

Research Article

Iatrogenic ureteric injuries in open abdominopelvic surgery: a five year experience in Maiduguri, North Eastern Nigeria

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ABSTRACT

Background: Ureteric injuries during open abdominopelvic procedures though rare, are often associated with high morbidity and mortality especially when they present late. Late presentation is the norm as most injuries occurred during non-urological procedures and patients subsequently referred to urologist.

Methods: The study reviewed iatrogenic ureteric injuries managed by the urology unit in the University of Maiduguri Teaching Hospital between January 2011 and December 2015.

Results: A total of 19 patients (23 injured ureters), age ranged from 9 to 70 years, with a mean of 38.42 years and Female to male ratio of 2.17:1. Clinical features were renal failure with anuria in 21.05% and leakage of urine in 57.89%. Duration of symptoms ranged from 5 to 39 days. Injuries were sustained during caesarean section in 36.84% and retroperitoneal tumour resection in 31.58%. Pattern of injuries were left ureter in 39.13%, right in 26.08%, and bilateral in 4 patients 21.05% of patients- accounting for 34.78% of injuries. Procedures done were uretero-neocystostomy in 60.87% ureters and Boari flap with Psoas hitch in 17.39%. Post-operative complications were, surgical site infection 15.79% and urosepsis in 26.34%. Mortality was 15.79%.

Conclusions: Iatrogenic ureteric injuries though rare are associated with high morbidity and mortality. Early detection especially during surgery and immediate repair will reduce morbidity and mortality.

Keywords: Iatrogenic ureteric injuries, Open surgery, Presentation, Management outcome

INTRODUCTION

Open abdominopelvic procedures such as caesarean section, hysterectomy, and retroperitoneal tumour resections are known to be associated with mishap of ureteric injuries.¹⁻³ These injuries though rare but associated with high morbidity and mortality especially when detected late. Ureterovaginal fistula with attendant leakage of urine, deterioration in renal function, urosepsis, and prolonged hospital stay are some of the negative consequences of this clinical problem.⁴⁻⁶

So to forestall these negative consequences, early detection and prompt repair are essential. In developing

countries like ours however, late presentation associated with complications are the norm. Most of these injuries occur in district hospital and patients referred to tertiary health care facilities for evaluation and management. This study was aimed at reviewing present experience in the management of iatrogenic ureteric injuries, and identifies possible predisposing and prognostic factors.

METHODS

The study reviewed iatrogenic ureteric injuries managed by the urology unit in the University of Maiduguri Teaching Hospital between January 2011 and December 2015. Permission for the study was given by the hospital ethical committee, informed consent obtained from all

patients. Information was extracted from clinical and laboratory records and data analysed. All patients presented late. Patients were resuscitated with antibiotics (Metronidazole and Ceftriaxone), Intravenous fluids, blood transfusion, and pre-operative haemodialysis, and ureterostomy/nephrostomy tube insertion where necessary. Investigations done were full blood count, blood chemistry, abdominopelvic ultrasound scan, intravenous urography, blood grouping and crossmatching and Fasting blood sugar.

All patients had open surgery under general anaesthesia and all repairs were stented with double J stent or appropriate size feeding tubes.

RESULTS

There were 2597 abdominopelvic operations of which a total of 19 patients (23 injured ureters) had ureteric injuries (0.73%), age ranged from 9 to 70 years, with a mean of 38.42 years and Female to male ratio of 2.17:1. Clinical features were renal failure with anuria in 4 (21.05%) patients, leakage of urine in 11 (57.89%), while 4 (21.05%) patients presented with urinoma/ urinary ascites.

Other features were fever in 8 (42.11%), flank pain in 9 (47.37%), anaemia 10 (52.63%). Co-morbidities were hypertension in 4 (21.05%) and diabetes mellitus in 2 (10.53%). Duration of symptoms ranged from 5 to 39 days. Injuries were sustained during caesarean section in 7 (36.84%) (Table 1).

Seven (36.84%) patients were operated by consultants while 12 (63.16%) by senior registrars and general practitioners.

Table 1: Procedures associated with ureteric injuries.

Procedures	No	%
Caesarian section	7	36.84
Retroperitoneal tumour resection	6	31.58
Elective hysterectomy	3	15.79
Caesarian hysterectomy	2	10.53
Right colectomy	1	5.26
Total	19	100

Pattern of injuries were left ureter in 9 (39.13%), right in 6 (26.08%), and bilateral in 4 patients (21.05% of patients) accounting for 8 (34.78% of injuries).

Associated bladder injuries found in 4 patients (21.05%). Procedures done were uretero-neocystostomy in 14 (60.87%) ureters, ureteroureterostomy in 5 (21.74%), and Boari flap with Psoas hitch in 4 (17.39%).

Post-operative complications were, surgical site infection 3 (15.79%), renal failure 2 (10.53%), urosepsis 5 (26.34%), and disseminated intravascular coagulation

(DIC) in 1 (5.26%). Mortality was 3 (15.79%), all had bilateral injuries. Septicaemia, DIC, and renal failure are direct causes of death.

DISCUSSION

Iatrogenic ureteral injuries can occur in all age groups. The current study found a mean age of 38.42 years, which is lower than the 49.2 years reported by Paick et al.⁷ The commonest causes of this injury in both studies were caesarean section and this procedure is seen in younger women because of early marriage in this part of the world.

In present series injuries were sustained during gynaecological surgeries, retroperitoneal tumour resection, and colectomy, these were in keeping with earlier studies.⁸⁻¹⁰ The current study found distal ureter was the commonest site affected, suture ligation is the commonest injury and unilateral injuries were commoner, similar to study by Chalya et al in Tanzania.¹¹ Ureteroneocystostomy was the commonest procedure in our series due to late presentation even though the commonest injury was suture ligation.

Suture ligation when detected intraoperatively can be managed by ureteric freeing and stenting. Other techniques in this study were ureteroureterostomy, and Boari flap. Chalya had ureteroneocystostomy as the commonest technique. Post-operative complications of surgical site infection, acute renal failure and DIC were however in complete variance with a study by Papanikolaou et al who had ileus, hydronephrosis and wound infection.¹²

The mortality of 15.79% was quite high due to the fact that all 3 patients that died had bilateral injury, presented late, with complications. One who was diabetic developed septicaemia and renal failure. Another died of DIC, and the third died of septic shock and multiple organ failure. These are rare circumstances peculiar to late presentation of ureteric injuries. Mensah et al in Ghana had mortality of 7.14% attributed to overwhelming sepsis. The study found predictors of injury were emergency surgeries, obesity, intraoperative bleeding, large/ advanced tumours, and surgeon's experience. These were in keeping with findings in earlier studies.¹⁴⁻¹⁵ Interestingly the study found co-morbidities (hypertension, diabetes mellitus), bilateral injury, late presentation, urosepsis, and renal failure to have negative influence on prognosis.

CONCLUSION

Iatrogenic ureteral injuries though uncommon, have serious morbidity and mortality especially in late presentation. Thorough pre-operative imaging evaluation, meticulous surgical technique would have minimized such injuries.

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