

PAEDIATRIC UROLOGICAL TRAUMA AT NNEWI, SOUTH EASTERN NIGERIA: A TWO-YEAR EXPERIENCE

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Objectives: To evaluate the factors implicated in paediatric urological trauma at Nnamdi Azikiwe University Teaching Hospital (NAUTH), Nnewi, and to determine how these factors could influence the management.

Patients and Methods: All medical cases of paediatric urological trauma managed at NAUTH between January 1st, 2000 and December 31st, 2001 were analyzed retrospectively on the basis of the patient records. The patient group included neonates up to children aged 15 years. Apart from the biodata, the cause of the trauma, the organ(s) injured, the treatment given and its outcome were critically analyzed.

Results: In the two years under review, 257 cases of paediatric trauma were managed. Out of these, urological trauma was found

in 18 patients (7%) with a male/female ratio of 5:1 (15 males and 3 females). The commonest causes of paediatric urological trauma in our environment were found to be circumcision mishaps followed by road traffic accidents (RTA) caused by commercial motorcyclists. Treatment was mainly surgical. There was no mortality but we recorded morbidity in four cases (22.2%).

Conclusion: Our study shows that most of our paediatric urological trauma is preventable. We conclude that paediatric urological trauma in our environment would be drastically reduced if there were laws stipulating that circumcisions should only be done by qualified personnel and if the existing traffic laws of the country were strictly enforced.

Key Words: paediatric, urological trauma

INTRODUCTION

In a previous study conducted by one of the authors on paediatric surgical emergencies at Nnewi¹, trauma accounted for 54.2% of the paediatric emergency cases admitted to Nnamdi Azikiwe University Teaching Hospital (NAUTH). Trauma to the genito-urinary system formed 12% of all paediatric trauma emergency cases and 6.5% of all paediatric emergencies. This indicates that paediatric urological trauma represents a significant portion of our paediatric trauma cases.

This study was carried out to evaluate the factors implicated in paediatric urological trauma in our environment and our experience over a two-year period in managing such cases.

PATIENTS AND METHODS

The medical records of all paediatric patients aged 15 years and below managed be-

tween January 1st, 2000 and December 31st, 2001 were retrieved from the medical records department. The data of patients with urological trauma were analyzed in terms of age, sex, cause of the trauma, organ affected, treatment given and outcome of treatment. Statistical evaluation of the results was done using the 'chi' square test.

RESULTS

There were 257 cases of paediatric trauma. Eighteen of them (7%) had trauma affecting the urinary system. There were 15 males and 3 females giving a male/female ratio of 5:1,

Twelve out of these 18 injuries (66.7%) were due to male circumcision mishaps: three amputations of the glans penis, three avulsions of the ventral wall of the anterior urethra, two iatrogenic fistulae and four external urethral meatal injuries. Three of the remaining patients had bladder injuries, one caused by a fall from

Table 1: Causes of Paediatric Urologic Trauma Related to the Age of the Patients

Causes	Age (years)					Total (%)
	< 1 month	1 – 11 months	1 – 4 years	5 – 9 years	10 – 15 years	
Amputation of glans penis	3	-	-	-	-	3 (16.7%)
Avulsion of the ventral wall of the urethra	3	-	-	-	-	3 (16.7%)
Iatrogenic urethral fistula	2	-	-	-	-	2 (11.1%)
Bladder injury from RTA*	-	-	-	2	-	2 (11.1%)
Bladder injury from a fall from height	-	-	-	-	1	1 (5.6%)
Renal injury from RTA*	-	-	-	2	-	2 (11.1%)
External meatal injury	5	-	-	-	-	5 (27.8%)
Total	13 (72.2%)	-	-	4 (22.2%)	1 (5.6%)	18 (100%)

*RTA = road traffic accident

Table 2: Sex Distribution Related to the Causes of Paediatric Trauma

Causes	Males		Females	
	No.	%	No.	%
Amputation of glans penis	3	16.7%	-	-
Avulsion of the ventral wall of the urethra	3	16.7%	-	-
Iatrogenic fistula	2	11.1%	-	-
Bladder injury from road traffic accident	1	5.6%	1	5.6%
Bladder injury from a fall	1	5.6%	-	-
Renal injury from road traffic accident	1	5.6%	1	5.6%
External meatal injury	4	22.2%	1	5.6%
Total	15	83.3%	3	16.7%

height and the other two as a result of road traffic accidents (RTA) caused by commercial motorcyclists, the so-called "Okada" drivers. Two other patients had renal injuries as a result of road traffic accidents caused by commercial motorcyclists. The remaining patient, a girl, had an external urethral meatal injury as a result of genital probing with a sharp object by an older sibling (Tables 1 and 2).

Ten cases (55.6%) were managed conservatively, while 8 cases (44.4%) were treated

surgically. There was no mortality, but morbidity was encountered in 4 patients (22.2%).

