

Sachse optical urethrotome in management of urethral stricture in the male: preliminary communication¹

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Stricture of the male urethra is traditionally treated by regular dilatation or urethroplasty. Urethrotomy, the third method of dealing with stricture, has interesting historical associations (Murphy 1972) and though not used extensively in the past, when properly applied it has produced good results (Helmstein 1964). However, it is a blind procedure and even when urethroscopy is used before and after the incision (Helmstein 1964) it still remains a somewhat cumbersome technique. The development of an optical urethrotome has, however, altered this situation. The first optical urethrotome used electrocautery to incise the stricture (Ravasini 1957), but more recently Sachse (1974) has developed an optical urethrotome with a fine scalpel.

This paper is a preliminary communication on our initial experience with the Sachse optical urethrotome.

Instrument and technique

The instrument (as supplied by Storz Limited) consists of a standard pan endoscope using either a 30° or 0° viewing lens. The scalpel is similar to that used in neurosurgery and consists of an anterior and superior cutting edge (Figure 1). It is mounted on two carrying rods and inserts into a Nesbitt action electrotome. The instrument is inserted into the urethra and the stricture visualized (Figure 2). Through a side arm, a small ureteric catheter may be passed through the stricture in order to provide evidence of the direction of the urethra, both through and beyond the stricture. The knife is now extended beyond the pan endoscope sheath and the fibres of the stricture are then divided by an upward cutting movement of the blade (Figure 3). The whole instrument is used and the cutting is continued until all the fibres of the stricture are divided. It is quite easy to identify these fibres of the stricture and with the cutting action they can be seen to spring apart. Sometimes the incision needs to be carried deep into the wall of the urethra and bleeding may be encountered. In this case the ureteric catheter can be removed, a diathermy electrode passed down the side arm and any bleeding points cauterized. After full incision of the stricture has been performed, the rest of the urethra, prostate, bladder neck and bladder can be inspected. Following the incision of the stricture a fenestrated catheter may be left in place for a period varying from one to seven days. The fenestrations in the catheter enable blood to drain away from the site of the incision. The technique, though simple does require a full understanding of endoscopy.

¹ Paper read to Section of Urology, 24 February 1977

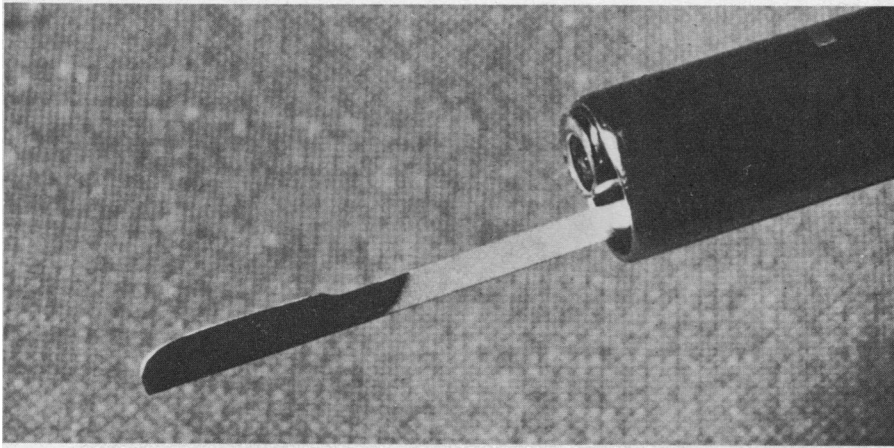


Figure 1. Sachse urethrotomy blade projecting through pan endoscope sheath, showing anterior and superior cutting surface

