uretero neocystostomy of healthy ureter.[16, 17] When the length of defect is large and preventing end to end anastomosis or ureteroneocystostomy, then mobilization of the bladder and addition of the Boari's flap on to psoas hitch allows tension free anastomosis from ureter to the bladder.[18, 19] We found very good results with similar technique. In this short series most of the patients were referred from the peripheral areas and surgeries were carried out by junior and inexperienced surgeons. The similar protocol is reported by other centers as well.[20] In most cases with obstetric origin there was a history of prolong labour leading to rupture of uterus which is indicative of inappropriate obstetrical care in our primary health care system as well. This is in contrast with the developed countries where these complications are unlikely. The results of our data are highly comparable to the published data.[21] we are of the view that lower ureteric injuries are still the most common urological complications of gynecological and obstetric surgeries in our setup. In order to prevent this potential complication, the surgeon should carefully identify the ureters during surgery and if they find any doubtful fluid that should be sorted immediately.

CONCLUSION

Iatrogenic ureteric injuries from gynaecologic and obstetric surgeries are globally rare but are liable to occur due to inherent ureteric anatomic factors in pelvis. Majority of patients are diagnosed late with uretero vaginal fistula or impaired renal function. If diagnosed earlier especially intraoperatively these injuries can be treated easily without any morbidity and psychological trauma to the patient and also cost effective. In order to prevent this potential complication the surgeon should carefully identify the ureter during surgery, and should have a high index of suspicion, followed by close monitoring during follow-up.

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