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Original Research Article

To Evaluate the Site of Stricture by Uroflowmetry, Rcu / Mcu, and Urethrosonogram

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Abstract

Background & Methods: The aim of the study is to evaluate the site of stricture by uroflowmetry, rcu/mcu, and urethrosonogram. Per abdomen examination, external genitalia examination, per rectal examination, routine examination of blood, urine, respiratory, cardiovascular, nervous system examination will be carried out. Patients with posterior urethral trauma were initially managed by fluid resuscitation, if required blood transfusions and suprapubic cystostomy to divert urine.

Results: The youngest patient was 10 years old and the oldest was 65 years. From the above table it is seen that maximum no. of cases (35.3 %) belong to 21-30 years age groups i.e. 106. The maximum numbers of cases were found to be of length of 1.1-2.0cm. Two cases were of pan urethral stricture. Mostly catheter was removed on 21 to 30 day as keeping catheter for long duration would increase the chances of infection.

Conclusion: The modern approach to urethral stricture disease begins with a full evaluation including urethral imaging, so a treatment plan can be based on the location and length of the stricture. The maximum numbers of strictures (25%) were found to be of length of 1.1-2.0 cm and 3.1-4.0 cm. Epithelial strictures without spongiofibrosis should be treated by dilation. Optical urethrotomy should be employed for epithelial stricture less than 1 cm, In long strictures (>1.5 cm) it had to be carried out for more than one time along with active and passive dilatations.

Keywords: stricture, uroflowmetry, rcu/mcu, and urethrosonogram.

Study Design: Observational Study.

Introduction

Urethral Stricture is defined as a decrease in the caliber of the Urethra, due to a scar resulting from tissue injury or destruction. [1]

In most instances a urethral stricture is a narrowing of the caliber of the urethra caused by the presence of a scar consequent on infection or injury. However, not all strictures are caused by scarring, if a scar is taken to mean only fibrosis. There is also a difference between a partial constriction of the urethra caused by, e.g. inflammation (in which the epithelial lining is retained) and a fibrotic obliteration between the distracted ends of a ruptured urethra. Thus not all strictures are the same. [2]

Urethral stricture has basic pathology of replacement of spongiose tissue with that of densely packed connective tissue interspersed with fibroblasts strictured tissue [3]. The normal urethral spongiosum was comprised of 75.1% type I collagen and 24.9% type III collagen. In contrast, the type I collagen in urethral stricture tissue was increased (83.9%), with a corresponding decrease in type III collagen (16.1%). This alteration in the ratio of collagen type III:I may explain the fibrotic noncompliant nature of urethral stricture scar tissue. [4]

Chambers et al. noted that the first identifiable change in urethral stricture disease was a change in the nature of the urethral epithelium from a pseudo-stratified columnar epithelium to a columnar epithelium that lacks the waterproofing quality of the pseudo-stratified variant [5].

Material and Methods

This study will include all the case of urethral stricture in Index Medical College Hospital & Research Centre, Indore for 01 Year. The detailed history and physical examination will be carried out. Dye studies will be done both pre and postoperatively. Then patient satisfaction will be noted both objectively and subjectively postoperatively.

Per abdomen examination, external genitalia examination, per rectal examination, routine examination of blood, urine, respiratory, cardiovascular, nervous system examination will be carried out. Patients with posterior urethral trauma were initially managed by fluid resuscitation, if required blood transfusions and suprapubic cystostomy to divert urine. Perineal repair of stricture of membranous urethra:

1. An inverted "Y" shaped incision from the midline of the scrotum to the ischial tuberosities.
2. Then the Colle's fascia is opened to expose the bulbospongious muscles & dissected the corpora spongiosum from urogenital diaphragm.
3. The scissors are used to develop a space between the muscles & the bulb of the urethra.
4. An incision is made in the midline dorsally exposing the length of the bulb.

Result

Table 1: Age incidence of Stricture Urethra

S. No.	Age (Years)	Total Number of cases	Percentage
1.	1-10	04	01.3%
2.	11-20	41	13.6%
3.	21-30	106	35.3%
4.	31-40	83	27.6%
5.	41-50	37	12.3%
6.	51-60	18	00.0%
7.	61-70	11	03.6%

The youngest patient was 10 years old and the oldest was 65 years. From the above table it is seen that maximum no. of cases (35.3 %) belong to 21-30 years age groups i.e. 106.

Table 2: Length of Urethral Stricture

S. No.	Length of stricture(CMS)	Number of cases	
		Number	% of cases
1.	0-1.0	28	9.3%
2.	1.1-2.0	75	25%
3.	2.1-3.0	54	18%
4.	3.1-4.0	73	24.3%
5.	4.1-5.0	23	7.6%
6.	>5.0	47	15.6%

The maximum numbers of cases were found to be of length of 1.1-2.0cm. Two cases were of pan urethral stricture.

Table 3: Duration of postoperative Catheterization

S. No.	Nos. of days	Total Number of patients	
		Number	% of cases
1.	< 20	38	12.6%
2.	21-30	226	75.3%
3.	31-40	21	7%
4.	> 40	15	5%

Mostly catheter was removed on 21 to 30 day as keeping catheter for long duration would increase the chances of infection.

Table 4: Post-operative Uroflowmetery

S. No.	Average flow rate Ml/sec	Patient
1.	> 20 ml/sec	206
2.	20 ml & > 15 ml/sec	28
3.	15 ml & > 10 ml/sec	14
4.	< 10 ml/sec	19
5.	Not done	33

Discussion

Treatment options for urethral strictures continue to include simpldilatation, urethrotomy, the UroLume stent, and a wide spectrum of reconstructive surgical techniques. The choice depends heavily upon stricture location, cause and length[6]. For instance, the more abundant corpus spongiosum of the bulbar urethra than in the pendulous urethra makes optical urethrotomy more successful for strictures of the former. Also, penile elongation during erection necessitates that repairs in the penile urethra be elastic, making local flaps superior to grafts. Likewise, while successful in the bulbar urethra, primary anastomotic repairs when used in the pendulous urethra may result in chordee with erections[7].

End-to-end urethroplasty for bulbar urethral stricture has over 95durable cure rates and low complication rates. But its use is limited to the short (1-2cm) stricture segment groups. As In case of long anterior urethral strictures Excision & anastomotic urethroplasty are generally contraindicated for the risk of chordee on erection[8].

A study [9] following the concept advocated by Monseur, introduced the dorsally placed graft, and postulated that dorsal placement is advantageous as it allows better mechanical support for the graft with a richer vascular bed for the graft from the underlying corporeal bodies.

Traumatic injury to the prostatomembranous urethra has been reported to occur in 10% of pelvic fractures [10]. The magnitude of injury determines the length of the ultimate defect, ranging from elongation with no tearing of the urethra to complete transaction, seen in most case. Therefore, the resulting 'stricture' is technically a distraction defect, with no lumen present between the urethral ends.

Conclusion

The modern approach to urethral stricture disease begins with a full evaluation including urethral imaging, so a treatment plan can be based on the location and length of the stricture. The maximum numbers of strictures (25%) were found to be of length of 1.1-2.0 cm and 3.1-4.0 cm. Epithelial strictures without spongiofibrosis should be treated by dilation. Optical urethrotomy should be employed for epithelial stricture less than 1 cm, In long strictures (>1.5 cm) it had to be carried out for more than one time along with active and passive dilatations.

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