

# Early endoscopic realignment in urethral injuries

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## Abstract

This study done at Father Muller medical college hospital aimed at throwing light on a less known and rather ignored subject that is urethral injury in all its perspective. 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 male predominance with younger age group being the victims of urethral injury. The commonest cause being trauma. Bulbar urethral rupture was common compared to membranous part and diagnosis facilitated usually by retrograde urethrogram. Majority of them underwent early endoscopic realignment with or without suprapubic cystostomy prior to it. We stress upon the fact that early realignment of the injured urethra should be first priority.

**Keywords:** urethral injury, endoscopy.

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## INTRODUCTION

Urethral injury occurs in approximately in 10-15% of patients sustaining pelvic fractures, majority being the result of automobile or occupational injury. Once the diagnosis of urethral injury is established, a small percentage of cases demand immediate surgical intervention. Management of patients other than this small percentage is controversial. The debate centers on the timing of intervention and the use of endoscopic or open surgical repair. Repair can be immediate, delayed (1-2weeks), or late (after 3months). At each of this time urethra can be repaired by endoscopic or open surgical techniques. The outcomes have been debated with the use of these different approaches and the incidence of strictures, impotence, and incontinence. For a number of decades, placement of suprapubic catheter<sup>3</sup> and open surgical repair at 3-6 months has been the gold standard, with successful outcome reported in more than 95% of

patients<sup>1</sup>. Numerous reports advocating the use of endoscopic technique to re-establish urethral continuity are currently appearing. 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 45 cases of urethral injury admitted in Father Muller Medical College and hospital, between July 2010 to August 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 sequelae.

## MATERIALS AND METHODS

The study was conducted on 45 patients who were admitted in Father Muller Medical College Hospital between July 2010 to August 2013 with a diagnosis of urethral injury. On admission, detailed history was taken and examination is done to evaluate the cause. Following which patients were subjected for routine investigations, 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**

1. 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. Female

**RESULTS**

An analysis of 45 patients admitted with urethral injuries in Father Muller Medical College Hospital, Kankanady, Mangalore from august 2010 to august 2013.

**Age Distribution:** About 80% of the patients belonged to the young and middle age in which majority were (78%) < 60 years. There were no injuries in patients below 20 years of age.

**Table 1:**

Sr. No.	Age group (in years)	No. of patients	Percentage
1	0-20	0	0
2	21-40	17	38%
3	41-60	18	40%
4	61-80	9	20
5	81- 100	1	2%

**Clinical Presentation:** Majority of them that is about half of them (51%) had difficulty in passing urine at the time of presentation to us, where as the second commonest complaint was hematuria (20%) and then

followed by retention of urine i.e. with 17.5%. Other uncommon symptoms included urinary incontinence (6.5%), dysuria (2.5%) and dribbling of urine (2.5%).

**Table 2:**

Sr. No.	Clinical presentation	No. of patients	Percentage
1	Obstructive voiding	23	51%
2	Hematuria	9	20%
3	Urinary incontinence	3	6.5%
4	Dysuria	1	2.5%
5	Retention of urine	8	17.5%
6	Dribbling of urine	1	2.5%

**Aetiological Distribution:** Majority of the injuries were caused due to trauma (89%) where as (11%) secondary to

iatrogenic injuries.

**Table 3:**

Sr. No.	Aetiology	No. of patients	Percentage
1	Traumatic	40	89
2	Iatrogenic	5	11

**Diagnostic Tools Used:** 1) Retrograde urethrogram 2) CT Urogram 3) Cystourethroscopy 4) X-Ray Pelvis

**Table 4:**

Sr. No.	Diagnostic Tools	No. Of patients	Percentage
1	Retrogradeurethrogram	36	80
2	Cystourethroscopy	9	20

**Site of Urethral Injury:** About two thirds (65%) had rupture of the bulbar urethra and rest one third had injury to the membranous urethra (35%).

**Table 5:**

Sr. No.	Site of injury	No. Of patients	Percentage
1	Bulbar urethra	29	65
2	Membranous urethra	16	35

**Diagnosis:** Bulbar urethral rupture was the commonest diagnosis made in our study (67%), second common

being membranous urethral rupture (33%).

Table 6

Sr. No.	Diagnosis	No. Of patients	Percentage
1	Bulbar urethral rupture	30	67
2	Membranous urethral rupture	15	33

**Treatment Given:** Commonest procedure done was SPC with or without immediate /early realignment (60%). SPC followed by urethroplasty has been done in 27% patients

and remaining 13% had gone with SPC followed by EIU, where they had developed short segment stricture.

Table 7:

Sr. No.	Therapeutic Procedure	No. Of patients	Percentage
1	Endoscopic Realignment	27	60
2	Spc foll. By Urethroplasty	12	27
3	SPC foll. by EIU	6	13

In our study, (60%) had undergone endoscopic realignment. 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 approximately 3months later. In a short percentage of patients initial management was suprapubic cystostomy. Endoscopic Internal Urethrotomy was done for patients

with short segment strictures. 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 15-21days. 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 and cutting down the loss of manpower hours.

Table 8:

Sr. No.	Therapeutic Procedure	No. Of days	Percentage
1	Endoscopic realignment	5	20
2	Spc foll. By urethroplasty	20	80

## DISCUSSION

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

- Age distribution- Majority of the patients presenting with urethral injuries belong to age group 20- 60 years. This may be explained by the fact this age group being physically more active and hence more vulnerable to trauma.
- Sex distribution: all of them were males, again considering that men do more of outdoor work and thus getting exposed to trauma in various forms, even though we had excluded females, we did not have female patients during the study period.
- Clinical presentation- most of the patients had difficulty in passing urine and hematuria as the presenting symptoms.
- Aetiology: as usual predominantly urethral injuries were post traumatic. Remaining were due to iatrogenic causes during various instrumentation and catheterization procedures which is comparable.
- Retrograde urethrogram was the main diagnostic tool (80%). They had not only pin pointed the site of injury, also graded the depth of the injury and indicated the gravity of the situation.
- Cystoscopy was used mainly during the early/immediate realignment only and to assess the urethral status for urethroplasty.
- Site of injury- two thirds of the injuries occurred at the bulbar urethra followed by membranous urethra.
- Diagnosis-bulbar urethral rupture being the predominant diagnosis in our study.
- Endoscopic realignment either immediate or early (1-2 weeks) was the main line of treatment, there by avoiding SPC, with short hospital stay and minimal morbidity and less long term complications. However, when ever it was not feasible, SPC with later urethroplasty was undertaken with comparable results.
- The hospital stay was short in endoscopic realignment group which is a significant factor putting this approach ahead of other.
- Those patients who underwent Endoscopic Internal Urethrotomy were put on self dilatation programmed for 3-6months following which they were symptom free.
- No patients reported incontinence or impotence in the Endoscopic Realignment group, whereas 2patients reported impotence in the SPC and urethroplasty group. However no patients

reported incontinence in both the group. These results are comparable

## CONCLUSION

Based on the data analysis of 45 patients admitted in our institution over three years, following conclusions were drawn.

1. Patients with urethral injury needs to be evaluated with care as the selection of procedures depends upon the accurate diagnosis of the condition and associated injury to the neighboring viscera.
2. Various procedures complement each other in the management of urethral injuries for the optimal outcome.
3. Endoscopic realignment is found to be a better option as seen in our study wherein the morbidity and long term catheterisation and associated complications were less. There also was a significant reduction in the average hospital stay and a early return to the work there by reducing the loss of manpower hours were comparable with similar studies.<sup>2,4</sup>

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