

Management of Iatrogenic Lower Ureteric Injury Following Gynaecological Surgery

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ABSTRACT

Aim: To determine the success of ureteroneocystostomy by modified Lich technique in the management of iatrogenic lower ureteric injury following gynaecological surgery.

Methods: This descriptive study was carried out in the Department of Urology, Allama Iqbal Medical College/Jinnah Hospital, Lahore during the period from June 2012 to December 2012. A total of 50 female patients with lower ureteric injury were included in the study.

Results: The mean age of the patients was 36.68 ± 9.01 years and range was 22-50 years. Out of 50 patients, 32(64%) had history of hysterectomy. Diabetes mellitus was found in 6(12%) patients. Postoperative leakage of urine from vagina and from wound among 0% patients and success of surgery at 10th postoperative day was seen in 45(90%) patients.

Conclusion: The success rate of ureteroneocystostomy by modified Lich technique is higher and is recommended among patients with lower iatrogenic ureteric injury after gynaecological surgery.

Keywords: Iatrogenic lower ureteric injury, Leakage, Diabetes mellitus

INTRODUCTION

The close embryologic development and anatomic proximity of urinary and genital organs predisposes the urinary tract to be injured during any gynaecological surgery.¹ Chance of injury to the urinary tract is present in all cases where radical pelvic surgery is performed for cancer or inflammatory disease, when lower abdomen has been previously explored surgically or when patient presents during late night and managed by junior and inexperienced surgeons².

Urological injuries are an important concern of a gynaecologist especially during hysterectomy and caesarean section. Urological injuries in gynaecological surgeries occur due to difficult or careless surgery or/and are associated with active infection, endometriosis, enlarged uterus, previous pelvic surgery, pelvic adhesions, ovarian neoplasms, distorted pelvic anatomy, cervical fibroids and broad ligament fibroids³.

Iatrogenic ureteric injury occurs most commonly at the level of pelvic brim where ureter crosses the iliac artery and it courses posterior to broad ligament and ovarian vessels in women⁴. The incidence of lower ureteral injury in routine hysterectomy varies from 0.4-2.5%⁵. The incidence of bladder injury increases with previous caesarean deliveries⁶.

Ureteral transection and ligation are the most common mechanisms of injury. In addition, clamping, angulation, needle perforation and thermal burns are

the other modes of ureteral injury⁷. Women with injury have greater blood loss, longer operative time, longer postoperative stay, more febrile morbidity and more blood transfusions. They also have secondary invasive intervention, loss of renal function, poor quality of life, fistula, fever, back pain, vaginal discharge and peritonitis^{8,9}.

Abdominal pain, fever and ileus are most common symptoms of unsuspected ureteral injury in early postoperative period. Some patients 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 asymptomatic³. Diagnostic imaging is advocated to identify the site, extent and complications of ureteral injury. Intravenous urography, antegrade and retrograde ureterograms are the investigations of choice to define the level and extent of ureteral injury¹⁰.

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^{11,12}. The choice of treatment depends on the location, type and extent of ureteral injury¹³. Surgical techniques depend upon the length of ureteral defect that can be bridged. Ureteroneocystostomy is used to repair the lower ureteral injury through modified Lich technique with or without adjunct Psoas Hitch¹⁴. International studies suggest more than 95% success of modified Lich technique¹⁵, but in our setup there are less expertise and inadequate postoperative care. So we assume success rate of 85% in our setup.

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SUBJECTS AND METHODS

This descriptive study was carried out in the Department of Urology, Allama Iqbal Medical College /Jinnah Hospital, Lahore during the period from June 2012 to December 2012. A total of 50 female patients with lower ureteric injury were included in the study.

RESULTS

None of the patients in present study was below the age of 20 years. Mean age was 36.66 ± 8.01 and range was 22-50 years (Table 1). Of the 50 patients 6 (12%) had diabetes mellitus as shown in table 2. There were 6(12%) patients had history of caesarean section, 12(24%) caesarean hysterectomy and 32(64%) had history of hysterectomy (Table 3). Leakage was observed in 5 (10%) patients (Fig. 1). At 10th postoperative day, success of the surgery was among 45(90%) patients (Fig. 2).

