

Posttraumatic Urological System Injuries at UNTH, Enugu.

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SUMMARY

Objective: To describe our experience in the management of and the results of treatment of traumatic injuries to the urogenital system/organs.

Methods: This is a retrospective patient record review of the records of 225 patients treated of posttraumatic injuries to the urogenital system in our unit over a period of ten years, i.e. between January 1995 and December 31 2004.

Results: The total number of patients treated within 10 years was 225. Only 65 of these patients were women; the remaining were men, majority of them were aged between 30 and 50 years. The male female ratio was 2.5:1 made up as follows, 160 (71.1%) males, and 65 females, (28.9%). A total of 73 patients (32.4%) had definitive treatment as emergency, while 152 patients (67.1%) were operated on as elective cases. Road Traffic Accidents (RTA) accounted for 119 (52.9%), of the cases. One hundred and thirty nine (139) of the patients recovered fully and were discharged. There was improvement with treatment or rehabilitation continued on outpatient basis in 63 (28%) cases. Seven of the patients were lost to follow up and so no definite opinion could be given. There was a mortality of 7.1 %. Only 27 of the patients reported to UNTH as their first port of call after their injury; And all the 27 cases survived. The rest of them came as referrals from various hospitals where they had received some forms of treatment after their injuries before being referred for further management. The commonest cause of trauma was Road Traffic Accident and the kidneys were the organ most frequently injured.

Conclusions: Our experience compares favorably with other reports world-wide. However there was a high incidence of nephrectomy in the series. A mortality of 7.1 % for posttraumatic injuries to the urogenital system was quite unacceptably higher than most reports reviewed. To reduce the magnitude of mortality in posttraumatic uro-genital system injuries peripheral hospitals should be encouraged to refer cases early enough rather than delay these patients to the point of death before referring them for "expert management."

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INTRODUCTION

Injuries to the urogenital tracts are relatively rare,¹. When trauma to the internal organs of the urogenital system occurs, it is almost always in association with other organs. Injury to the urogenital system alone without involvement of other organs and/or system hardly occurs,^{2,3,4}. These traumatic injuries are rarely isolated and isolated trauma of the urogenital system was only observed in wounds of the external genitalia,^{5,6}. In the University of Nigeria Teaching Hospital, (UNTH), our experience with management of posttraumatic uro-genital injuries is presented. The aim of this presentation is to describe our experience in the management of traumatic injuries to the urogenital system/organs.

Testicular tumours are associated with trauma,⁷. A heavy and dragging tumour of the testes may be susceptible to trauma and this also aggravates and facilitates the spread of existing tumour,⁸. It is aimed at knowing how often the trauma of the testes is associated with testicular tumours. The study tends to high light the parts of the urogenital system most frequently involved in traumatic injuries as well as determine the changes in the pattern of injuries.

PATIENTS AND METHODS

This is a retrospective study conducted in the Urology Unit of the Department of Surgery of the University of Nigeria Teaching Hospital, Enugu. It is a review of all the posttraumatic cases treated in our unit over a period of ten years, between January 1 1995 and December 31 2004. Folders of the patients were pulled from the departments of Medical records, Accident and emergency, Theaters as well as from the Wards' registers.

The bio-data of these patients were collected including; age, sex, tribe, faith, occupation and cause of the trauma. Also considered were the anatomical distribution of the injury, the type of trauma causing the injury, the type of treatment given and outcome of the treatment.

RESULTS

From January 1 1995 to December 31 2004 inclusive, (a ten-year period), a total of 225 patients with posttraumatic injuries to the urogenital system were treated in the unit. There were 160 male and 65 females. Patients aged 15 years and above were 200 in number.

The oldest patient treated in the series was aged 93 years. His left kidney was shattered following injury sustained as a result of a stray bullet. He survived after an emergency left nephrectomy was done. The youngest patient was a three-year old boy who had an external urethral meatal injury, sustained while playing with a cat at home. He was managed conservatively and recovered without complications.

A total of 73 patients had definitive treatment as

emergency including three patients who had nephrectomy. Also included among the patients who had definitive treatment on emergency bases were two scrotal explorations with a left unilateral orchiectomy. One hundred and fifty two of the patients were operated on as elective cases. They included seven posttraumatic urethral strictures, three of which were offered Urethroplasty.

It was noted that with the exception of a negligible number, all surgical procedures, whether as emergency or elective were carried out by the consultants or senior residents in the unit. Sixty nine out of the seventy three emergency surgeries were performed by resident doctors. The consultants were involved in sixty three out of the 152 elective surgical procedures. A total of 139 cases fully recovered and were discharged home. Sixty three patients had some improvement, and / or rehabilitation continued on outpatient. Seven of the patients were lost to follow up and hence no definite treatment outcome could be reached. The mortality was 7.1%.