DISCUSSION

Studies carried out in our environment^{1,2} and outside the country³ have indicated that paediatric urological trauma accounts for a significant percentage of all trauma patients treated in urological centres. The causes differ with the level of development in the countries

where the studies were conducted⁴. Treatment modalities also differ with the centres depending on the facilities available^{5,6}.

In western countries, minimally invasive surgery⁷, minimal access surgery^{5,8}, and endourology⁷ have all played a significant role in revolutionizing the management of paediatric urologic injuries. However, our study was carried out in a semi-urban town of a developing country where there are no facilities for minimal access surgery or endourology. The lack of such facilities has affected both our management strategy and outcome of management.

Our study period of two years is short but we are presenting this report because of the interesting finding that 88.9% (16/18) of our paediatric urologic traumas would have been preventable. Twelve of our cases (66.7%) were due to circumcision mishaps and four patients (22.2%) were injured by commercial motorcyclists. A critical analysis of circumcision procedures in our environment has revealed that these are most often performed by unqualified personnel (previous study - not yet published). This has been confirmed by studies within^{9,10} as well as outside our country¹¹ and has led to a lot of debate as to whether neonatal circumcision is justified¹² or whether the associated complications¹³ outweigh the benefits. The debate is still raging. Also in our twelve trauma patients, circumcision was carried out by unqualified personnel.

The contribution of road traffic accidents (RTA) to urological trauma in our study is 22.2% (4/18) which is a high incidence compared to other studies³. This is attributed to the fact that our 'Okada' riders are illiterates who neither know the existing traffic laws, nor obey them.

Our overall incidence of 7% for paediatric urological trauma is in conformity with findings of studies done at Zaria² and Portharcourt⁹.

We did not record any mortality but we recorded a morbidity of 22.2% (4/18). This high rate is due to the fact that in the three patients with glans amputation an immediate reimplantation was not possible. They all presented late with sepsis and we do not have facilities for micro-vascular anastomosis. In the fourth patient who had a ventral tear of the anterior urethra a residual fistula developed after

reconstruction. He is now waiting for a second reconstruction attempt.

We recorded a male/female ratio of 5;1 in our studies and there was no circumcision mishap in females. We believe that this is due to the global protest against female circumcision (female genital mutilation).^{14,15} If such a global protest was directed also against circumcision-related injuries in the male, this might lead to a drastic reduction of urologic trauma in the paediatric age group.

Our study has indicated that two factors are mostly responsible for paediatric urological trauma in our environment: circumcision and RTA from illiterate 'Okada' riders. To advocate for an immediate abrogation of neonatal circumcision will be very difficult because this has been an age-old tradition. To also advocate for the banning of the use of commercial motorcycles in our cities will adversely affect the economy since there are no good alternative means of easy transportation.

We believe that the best that can be done now is to put a law in place stipulating that circumcisions should only be done by qualified surgeons. A law should also be put in place demanding a minimum literacy level for all commercial motorcyclists and an enforcement of the existing traffic laws.

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RESUME

Trauma Urologique Pédiatrique à Nnewi, Nigéria Oriental du Sud: Une Expérience de 2 Ans

Objectifs : D'évaluer des facteurs impliqués dans le trauma urologique pédiatrique à l'hôpital universitaire de Nnamdi Azikiwe (N.A.U.T.H.), le Nnewi, et pour déterminer comment ces facteurs pourraient influencer la gestion. **Patients et méthodes :** Tous les cas de traumatisme urologique pédiatrique contrôlés à NAUTH entre le 1er janvier 2000 et 31 décembre 2001 ont été analysés rétrospectivement. Le groupe patient a inclu des nouveau-nés jusqu'aux enfants âgés 15 ans. Indépendamment du biodata, la cause du trauma, l'organ(s) blessé, le traitement donné et ses résultats ont été en analysés. **Résultats :** En deux années d'étude, 257 cas de traumatismes pédiatriques ont été contrôlés. Parmi ces derniers, le trauma urologique a été diagnostiqué chez 18 patients (7%) avec un sexe ratio de 5:1 (15 mâles et 3 femelles). Les causes les plus communes du traumatisme urologique pédiatrique dans notre environnement se sont avérées des malheurs de circoncision suivis d'accidents de trafic de route (RTA). Le traitement était principalement chirurgical. Il n'y avait aucune mortalité mais nous avons enregistré une morbidité dans quatre cas (22.2%). **Conclusion :** Notre étude prouve que la plupart de nos traumas urologiques pédiatriques sont évitables. Nous concluons donc, que le trauma urologique pédiatrique dans notre environnement serait rigoureusement réduit s'il y avait des lois stipulant que des circoncisions devraient seulement être faites par un personnel qualifié et si les lois existantes du trafic du pays étaient strictement imposées.

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