Editorial

Urethral stricture disease: An old disease with newer treatments

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Urethral stricture disease is as old as the history of mankind and has been described in Greek and Egyptian literature. This disease has remained the source of painful sufferings, alteration in family and social life and even a cause of life threatening conditions like Fourniers' gangrene, renal failure, bladder failure, urethral carcinoma and even death.[1]

The exact incidence of stricture is unknown but it can be as high as 0.6% in some susceptible populations. From hospital episode statistics in the United States and in the UK, it affects males with an increasing frequency with one in every 10,000 men aged 25 to about one in every 1000 males aged 65 or more.[2] Data from the stricture clinic, of Sindh Institute of Urology and Transplantation (SIUT), shows that stricture disease constitutes 3-4% of all urologic diseases and 5760 patients visit annually for dilatation, other treatment options and follow-up uroflowmetry. In 2006, two hundred and seventy four indoor admissions were due to stricture urethra in the same Institute.

Historically gonococal urethritis was the common cause[2] but with early treatment of infection and the change of life style, now it is external trauma, use of various endoscopic instruments and indwelling catheters which has become the etiology of stricture urethra. Other causes include hypospadias surgery, balanitis xerotica oblitrans (BXO) and others.[3]

Similarly the changes in the diagnosis and evaluation by modern radiographic imaging and flexible endoscopy have refined the staging of the disease, thus improving effectiveness of surgical planning. In addition to classic retrograde and antegrade urethrography some centers now use intra urethral ultrasound and MRI to define the extent of urethral injury and fibrosis. In place of rigid scopes, flexible urethroscopy is used more frequently to define the gap between the two normal ends. Post operatively uroflowmetry is more frequently being used to asses the success of any operation done for stricture urethra in place of retrograde urethrogram.

Effective and safe management of urethral stricture disease has long been the dream of urologic surgeons and their patients. John Irvings' novel "the water method man" (1972) provides insights on the old state of treatment as recently as mid 20th Century, as well as life altering changes experienced by its main character, a university graduate with tortuous and narrow urethral passage. This young man was initially advised to drink lots of water as a part of his stricture treatment, and then he had to undergo many painful dilatations and prolonged surgeries with sub-optimal results. This disturbed his family life leading to divorce and agony of separation.[4]

Urethral dilatation is one of oldest operations in urology. Initially wax tapers remained in use for centuries and with time they were replaced by Gum elastic material as flexible bougies. Metal bougies are very old instruments known since the 6th century BC, however, various modifications have been made since then but their shape remains the same except for minor alterations. With the progress in technology, the treatment for stricture urethra has also changed. The gonococcus is no longer the common cause and wax bougies are no longer used for relief. Repeated urethral dilatation with metallic bougies is by no means an acceptable remedy by many patients.[2]

After urethral dilatation, visual internal urethrotomy using local, spinal or general anaesthesia and ideally aided by a guide wire placed through the stricture remains an alternative to dilatation for short bulbar urethral strictures. Complications associated with internal urethrotomy include bleeding 7.5%, infection and urosepsis 17%, extra vasation 1.2%, incontinence 1%, impotence 1% and stricture recurrence in 30% cases.[1]

Holmium Laser Urethrotomy

Recently several studies including our own center, have shown the results of laser urethrotomy at par with open surgery. The major advantages of using laser include clear vision during incision so that scar tissue is incised more precisely, less blood loss, shorter hospital stay and primarily possible less scar tissue after healing. Although one study reported excellent treatment outcome with 93% of patients satisfaction at 28 months follow-up[5], results were not achieved by most other studies. In our experience of 69 patients, 54 (78%) had no recurrence at 6 months follow-up however, recurrence was seen in 22% (unpublished data). There is need to have more comparative studies with cold knife, laser incision and open surgical methods to test this new modality in clinical practice.

Anastomostic Urethroplasty: is an example of an international model for co-operation in the field of urology

where renowned urologists have contributed in improving the technique. Fracture pelvis urethral distraction injuries are best managed by anastomotic urethroplasty and by using the following maneuvers i.e., separation of crura, partial pubectomy and re-routing of urethra behind the crus. If necessary, combined abdomino-perineal progressive approach is used by which repair can be done of almost any length of obliterated posterior urethral stricture with a 90% success rate.[6] The higher recurrence rates in any series are more commonly due to multiple failed endoscopic procedures, Rail road catheterization, and faulty technique of anastomosis before urethroplasty.

Buccal Mucosal Grafts

Buccal mucosal graft (BMG) for the repair of all parts of stricture urethra, is far more an ideal material compared to the scrotal skin used in 1940 - whose recipients we still see in our urology practice with infection, hair, eczema and stone and diverticuli formation. In 1993 El-Kasaby et.al.[7] reported the first experience with BMG from lower lip. Since then it has received increasing attention in urologic literature because it is easy to harvest from lower lip or inner cheek, has concealed donor site scar and is readily available from all patients. Moreover, it is hairless, has thick elastic rich epithelium which makes it tough yet easy to handle and has thin and highly vascular lamina propria which facilitates inosculation and imbibition. Due to all these properties, BMG has become the favourite substitution material for penile and bulbar urethroplasty but it can be challenging in failed hypospadias surgery and lichen sclerosis. In our experience of 20 cases of BMG in the repair of anterior urethral stricture, the success rate was 80% which is similar to other series.[8]

Urethral Stents: In 1988 Milroy and associates described the use of permanent stents in recurrent bulbar stricture from the Institute of Urology, London.[2] After the introduction of the spiral stent for Benign Prostatic Hyperplasia patients, the "Urolume Wall Stent" is the only permanent stent approved by FDA with an ideal indication of multiple failed internal urethrotomy and urethroplasty procedures.[9] Although good results have been reported by some authors but others experienced significant morbidity like post void dribbling, pooling of semen and pain during coitus in young men making it an unacceptable modality for many patients. Moreover, encrustation and difficulty in removing the stents in the case of failure had made it out of fashion in the recent literature.

Future trends: At present anastomotic urethroplasty and buccal mucosal grafts have excellent end results, so the technical improvement are less successful than the developments of urethral autografts and xenografts obviating the need for graft harvesting. These include a bio-engineered apligraft composed of bovine collagen matrix integrated with human epithelium.The frequency of stricture disease in the future seems to be rising especially in the developing countries, due to increase in the road traffic accidents in developing countries[10], frequent use of endoscopic instruments on urethra and no universal decrease in inflammatory conditions.[2]

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