

**URETHRAL INJURIES-AN EARLY/IMMEDIATE ENDOSCOPIC INTERVENTION A PROSPECTIVE STUDY**Manjunath Shetty<sup>1</sup>, A. Sivasai Bharadwaja<sup>2</sup>, Mohana Chandra Kumar Suvarna<sup>3</sup><sup>1</sup>Professor, Department of Urology, Fr. Muller's Medical College, Mangalore.<sup>2</sup>Resident, Department of Urology, Fr. Muller's Medical College, Mangalore.<sup>3</sup>Professor & HOD, Department of Urology, Fr. Muller's Medical College, Mangalore.**ABSTRACT**

This study was conducted at Father Muller Medical College Hospital aimed at analysis of urethral injury management and complications. We studied the various patterns, etiology, clinical presentations of urethral injury along with diagnostic and therapeutic interventions practiced here. The detailed data analysis revealed the predominance of young male individuals. The trauma being the commonest cause, bulbar urethral rupture was commonest compared to membranous part. Retrograde urethrogram was the usual diagnostic tool used. Majority of them underwent early endoscopic realignment with or without suprapubic cystostomy. In conclusion our study points out that early realignment of the injured urethra should be first priority and is the best option, thereby to reduce the morbidity, loss of manpower hours and financial burden to the family.

**KEYWORDS**

Urethral Injury, Endoscopic Realignment.

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**INTRODUCTION**

Pelvic fractures sometimes associated with Urethral injuries are seen approximately in 10-15% of patients.<sup>1,2,3</sup> Majority of the pelvic injuries are as the result of occupational or of automobile accidents. In urethral injuries, few cases mandate immediate surgical intervention in the form of surgical realignment. The Issue is timing of intervention and the use of endoscopic or open surgical repair.<sup>4,5,6</sup> Repair can be immediate or delayed (1-2 weeks) or late (After 3 months). At all occasions the urethra can be repaired by endoscopic or open surgical techniques.<sup>7,8,9,10</sup> In literature various methods have been tried like using fluoroscopy, use of magnetic catheters, flexible cystoscopy.<sup>9,11</sup> The results have been compared with the use of these different approaches and the incidence of strictures, impotence and the incidence of incontinence has been studied. Standard treatment for urethral injury is to be suprapubic placement of catheter and open surgical repair like urethroplasty at 3-6 months after, has been the gold standard with successful outcome reported in more than 95% of patients. As of now number of reports of endoscopic realignment to re-establish urethral continuity are currently appearing.

However the difficulty in defining the role of endoscopy is that the numbers are small, follow up is short and the variety of different techniques used make comparison with the open surgical repair difficult. The aim of this study is to do an analytical study of 48 cases of urethral injury admitted in Father Muller Medical College and Hospital in the Department of Urology, between July 2008 to Aug 2013. To analyse the management protocol and do a prospective analysis of cases and come to a consensus regarding the most optimal way of management of urethral injury with minimum morbidity and less long term complications.

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**MATERIALS AND METHODS**

The study was conducted on 48 patients who were admitted in Father Muller Medical College Hospital between July 2008 to August 2013 with a diagnosis of urethral injury. On admission, detailed history was taken and examination is done to evaluate the extent of injury. Following which patients were subjected for routine investigations. The investigations included ultrasonography of the abdomen and pelvis, X-ray pelvis (Wherever required) and retrograde urethrogram. The management of urethral injury was done based on the type, site of the injury, presentation of the patient (Early/delayed) and the finding revealed by specific investigation.

**Inclusion Criteria**

Those admitted and diagnosed to have urethral injuries.

**Exclusion Criteria**

1. Those patients not willing for any intervention.
2. Patients less than 15 years of age.
3. Females.

**RESULTS**

An analysis of 48 patients admitted with urethral injuries in Father Muller Medical College Hospital, Kankanady, Mangalore, from August 2008 to August 2013.

**Age Distribution**

About 80% of the patients were young and middle age in which about less than half (37.5%) were <40 years. There were no patients below 20 years of age in the study.

Sl. No.	Age Group (In Years)	No. of Patients	Percentage
1	0-20	0	0
2	21-40	18	37.5%
3	41-60	20	41.5%
4	61-80	9	19
5	81- 100	1	2%

**Table 1**

**Clinical Presentation**

Majority of the patients in the group (50%) had difficulty in passing urine at the time of presentation. Second commonest complaint was hematuria (25%) and retention of urine in (14.5%). Other uncommon symptoms included urinary incontinence (6.5%), dysurea (2%) and dribbling (2%).

Sl. No.	Clinical Presentation	No. of Patients	Percentage
1	OBSTRUCTIVE VOIDING	24	50%
2	HEMATURIA	12	25%
3	URINARY INCONTINENCE	3	6.5%
4	DYSURIA	1	2%
5	RETENTION OF URINE	7	14.5%
6	DRIBBLING OF URINE	1	2%

**Table 2**

**Aetiological Distribution**

Majority of the injuries were due to trauma (87.5%), whereas 12.5% were iatrogenic injuries.

