

INTERNAL URETHROTOMY UNDER DIRECT VISION*

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Urethral strictures were treated for the first time by the help of an instrument at the beginning of the 19th Century by Civiale. Maisonneuve and Otis developed the technique. As a result of the advances in optical instruments, Fischer (1937), Rovasini (1957) and Alsässer and Schmied (1970) enlarged the strictures visually by means of an electrode. The use of the electric current, however, increased the recurrence rate. Sachse and later Matouschek and Michaels found a new, improved method using a special sharp knife and this new procedure became the classical method of treatment. As this method is easy and simple to use and as the hospitalization period is short, this method is used over a wide field.

Material and Methods

Etiological Factors

Urethral traumas are the most important etiological factors in Turkey. In the treatment of strictures occurring as a result of an unexpected complication certain problems may present themselves which means that basic treatment methods cannot be applied. Unfortunately, urethral complications frequently occur as a result of malpractice. To prevent this, emergency cases should be treated by urologists and experts in their fields. Sometimes faulty catheter applications lead to more complicated urethral strictures.

Gonococcic urethral strictures, resulting from an infection, come second. This can be observed in the elderly generation living in big cities among those who were born between the two World Wars, as urethritis. Recently the use of antibiotics has led to a decrease in the strictures of infection. Long term use of an indwelling catheter may lead to purulent infection and create a urethral stricture. Unfortunately, misapplication of the catheter, metal sound, bogie and endoscopic examination may also cause iatrogenic urethral strictures. At present, olive oil is

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used as a lubricant in many hospitals during urethral dilation. This may create oily granulama in the urethra. Congenital urethral strictures are seldom seen in Turkey (Table I).

TABLE I
Recurrence Rate after Internal Urethrotomy

Etiology	No. of cases	No. of cases successfully treated	Recurrences	
			at 6 months	at 3 years
Infectious	9	8	—	2
Iatrogenic	7	7	—	—
Traumatic	49	44	1	3
Congenital	5	4	1	—
Unknown	4	4	—	—

Diagnosis of Male Urethral Strictures

There are some typical symptoms of urethral strictures during micturation, but the presence of a narrowing of the calibration of the urethra must be proved by cystogram and urethroscopy. Uroflowmetric examination shows clearly the typical plateau figure.

Indication

The severeness of the symptoms in the patient, the presence of infection in the urine (MSU and culture) the length of the stricture (cystogram, urethrogram, cystogram during micturation, uroflowmetric and urethroscopic examinations) must all be taken into account. The indication for operation varies according to age, the complexity of the urethral stricture (fistulae, diverticulae and fracture of the pelvic bones) whether the stricture is primary or recurrent, and if the patient would benefit from the plastic operation.

Equipment for Surgical Procedure

The urethrotome which is not very different from the resectoscope is of 20 Ch calibration. There are two main parts of the urethrotome elements and obturator. An 0° telescope is used for direct vision. The standard knife used is Sachse's blade which has a cutting edge around its blunt tip and along the upper margin, allowing it to cut both forwards and upwards. Alternative blades with a circular or undulating profile are also available. A special channel is provided to accommodate the ureteric catheter. There is another sheath which is used during the procedure

for easy placing of the 16 Ch catheter into the bladder. As is usual in endoscopic examination, this instrument has a light cable and a sterile, distilled water or isotonic solution irrigation supplement.

Preoperative Preparation of the Patient

The patient is placed in the lithotomy position and operated on under general, epidural, spinal or local anesthesia. As a premedication we use a tranquilizer like Valium® and morphine. Sterile drapes are placed in the usual fashion as for any transurethral procedure.

Operative Technique

The sheath, closed off by its obturator, is placed through the meatus and passed approximately one centimeter into the urethra. The obturator is removed and then the operating unit is put into position, if there is a narrowing of the meatus, meatotomy should be carried out first. Under direct vision the urethrotome is moved about in the urethra until the stricture is seen. Multilocular and long strictures can be observed and passed easily by means of a 4 Ch ureteral catheter. We prefer to cut the stricture at the 12 o'clock and 6 o'clock positions. Both corpora cavernosa must be protected from perforation. Sometimes deep cutting from the 6 o'clock and 8 o'clock positions may create diverticulae and fistulae. The incision is slowly extended millimeter by millimeter in the direction of the bladder. The aim is to achieve a lumen of 24 - 26 Ch in the region of the stricture.

During the operation some minor bleeding may occur and this can be disregarded; where bleeding is more severe coagulation can be encouraged with a probe. We use isotonic solutions. The absorption syndrome may occur when distilled water is used. Sometimes a pre- and post-operation cortisone injection is recommended. This will prevent scar tissue, but we have not used cortisone injections during our operations.

Operative Difficulties

Where a stricture ends in a number of pinholes and a catheter cannot be passed into the bladder, some dye preparations such as an indigo carmine solution can be given intravenously, or via a cystostomy catheter, to the bladder. Pressure on the bladder will eject blue dye from the real lumen of the stricture and then the lumen can easily be followed.

Deformation of the urethra in recurrent strictures causes problems during operation. It is then advisable to discontinue urethrotomy. But the bladder can be drained suprapubically, a 8 - 10 Ch catheter being placed retrogradely and internal urethrotomy can be carried out as a secondary procedure.

In complete urethral stricture a curved metal sound is passed through a suprapubic cystostomy down the bladder neck and into the urethra. The stricture can easily be felt and cut. This metal sound pushes the stricture and sometimes during digital rectal examination the assistant feels the position and localization of the curved metal sound. This procedure can help the surgeon. An important point is to know exactly where the membranous urethra is. Complete stricture should be cut as far as the calibration of the metal sound. We prefer open surgical procedure in such complete strictures.

Urethral stones above the stricture may be pushed back into the bladder and dealt with later. Sometimes fracture of the pelvic bones causes deformation in the urethra; in such cases too, open surgery is preferred. During operation the blade should be as sharp as possible and the joint of the knife should be checked before the operation. A weakness of the joint may lead to problems and it may even break during operation.

Complications

Profuse hemorrhage is usually controlled by the passage of a 24 Ch catheter, sometimes in combination with a penile pressure dressing. A 6 o'clock position occasionally gives rise to urethral fistula (Table II):

TABLE II
Complications of Internal Urethrotomy for 74 Cases

<u>Infection</u>	<u>Perforation</u>	<u>Hemorrhage</u>	<u>Impotence</u>	<u>Broken Knife</u>
22	1	12	1	1

Postoperative Treatment

There is still some debate as to what is the best postoperative procedure. The following are frequently practiced:

1. Passage of a balloon catheter,
2. Instillation of antibiotic and steroid gel,
3. Hydraulic self - dilatation,
4. Prophylaxis of infection.

Sachse (1978), recommended that short strictures of less than 0,5 cm be treated without postoperative catheterization, but with the instillation of cortisone gel twice daily for 14 days.

We didn't apply this method. We preferred hydraulic self dilatation. Strictures longer than 0.5 cm are treated for 3 weeks with catheterization, 6 weeks in the case of complete strictures. We give antibiotics in the meantime.

Endoscopic Laser Surgery

Experimental studies on the removal of scar tissue around urethral strictures by means of the laser beam have been described. No clinical research of importance has been carried out so far on this, but it seems that scar tissue can be evaporated by means of Argon Laser.

Conclusion

Internal urethrotomy under direct vision should be the first choice of management for urethral strictures for it is a practical operation and easy to perform. Further, it requires little or no hospital stay and the morbidity rate is low. When the operation is not successful, other procedures, such as urethroplasties and segmental resection of the urethra should be tried.

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