

Intermittent self dilatation – still a viable option for treatment of urethral stricture disease

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ABSTRACT

The study was conducted to find out if intermittent self dilatation (ISD) is still a viable option for treatment of urethral strictures in patients who had undergone either urethral dilatation or urethrotomy prior to ISD. The study included 310 male patients with the age range from 17 to 93 years old from January 1996 to March 2007. The data was gathered from the computer data base kept by the urology unit in the hospital. A questionnaire was used to evaluate their tolerance towards the procedure and quality of life. Of the total number of patients 262 replied to the questionnaire. The mean follow up was 57.68 months with 67.7% continuing with the procedure. The procedure was well tolerated by 84.1% of patients and 79.6% had no technical difficulty. The most number of patients carrying out this procedure were in the 6th and 7th decade of life. There was a recurrence rate of urethral strictures of 16.9%. It is seen that even today ISD following an endoscopic procedure is a viable treatment option. The patients seem to tolerate this procedure well and it is an option in the elderly patient group who may not be fit or willing to undergo reconstructive surgery or urethroplasty.

Keywords: Intermittent self dilatation, urethral strictures, dilatation, urethrotomy, urethroplasty.

INTRODUCTION

Urethral stricture disease has plagued man since the beginning of time. Marianus Sanctus introduced the concept of the stricture and noted that severe stricture could prevent the passage of any instrument and lead to severe urinary retention and death.¹ In general the term urethral stricture generally refers to anterior urethral disease, or a scarring process involving the spongy erectile tissue of the corpus spongiosum (spongiofibrosis). Contraction of this scar reduces the urethral lumen leading to stricturing.² In contrast posterior urethral strictures are not included in the common definition of urethral stricture. Posterior urethral stricture is an obliterative process in the posterior urethra that has resulted in fibrosis and is generally the effect of distraction in that area caused by either trauma or radical prostatectomy.²

Previously Gonorrhoea was thought to be most common cause of this problem but this has changed with time. Now it is recognised that idiopathic and iatrogenic strictures are common. Unnecessary urethral catheterisation and repeat urethral instrumentation should be avoided to prevent stricture formation or exacerbation.³ Unnoticed straddle trauma is also a major cause of stricture disease.² There has also been increase in the number of urethral strictures caused by balanitis xerotica obliterans (BXO).⁴

Urethral dilatation is the oldest and simplest method of treatment of urethral strictures. This can be thought to

be curative in a select group of patients, however, repeated dilatation for recurrence is of limited value in the short term but of no value in the long term.⁵ The other option of endoscopic treatment is internal or optical urethrotomy and in selected cases the success rate of internal urethrotomy could approach that of urethroplasty.⁶ These modalities of treatment have changed over the years with urethroplasty or urethral reconstruction becoming the popular and effective choice.⁷ However a recent study suggested that even now according to a survey done in the USA among urologists treating anterior strictures showed that most urologists (74.0%) believed that the literature supports a reconstructive surgical ladder, in which urethroplasty is only performed after repeat failure of endoscopic methods.⁸ Other treatments tried have been urethral stents^{9,10} and lasers.^{11,12} However, it has also been demonstrated that intermittent self dilatation after urethrotomy is a promising preventive measure against recurrent urethral stricture.^{13,14}

The objective of the study is to look into the treatment being offered in a District General Hospital and to evaluate the data gathered regarding the treatment carried out. The study looked at intermittent self dilatation (ISD) following either urethral dilatation or optical urethrotomy to see its effectiveness and how it affects the quality of life.

MATERIALS AND METHODS

This is an ongoing study and the data was taken from a

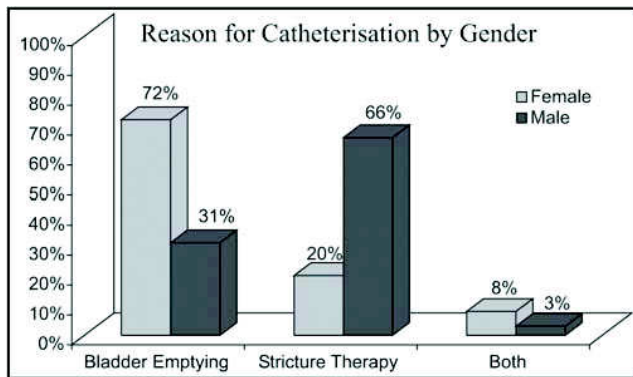


Fig. 1. Reason for self catheterization

database in a computer which had 668 patients who were attending the hospital outpatient clinic in the time period from January 1996 to March 2007. This included both male and female patients who were being treated for bladder outflow problems which included bladder emptying and strictures. Out of this the male patients with outflow obstruction were taken for the study which was 480 males, out of which 310 males had stricture disease and this was the group taken for the study. The study included males in all age groups ranging from 17 to 93 years old. Patients were taught the technique of intermittent self dilatation within 1 to 4 weeks of any definite intervention. Following this they were seen three monthly, 6 monthly and then annually if required.

A questionnaire in the data base was used to find out the tolerance and compliance to the procedure of ISD and whether they had any technical difficulty. The follow up comprised of 286 patients with stricture disease out of which 262 patients responded to the questionnaire.

