A SURVEY OF URINARY BLADDER INJURIES IN ABBOTTABAD

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Background: Injury of urinary bladder is not very uncommon. It has iatrogenic and non iatrogenic causes. This study was designed to determine the pattern, mode of diagnosis and management of urinary bladder injuries presenting at Ayub Teaching Hospital, Abbottabad. **Methods:** Ten years hospital record of urinary bladder injuries reporting at Urology, Surgical and Gynaecology wards of Ayub Teaching Hospital, Abbottabad was analysed. The cause of injury, associated injuries, diagnostic method and management protocols were analyzed. **Results:** During 10 years period 260 patients were treated for bladder injuries. The age range was from 5-75 years while there were more males than females. In 35% the injuries were due to RTA, in 20% by a fall from a height, in 10% by a gun shot wound and in the remaining 35% the injury was iatrogenic. Gynaecological procedures were the major cause for iatrogenic bladder injuries. **Conclusions**: Most of the bladder injuries seen at our hospital are due to road traffic accidents or iatrogenic causes. Both of these factors can be minimized by taking appropriate steps to improve road safety and operative procedure safety respectively.

Keywords: Urinary Bladder, Injury, etiology, management, diagnosis

INTRODUCTION

The urinary bladder occupies the deep pelvic cavity and is well protected; this is the reason why it can rarely be traumatized. However it can suffer traumas, which can cause extraperitoneal and intraperitoneal ruptures.[1,2] Injury of urinary bladder has iatrogenic and non iatrogenic causes. The urinary bladder can be injured in different hospital situations. The most notorious however are the gynaecological procedures.[3] The urinary bladder injury is one of the most common complications associated with laparoscopically assisted vaginal hysterectomy. Early detection and treatment enable complications to be overcome easily.[4] Generally the bladder injury in non iatrogenic causes is associated with other injuries as well, the commonest being spleen and rectum.[5,6] The posterior urethra or urinary bladder may be injured in patients who sustain fractures of the bony pelvis.[7] Combined penetrating trauma of the rectum and urinary bladder is rare, and constitutes a diagnostic and therapeutic challenge. The combination of penetrating trauma to both rectum and the urinary system is associated with high morbidity and mortality.[8]

Anuria, macrohematuria and microhemat-uria can be present in 85% of the urinary bladder injuries.[1] A number of diagnostic procedures are available ranging from cystogram and ultrasonography to CT scan and explorative laparotomy, depending upon the situation. Management of intraperitoneal, nonurethral bladder injuries is done by urinary diversion using suprapubic (SP) catheters or transurethral (TU) Foley catheters along with surgical intervention to repair the bladder wall.[9]

This study was designed to determine the pattern of urinary bladder injuries presenting at Ayub Teaching Hospital, Abbottabad and to get an insight into diagnosis and management of these injuries with an idea to have a baseline data to improve the shortcomings if any.

MATERIAL AND METHODS

An analysis of 10 years hospital record from January 1991 to December 2000 was done. All the cases of urinary bladder injuries treated in Surgery, Gynae and Urology units of Ayub Teaching Hospital, Abbottabad were included. The record regarding age and sex of the patient, cause of injury, associated injury, diagnosis, management and final outcome were entered in a proforma. Descriptive statistics were used to summarize and present the data.

RESULTS

During 10 years period 260 patients were treated for bladder injuries. In 91 (35%) the injuries were due to RTA, in 52 (20%) by a fall from a height, in 26 (10%) by a gun shot wound and in the remaining 91 (35%) the injury was iatrogenic.

In noniatrogenic bladder injuries 21% were due to pelvic bone injuries and 11% patients were having simultaneous injuries of posterior urethra and urinary bladder.

The diagnosis was confirmed by cystogram with micturating films in the majority (76 %) patients by instilling 250ml of sterile contrast material in the bladder for distension.

Most cases in whom rupture of urinary bladder was confirmed during exploration were treated non operatively by placing a simple transurethral (TU) catheter for extrapenitoneal extravasation & partial bladder wall laceration.