Table 1: Age distribution (n=50)

Age (years)	n	%age
21-30	17	34.0
31-40	20	40.0
41-50	13	26.0

Table 2: Distribution of patients by diabetes mellitus (n=50)

Diabetes mellitus	n	%age
Yes	06	12.0
No	44	88.0

Table 3: Distribution of patients by gynaecological surgery

Type of surgery	n	%age
Caesarean section	06	12.0
Caesarean hysterectomy	12	24.0
Hysterectomy	32	64.0

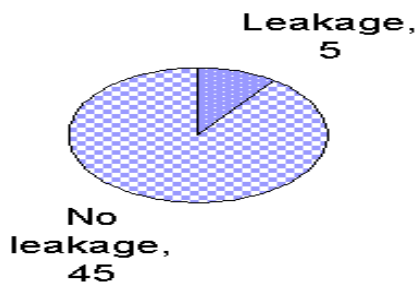


Fig. 1: Postoperative leakage (n=50)



Fig. 2: Success rate (n=50)

DISCUSSION

Ureteral injury is one of the most serious complications of gynaecologic surgery. The ureteral injuries are far more serious and troublesome and are often associated with significant morbidity, the formation of uterovaginal fistulas and the potential loss of kidney function. Present study was done among 50 female patients with iatrogenic lower ureteric injury. The successful outcome was achieved among 90% patients, which is encouraging.

In a study, 47 female patients with lower ureteric injury were studied for the outcome of surgical treatment⁴. The mean age of the patients was 40 years with range of 18-60 years. The mean age of the patients in present study was 36.68 ± 8.01 years.¹⁵ However unlike their study we did not observe any ureteric injury after age of 50 years. In their study, the most of the injuries occurred after abdominal hysterectomy (68.8%) followed by caesarean section (10.6%) and then others. Similarly, in present study, hysterectomy was the most common procedure (64%) followed by caesarean hysterectomy (24%) and then caesarean section (12%). In their study, the leakage was observed among 2.4% patients (success in 97.6%). The frequency of leakage is higher among our patients (10%). However, success rate is still very encouraging i.e. 90%, which is comparable to any other study.

A study was carried out on 20 patients with lower ureteric injury.⁷ The study population was young (mean age was 26 years) as compared to ours i.e. 36.68 ± 8.01 years. They observed that most of the injuries occurred after hysterectomy (60%), while rests of the injuries were related to caesarean section (40%). Like our study, hysterectomy was the most common situation, which can lead to ureteric injury. However, they reported a higher frequency of ureteric injury after caesarean section. They showed complete recovery after surgical repair and at 6 months follow up, no patient had urinary leakage. They showed a success rate of 100%, but their study population was small.

In a study, 17 patients were included with ureteric injury after gynaecological surgery¹⁶. Their ages ranged from 18-56 years with an average of 36.6 years. Like our study, the majority of patients were young. All injuries encountered in caesarean hysterectomy were during attempts of surgical repairs of the injuries and found that the overall success rate was achieved in 89.5% patients. When compared to our study, the overall success rate was 90%.

A study conducted among 9 patients with lower ureteric injury¹⁷. The mean age of the patients was 49.2 years. All the patients had surgical repair and all of the patients recovered with no complications or

leakage. They observed 100% success of surgical repair.

A study was conducted by Rafique et al among 18 patients at Nishtar Hospital, Multan¹². The mean age of the patients in their study was 35 years (range 18-80 years). Like our study, they observed that most of the ureteric injuries occurred after hysterectomy (88%). Only 1(5.6%) patient had leakage. The success rate of surgical repair in their study was 94.4% which is also comparable to our study. They also favoured surgical repair.

Obarisiagbon et al performed a study on 16 patients with iatrogenic lower ureteric injuries after gynaecological procedures¹⁸. They observed that 75% patients had undergone abdominal hysterectomies. Other causes of injury were caesarean section (12.5%) and rest others. They performed surgical repair for all of the patients and found leakage among 12.5% patients with overall success rate of 87.5%.