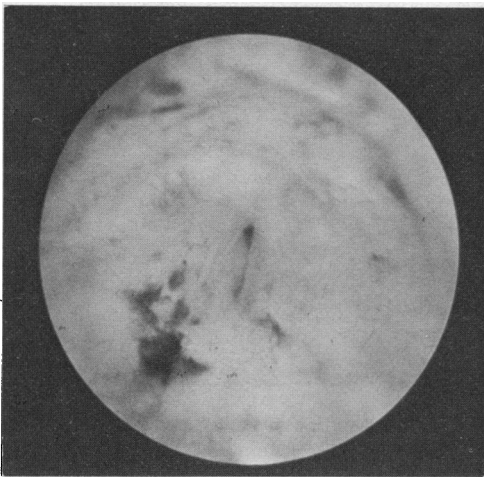


Figure 2. Pan endoscope view of post-prostatectomy urethral stricture

Patients and results

This technique has now been used for the last eighteen months on a wide variety of strictures of the male urethra. In all, 30 patients have now been treated by this method. The patients' ages covered a wide range (Table 1), the instrument being easily used in the elderly patient and without any significant risk. Strictures occurred at various sites (Table 2). Strictures in the anterior urethra were difficult to deal with as the instrument is not easily manoeuvrable in this area. In 9 patients the stricture was in the bladder neck and here the Sachse urethrotome has been particularly useful, being a very simple method of dealing with this most troublesome of postoperative strictures. The strictures vary in size (Table 3), the instrument being most useful in the short (1 cm or less) stricture. It is easier to ensure that all the fibres of the stricture are divided in the shorter segments. In the longer segments the urethrotomy needs to be more extensive and it is less easy to define the extent of the incision.

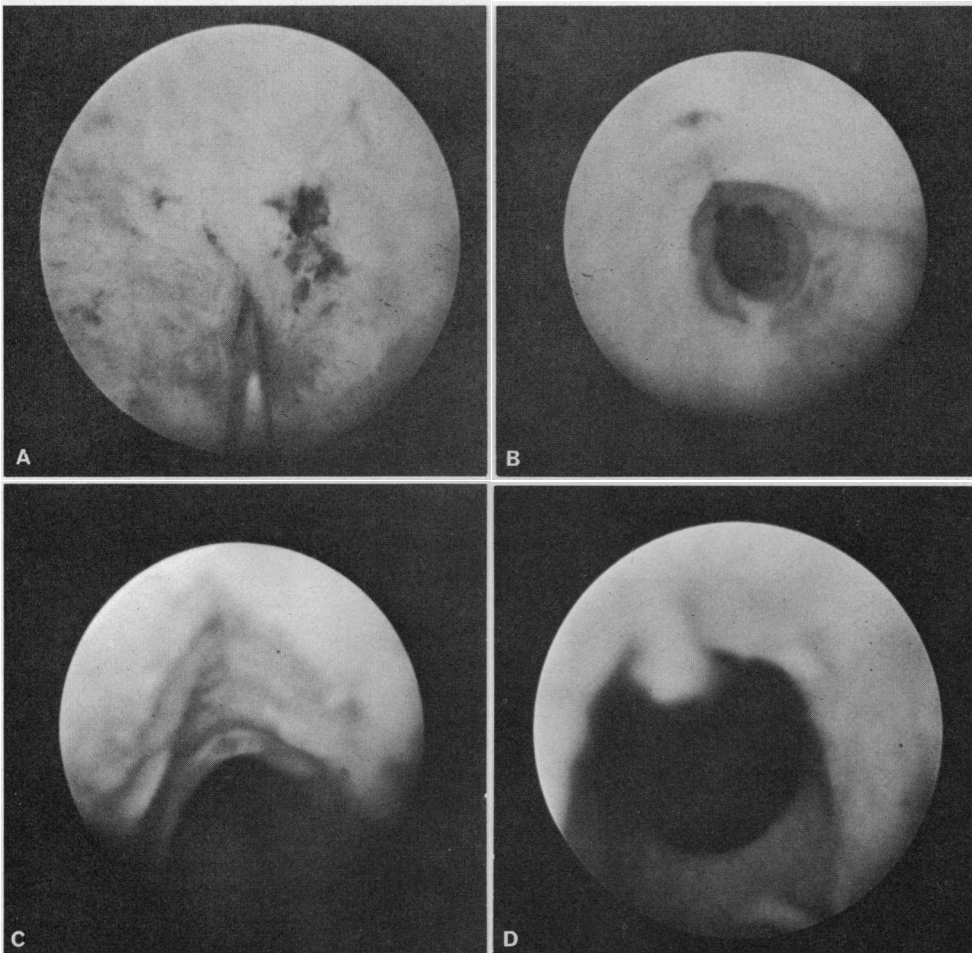


Figure 3. A, Sachse blade inserted into stricture (ureteric catheter not used on this occasion); B, initial division; C, further division of layers of stricture; D, complete division of stricture fibres allowing pan endoscope to pass easily into the bladder – bladder neck visible in the distance