Bladder wall was closed by chromic catgut No.1 in two layers, after retaining urethral catheter. An extravesical drain was kept by using ordinary urinary bag tube through a separate stab wound.

After 2 weeks a cystogram was performed through the urethral catheter along with postvoid film after removing the catheter. In the majority of cases no extravasation was seen and SP tube was removed, while in 11 % cases the SP tube was kept for 4 weeks as these patients were having urethral injuries (disruption) as well.

Gunshot wounds accounted for 10 % (26) patients; of these patients all had bladder repair.

Table-1: Sex and age of the subjects with urinary bladder injuries (n=260)

Age Range	5-75 years
Males	179 (68.84%)
Females	81 (31.16%)

Table-2: Cause of the urinary bladder injury (n=260)

Cause	% of cases
Road Traffic Injury	91 (35%)
Gunshot wounds	26 (10%)
Fall from height	52 (20%)
Iatrogenic	91 (35%)

Table-3: Cause of iatrogenic injury (n= 52)

Nature of procedure	% of cases
Urology	15 %
Surgery	20 %
Gynaecology	62 %
Others	03 %

Table-4: Associated injury in non iatrogenic urinary bladder injuries (n= 208)

Organ injured	% of cases
Multiple organs	35 %

Spleen (alone)	11 %
Rectum(alone)	15 %
Intestine(alone)	9 %
Vagina(alone)	3 %
Posterior Urethra	11 %
None	16 %

Table-5: Methods used for confirmation of diagnosis

Method	% of cases
Cystogram	70 %
Ultrasonography	91 %
CT scan	28 %
IVU	62 %

Multiple methods were used in most of the subjects

Table-6: Management Protocol (n=260)

Method	% of cases
Repair	98.46 % (256)
Conservative	1.54% (04)

Table-7: Treatment outcome (n=260)

Outcome	% of cases
Cured	78.09 % (203)
Residual defect	9.61 %(25)
Died	3.07 %(08)
Lost to follow up	9.23 %(24)

DISCUSSION

Our results as regards etiology and gender are different from the other studies, reported from different parts of the world.[10,11] This suggests that the pattern differs in different parts of the world depending upon socioeconomic conditions. Iatrogenic injuries and RTA make the biggest contribution to etiology of bladder injury in our setup. Gynaecological procedures contribute maximum

In a survey of bladder trauma in Poland, 5 year records of 61 centers in Poland were analysed. A total of 512 patients had urinary bladder injuries. 41 % out of them sustained the injury in RTA, 2 % by compression, 8 % by fall and the rest 49 % were iatrogenic. 16 % non iatrogenic injuries were associated with pelvic bone trauma. Amongst iatrogenic trauma, 39% were from urological departments, 52% in gynaecological departments and 9% in surgical wards. The injury was open in 20% and closed in 73%, there was bladder contusion in 7% patients.[12] We had less RTA and iatrogenic injuries as compared with this study, however the contribution of gynaecology department towards the iatrogenic injuries has a stark resembelence.

In the same Polish study the injuries were intraperitoneal in 44% and extraperitoneal in 56%). For diagnosis, abdominal ultrasonography was used in 89% patients, intravenous pyelography in 52%, cystography in 76% and computed tomography in 3%.[12]

In a 12 year audit of urinary bladder injuries Matijevic et al reported from former Yougoslavia that 31 % of the injuries were contusions of the bladder, 16 % extraperitoneal ruptures, 50 % intraperitoneal ruptures, and 3 % combined extra and intraperitoneal rupture. In there study isolated injuries of the bladder were rare, most of the extra peritoneal ruptures were associated with pelvic fractures. The intraperitoneal ruptures of the bladder were associated with rupture of spleen, rectum, vagina, aorta, ovarian cyst or ilium.[5]

CONCLUSIONS

A large number of our subjects had iatrogenic injuries. This number can come down once we have statistics in our hands. Maximum number of these iatrogenic injuries comes from gynaecological procedures as elsewhere in the world. This means that more care is required in the gynaecological procedures. It is important to teach precautions and care to the trainee doctors along with the basic range of urological operations.

The second biggest group is road traffic accidents. This is a point to ponder for policy makers to increase the road safety.

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