The aetiological factors of the trauma are as shown in Table 1. Road Traffic Accidents accounted for over half the aetiological factors i.e.52.8%. Iatrogenic factors, (Hysterectomy, Caesarian sections, Circumcisions and colostomy) also had a significant contribution; 29 / 225 (12.9%). The age and sex distributions are shown in Table 2. The males were more in number and involved mainly active young people in their reproductive ages 20 to 50 years.

The anatomical distribution of the injuries of the urogenital system/ organs is shown in Table 3. The kidney was the most commonly affected organ, constituting almost one third (32.4%) of the organs involved. This is followed by the penile / urethral injuries, (48=21.3%), then the urinary bladder, (36=16%), the scrotum (27=12%), and scrotal contents- the testes 13=5.8%) and the epididymis (6=2.7%) in that order. The treatment offered for the various categories of injuries is outlined in Table 4.

Table 1: Aetiological Factors

Causes	Number Involved	Percentage
Road Traffic Accident (RTA).	119	52.89%
Gun Shot.	46	20.44%
Fall from Heights.	24	10.6%
Abdominal Hysterectomy	11	4.89%
Caesarean Section.	9	4.00%
Circumcision.	8	3.56%
Colostomy	1	0.44%
Others	7	3.11%
TOTAL	225	100.00%

Table 2: Age And Sex Distribution

Age Years	Sex		Total
	Male	Female	
0 – 8	9	4	13
10 – 19	13	3	16
20 – 29	49	31	80
30 – 39	36	14	50
40 – 49	38	5	43
50 – 59	11	3	14
60 & >	4	5	9
TOTAL	160	65	225

Table 3: Anatomical (Organ or Site) Distribution

Organs	Number	Percentage
Kidney	73	32.44%
Ureter	22	9.78%
Urinary bladder	36	16.00%
Urethra & Penis	48	21.33%
Scrotum	27	12.00%
Testes	13	5.78%
Epididymis	6	26.0%
TOTAL.	225	100.00%

Table 4: Types of treatment given for the injured organ & / or part.

Injure organ / part	Treatment given
Kidney	Nephrectomy, Repair, Conservative
Ureter.	Exploration & repair, catheterization
Urinary bladder	Exploration and repair, Catheterization
Urethra & Penis	Catheterization, Primary repair of the corpora and Urethroplasty.
Scrotum	Hematoma drainage, Debridement, & Repair, Conservative
Testes	Orchidorrhaphy, Partial orchiectomy, repairs,
Epididymis	Conservative

The treatment by anatomical site(s) is as follows:-

Scrotal injuries:

A total of 27 scrotal injuries were treated. Fifteen of them were surgically treated; eight of them by primary suturing and seven by secondary repair. Other scrotal injuries were managed conservatively.

Penile / urethral injuries:

Forty seven (97.9%) of the penile and urethral injuries were treated by corporal repair and urethral catheterization. Only three of them required Urethroplasty some years later. One case had partial amputation and refashioning of the penis. In the surgery for the urethra, there was one (5.89%) fistula and two wound dehiscence following secondary Urethroplasty.

Urinary bladder injuries:

In 18 patients with urinary bladder injuries suture of the bladder wall, cystostomy and placement of transurethral catheter were performed. There were two patients with multiple organ injury including pelvic fractures, ruptured bladder cum ureters, following RTA. Bilateral intubation of the ureters (Ureterocutanostomy) was done as a temporizing measure. These two patients had bladder reconstitution later with re-implantation of the ureters into the bladder. The rest of the bladder injuries did well on mere catheterization and continuous drainage for a period ranging from seven to twenty one days.

Kidney injuries:

Nephrectomy was performed in 12 patients, because they had shattered injuries of one of their kidneys or life threatening renal (pedicle) vascular injuries. There were eleven of them who had kidney repair. Eight of the patients had partial nephrectomy

or the repair of the injured site after removal of the devitalized tissue, (debridement). There were three nephrostomy while the remaining 18 i.e. 50% of the patients with kidney injuries were managed conservatively.

Complications:

Infections were the commonest complications encountered, constituting more than one third, (6/17), of all the complications.

There were 17 cases of post-operative complications, giving an over-all complication of 7.56%. Three very *uncommon* complications were noted with operations on the kidney. These were one case of Reno-cutaneous fistula following late removal of a nephrostomy tube, one case of Ureteric ligation and transection in a patient who had intra abdominal visceral rupture. He subsequently had a nephrectomy on that ipsilateral side. One patient was reported to have a duodenal – cutaneous fistula which required reoperation.