This was one of the largest studies across the globe including 50 patients, the sample size comparable to other studies. Universally, among all studies, this was observed that majority of injuries occurred after hysterectomies. The surgery showed success in majority of patients ranging from 87.5% to 100%.

The results of present study also highlighted those patients older than 40 years and status of diabetes also significantly affect the outcome of surgery. Among our patients, most of the time, the diabetes goes uncontrolled. So this may also hamper the outcome due to poor healing.

CONCLUSION

The success rate of ureteroneocystostomy by modified Lich technique is higher and is recommended among patients with lower iatrogenic ureteric injury after gynaecological surgery.

REFERENCES

1. Bai SW, Huh EH, Park JH, Rha KH, Kim SK, Park KH et al. Urinary tract injuries during pelvic surgery. *J Pelvic Floor Dysfunct* 2006; 17: 360-4.
2. Akmal M, Mehmood A, Burney MR. Obstetric and gynaecological lower ureteral injuries. *J Nephrol Urol Transplan* 2002; 3: 42-5.
3. Purandare CN. Urological injuries in gynaecology. *J Obstet Gynaecol India* 2007; 57: 203-4.
4. Jalbani MH, Abro H, Abro MA, Baloch R. Lower ureteric injuries during obstetrics and gynaecological surgery. *Med Chann* 2009; 15: 50-2.
5. Rabbani AB, AShraf F, Akhtar H, Mostanzid SM. Urological injuries following gynaecological and obstetric surgeries. *J Teach Assoc* 2008; 21: 135-9.
6. Phipps MG, Watabe B, Clemons JL, Weitzen S, Myers DL. Risk factors for bladder injury during caesarean delivery. *Obstet Gynaecol* 2005; 105: 156-60.
7. Shelbaia AM, Hussain A, Rahman SAE. Lower urinary tract injuries during gynaecological operations. *Uro Today Int J* 2010; 3.
8. Carley ME, McIntire D, Carley JM, Schaffer J. Incidence, risk factors and morbidity of unintended bladder or ureter injury during hysterectomy. *J Pelvic Floor Dysfunct* 2002; 13: 18.
9. Gao JS, Leng JH, Lang JH, Liu ZF, Shen K, Sun DW et al. Ureteral injury in gynaecologic laparoscopies. *Zhonghua Fu Chan Ka Za Zhi* 2004; 39: 311-4.
10. Nawaz FH, Khan ZE, Rizve J. Urinary tract injuries during obstetric and gynaecological surgical procedures. *Urol Int* 2007; 78: 106-11.
11. Casasola CJ, Gutierrez GS, Saurez MM. Urinoma secondary to ureteral iatrogenic lesion. *Arch Esp Urol* 2008; 61: 624-6.
12. Rafique M, Arif MH. Management of ureteric injuries associated with gynaecological surgery. *Int Urol Nephrol* 2002; 34: 31-5.
13. Ustunsoz B, Ugorel S, Duru NK, Ozgok Y, Ustunsoz A. Percutaneous management of ureteral injuries that are diagnosed late after caesarean section. *Korean J Radiol* 2008; 9: 348-53.
14. Glimour DT, Sandy BL. Urinary tract injuries in gynaecologic surgery. *Up to Date* 2010.
15. Tahmaz L, Irkilata HC, Goktolga U, Yildirim I, Basal S, Dayanc M. Modified psoas hitch Lich technique for the reconstruction of lower ureter during gynaecologic or obstetric operations. *Urol Int* 2010; 85: 257-60.
16. Matani YS, Bani-Hani KE, Bani-Hani IH. Ureteric injuries during obstetric and gynaecologic procedures. *Audi Med J* 2003; 24: 365-8.
17. Paik JS, Hong SK, Park MS, Kim SW. Management of postoperative detected iatrogenic lower ureteral injury. *Urol* 2006; 67: 237.
18. Obarisiagbon EO, Olagbuji BN, Onuora VC, Oguik TC, Ande AB. Iatrogenic injuries complicating obstetric and gynaecological procedures. *Singapore Med J* 2011; 52: 738-41.