Strictures arose from the usual causes (Table 4), but in this particular group the majority were associated with postoperative strictures, following prostatectomy. All the bladder-neck strictures were in this group. The aetiology of the stricture does not appear to be of any significance in the decision to use the Sachse urethrotome – the technique seems to be satisfactory in all types of stricture. The urethrotome was used as a primary treatment in just under half the patients (Table 5). In the others, repeated dilatation had been the treatment of choice in the majority. Two patients had failed urethroplasties and in 2 transurethral resection of bladder-neck strictures had failed to prevent recurrence. It is important to note (Table 6) that, as in most urology clinics, many of these patients had been attending for several years for treatment of their stricture. Some of the most dramatic responses occurred in patients who had undergone regular urethral dilatation for several years.

Postoperative complications have been few. Two patients suffered from initial bleeding, and one had a secondary haemorrhage fourteen days after discharge; in all 3 cases the bleeding was normal and no treatment was required. No patient has complained of impotence or chordee. One patient developed a urinary infection which responded rapidly to antibiotics. In 2 patients

Table 1. Age of presentation

Age (years)	No. of patients
0-10	0
10-20	2
20-30	1
30-40	2
40-50	1
50-60	6
60-70	11
70-80	4
80-90	3
—	30

Table 2. Site of stricture

	No. of patients
Anterior urethra	3
Bulb of urethra	7
Membranous urethra	11
Bladder neck	9
—	30

Table 3. Size of stricture

	No. of patients
Diaphragm	9
0-0.5 cm	9
0.5-1 cm	9
> 1 cm	3
—	30

Table 4. Aetiology of stricture

	No. of patients
Traumatic	6
Infective	5
Postoperative:	
Urethroplasty	1
Retropubic prostatectomy	3
Transvesical prostatectomy	3
Transurethral prostatectomy	7
Unknown	5
—	30

Table 5. Previous treatment of stricture

	No. of patients
None	14
Sounds	12
Urethroplasty	2
Transurethral excision	2
—	30

Table 6. Duration of previous treatment

Time (years)	No. of patients
0-1	14
1-2	5
2-5	4
5-10	4
> 10	3
—	30

the technique was combined with a transurethral prostatectomy. All patients had immediate and, in the majority, sustained relief of their stricture symptoms over a three-month follow-up period. A prospective study is now in hand to see how long this relief is maintained and whether this urethrotomy will produce a permanent cure of stricture in some patients. The straight incision of the scar tissue does seem to inhibit any further restenosis, and it would seem from previous work (Sachse 1974, Lipsky & Hubmer 1977) that this technique can produce a permanent cure of the stricture.

Conclusion

This is a simple and effective method for dealing with strictures. It allows complete visualization of the stricture of all scar tissue under ideal conditions. Whilst undoubtedly there will always be patients who are better served with regular dilatation, bouginage or even urethroplasty, the optical urethrotome as described by Sachse and developed by Storz is an important addition to the armamentarium of the urologist and is a safe and effective method for dealing with strictures of the urethra.

Acknowledgment: We are grateful to Mr Peter Rimmer of Rimmer Brothers for his help and encouragement and, in particular, for the loan of the urethrotome in the initial study.

References

Helmstein K (1964) *Acta chirurgica Scandinavica*, Suppl 340
 Lipsky H & Hubmer G (1977) *British Journal of Urology* **49**, 725-728
 Murphy L G (1972) *History of Urology*. Charles C Thomas, Springfield, Illinois; p 432
 Ravasini G (1957) *Urologia* **24**, 229-232
 Sachse von H (1974) *Fortschritte der Medizin* **10**, 12-15