Surgical procedures on the ureters were followed by post-operative complications in the form of fistulae with formation of urinoma in four cases, (33.3%), and pyonephrosis requiring subsequent nephrectomy in one case (8.3%)

DISCUSSIONS

Injury to the urogenital system alone without involvement of other organs and / or system hardly occurs,^{2, 3, 4}. These traumatic injuries are rarely isolated and isolated trauma of the urogenital system was only observed in wounds of the external genitalia,^{5, 6}. In the urogenital system, conservative or organ – saving procedures are particularly recommended,^{8, 9, 10, 11}. There is obvious high rate of nephrectomy in this series. There is no immediate explanation to this finding. A detailed look, at the nephrectomy list, however revealed that ten, (10 = 83.3%), out of twelve of these surgeries, were done at night. Usually the frequent power outage and poor lightening during such occasions at night may have contributed to some surgeries being done in a ‘hurry’; hence the easy destructive surgery, (nephrectomy), rather than resorting to a meticulous time consuming tissue conserving operations. This may probably be coupled with inexperience in tissue conserving procedures by these more aggressive young doctors who performed these operations.

Owing to concomitant involvement of several organs or possible diagnostic failure, contrast X –ray examinations should be performed whenever possible, and Ureter should always be explored during abdominal operations. This is important so as to avoid such complications like ligation and transection of unidentified Ureter as recorded in this series. In this study treatment outcome of urogenital injuries was adjudged excellent in 50.8% and satisfactory in 21% of the patients. This compares unfavorably with the work done by Osegbe et al in Lagos Nigeria. This may probably be due to the large number, 225, in our series as against that of Osegbe et al which had only 34 cases.

One man aged 93 years; the oldest of the patients in the series, (who sustained left kidney third degree laceration) made a very excellent recovery and was discharged home on the 8th day post operation. This emphasizes that age should not be a

deterrent to active management of trauma. We agree with earlier reports that uro genital system injuries by themselves rarely result in death¹². All the 16 patients who died had in addition to the uro genital injury, had other system(s), injuries in addition. They probably may have died from multiple injuries rather than urogenital injury per se. The preponderance of males over females, (M: F = 2.5:1), in this study contrast with the previous finding in this hospital, by Attah¹³, at Enugu with a Male: Female ratio of 7:2, and that of Eke,¹⁴ in Port Harcourt. This may be as a result of Road Traffic Accident cases involving more males. Another possible explanation may be that there is enormous increase in the number of gynecological/obstetric procedures to the barest minimum. There is also increase in awareness on the part of women following improvement in women education and the tendency to seek better obstetric (medical) attention among the childbearing mothers. It is however noted that very few cases of minor injuries presented to the unit on emergency basis. It is therefore possible that the high mortality recorded in the series is due to the severity of such cases referred to the Teaching Hospital, after peripheral hospitals attempt may have failed.

REFERENCES

1. Culp D A., Genital injuries and initial management. *Urol. Clin. North Am.* 1997; **4**: 143 – 156.
2. Eke N., Iatrogenic Urological trauma: a ten – year experience from Port Harcourt. *W A J M* 2000; **119(4)**: 246 – 249.
3. Robert P. E., Smith J. B., Pierce J. M. Gunshot injuries of the Ureter. *J. Trauma*, 1991; **30**: 83 – 85.
4. Bertini J. E., Corriere J. N. the etiology management of genital injuries. *J. Trauma* 1998; **28**: 1278 – 1281.
5. Salvatierre Jr. O., Eidgon W. O., Norris D. M., Brady T. W. Vietnam experience with 252 urological war injuries. *J. Urol.* 1969; **101**: 615 – 620.
6. Mostofi H., Price F. B. tumours of the male genital system. Fas (8) Atlas of Tumour Path 2nd Series 1973. Washington DC AFIP.
7. Ferguson J. D. Tumours of the Testis. *Br. J Urol.* 1962; **34**: 407 – 421.
8. Petricevic A., Ilic N., Radonic V., Mimica. Z., et al. Our experience with 2693 Wounded, treated at the Split University Hospital during the 1991 – 1995 period. *Int. Surg.* 1998; **29**: 370 – 374.
9. Presti J. C. Jr, Carroll P. R., Mc Aninch J. W. Urethra and Renal pelvis injuries from external trauma; diagnosis and management. *J. Trauma.* 1998; **29**: 370 – 374.
10. Mc Aninch J. W., Carroll P. R. Renal trauma, kidney preservation through improved vascular control. *J. Trauma.* 1982; **22**: 285 – 290.
11. Charles V., Mann R. C. G., Russell. Urinary Bladder, in Bailey and Love’s Short Practice of Surgery. 21st Edition, Chapman & Hall, London p 1372 – 1417.
12. Ivatury R. R., Zubowski R., Stohl W. M. Penetrating Reno vascular trauma. *J. Trauma* 1989; **29**: 1620 – 1625.
13. Attah C. A., Diagnosis and management of Urological injuries in University of Nigeria Teaching Hospital, Enugu. *Orient Journal of Medicine*, 1993; **5**: 115 – 119.
14. Osegbe D. N., Ekeke O. N., Ukpong A. E., Adegbola Kanu O., Ogumbise O. O. Genital injuries in civil urban population. *Lagos Journal of Surgery.* 1999; **2(11)**: 3 – 10.