Sl. No.	Aetiology	No. of Patients	Percentage
1	TRAUMATIC	42	87.5
2	IATROGENIC	6	12.5

**Table 3**

**Diagnostic Tools Used**

Majority of the patients underwent diagnostic retrograde urethrogram (75%), next common investigation being cystourethroscopy (25%).

Sl. No.	Diagnostic Tools	No. of Patients	Percentage
1	RETROGRADE URETHROGRAM	36	75
2	CYSTOURETHROSCOPY	12	25

**Table 4**

**Site of Urethral Injury-** About 62.5% had rupture of the bulbar urethra and rest had injury to the membranous urethra (37.5%).

Sl. No.	Site of Injury	No. of Patients	Percentage
1	BULBAR URETHRA	30	62.5
2	MEMBRANOUS URETHRA	18	37.5

**Table 5**

**Diagnosis**

Bulbar urethral rupture was the commonest in our study (62.5%), second common being membranous urethral rupture (37.5%).

Sl. No.	Diagnosis	No. of Patients	Percentage
1	BULBAR URETHRAL RUPTURE	30	62.5
2	MEMBRANOUS URETHRAL RUPTURE	18	37.5

**Table 6**

**Treatment**

In our study majority had undergone endoscopic realignment with or without suprapubic cystostomy (62.5%). They were of 2 types. One was immediate within 12-24 hrs., and other was early within 1-2 weeks following the injury. In the second category, the early management was SPC followed by Urethroplasty (25%), approximately 3 months later. In 12.5% of patients only suprapubic cystostomy was done as an initial procedure, Endoscopic internal urethrotomy was done at a later date for short segment strictures.

Sl. No.	Therapeutic Procedure	No. of Patients	Percentage
1	ENDOSCOPIC REALIGNMENT	30	62.5
2	SPC FOLL. BY URETHROPLASTY	12	25
3	SPC FOLL. BY EIU	6	12.5

**Table 7**

Average hospital stay was 3-5 days in the group who underwent endoscopic realignment, whereas in the later group who underwent SPC with urethroplasty was 15-21 days. This clearly shows the advantages of endoscopic realignment over the other procedures in shortening the hospital stay and thereby allowing early return to their respective profession.

Sl. No.	Therapeutic Procedure	No. of Days	Percentage
1	ENDOSCOPIC REALIGNMENT	5	20
2	SPC FOLL. BY URETHROPLASTY	20	80

**Table 8**

**DISCUSSION**

Based on the results of the study and comparison with similar studies the following inferences were drawn:

1. Age distribution: In our study group majority of the patients with urethral injuries were in the age group 20-60 years, explaining the fact this group being physically involved in the manual labour and hence more vulnerable to trauma.
2. Sex distribution: In our study group all of them were males, considering the fact that men do more of outdoor work and thus getting exposed to trauma in various forms.
3. Clinical presentation: Most of the patients had obstructive voiding and hematuria as the presenting symptoms.
4. Aetiology: Predominantly urethral injuries were post-traumatic. However, our study also highlights iatrogenic causes due to various instrumentation and catheterization procedures, which is comparable.
5. Investigations: Retrograde urethrogram was the main diagnostic tool (75%). They had not only pin pointed the site of injury, also graded the injury. Cystoscopy was not done for the diagnosis but was used mainly during the early/immediate realignment only and to assess the urethral status for urethroplasty.
6. Site of injury: Two thirds of the injuries occurred at the bulbar urethra followed by membranous urethra.
7. Diagnosis: In our study bulbar urethral rupture was the major injury.

8. Treatment: Endoscopic realignment either immediate or early (1-2 weeks) was the mainline of treatment, thereby avoiding suprapubic catheterization with short hospital stay and minimal morbidity and less long term complications. However, whenever it was not feasible, suprapubic catheterization with later urethroplasty was undertaken with comparable results.<sup>4,5,12,13</sup>
9. The hospital stay: In our study hospital stay was short in endoscopic realignment group, which is a significant factor putting this approach ahead of other.
10. Followup: In our study those patients who underwent endoscopic internal urethrotomy were put on self-dilatation programmed for 3-6 months following, which they were symptom free.<sup>8,13,14</sup>
11. Complications: No patients reported incontinence or impotence in the endoscopic realignment group, whereas 2 patients reported impotence in the SPC and urethroplasty group which could have been attributed to the pelvic fracture and associated injury. However, no patients reported incontinence in both the group. These results are comparable.<sup>2,13</sup>

### CONCLUSION

Based on the data analysis of 48 patients admitted in our institution over five years, following conclusions were drawn:

1. Patients presenting with urethral injury needs prompt evaluation, in order to catch them early and realign the urethra to facilitate healing with primary intension, also needs evaluation for associated injury like pelvic fracture.
2. Procedures like suprapubic cystotomy, open urethral realignment and reduction of pelvic fractures with various fixators complement each other in the management of urethral injury for the optimal outcome.<sup>13</sup>
3. Early endoscopic realignment is found to be a better option as seen in our study wherein the morbidity of long term catheterization and associated complications were less. There also was a significant reduction in the average hospital stay and an early return to the work there by reducing the loss of manpower hours were comparable with similar studies.<sup>7,13,14</sup>

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