The database taken was a computerised Microsoft access programme which the specialist continence nurses use. This included both data from the initial visit and subsequent follow-up visits. The follow up period ranged from 1 month to 136 months. We looked at men who had urethral strictures due to any cause and their subsequent management following any intervention if required. The data took into account patients who had undergone urethral dilatation and optical urethrotomies

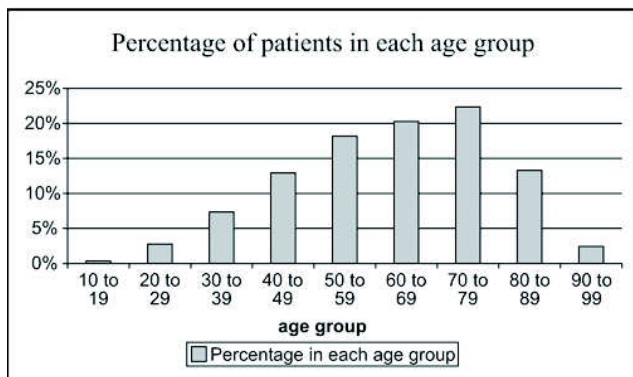


Fig. 2. Age wise distribution of urethral strictures

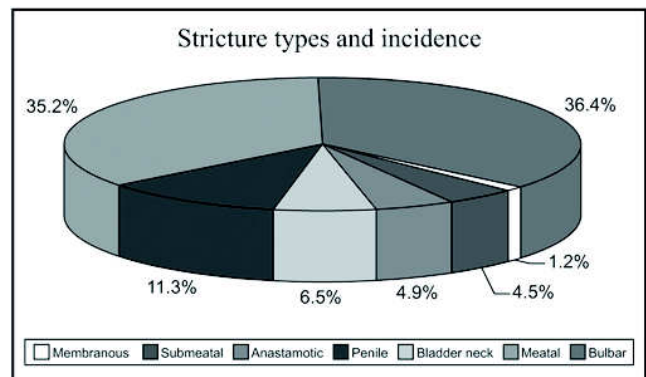


Fig. 3. Stricture types and incidence

following which they undertook ISD. The study also looked at patients and the time they were followed up and the success of the procedure as regards re-intervention. It also looked at how well the patients tolerated ISD and their quality of life. This also included patients who underwent intermittent self dilatation following radical prostatectomy.

RESULTS

From the period January 1996 to March 2007, 668 patients attended the Urology outpatient clinic led by the urology continence specialist nurse practitioner. Of these there were 188 females and 473 males who were doing intermittent self catheterisation for various conditions. Of the total number of men 310 or 66.0% were doing catheterisation for stricture therapy (Fig. 1). Out of this 286 patients attended subsequent follow up. The age of the patients ranged from 17 years old for the youngest person to 93 for the oldest. The range suggested that most people carrying out ISC were in their 60s' and 70s', which accounted for 20.0% and 22.0% of the total number of males. The younger males in their 3rd or 4th decade of life accounted for only 7.0% and 13.0% of the total (Fig. 2).

We analysed the stricture types and incidence and this showed that 36.4% which is the largest group were due to bulbar strictures. This was closely followed by meatal strictures which comprised 35.2% of the total number.

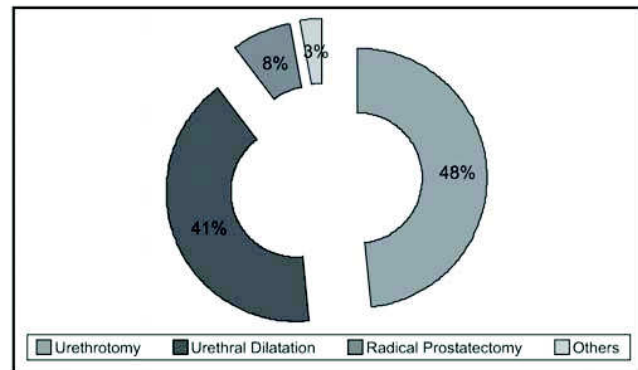


Fig. 4. Procedures done prior to ISD

Penile strictures accounted for 11.3%, bladder neck stricture 6.5%, anastomotic stricture 4.9%, submeatal 4.5% and membranous 1.2% (Fig. 3).

Previous intervention for the strictures was also looked into and urethrotomy accounted for 48.4% as the method of intervention for strictures. This was followed by urethral dilatation at 41.2%. Out of these radical retropubic prostatectomy accounted for 7.6% of the people who did ISC because of complications following surgery (Fig. 4).

We also looked at complications following this procedure mainly the incidence of reported urinary tract infections (UTI). From the data available and documented it was seen that 17% had one infection per year, nobody had 2 per year and 16% had 4 infections a year. However, 67% of the males using this technique did not report any UTI (Fig. 5).

However, there were 37 (16.9%) people who required re-procedures during this period of time. They included 22 (7.6%) people who underwent repeat urethrotomies. Out of these 18 patients had a single repeat urethrotomy done. Four patients had multiple repeat urethrotomies which ranged from 2 urethrotomies for two patients to 5 repeat procedures for a single patient. The remaining patients having undergone four urethrotomies. Another 15 (5.2%) patients underwent urethral dilatations under general anaesthesia. Eleven on them having a single procedure done while three underwent it twice and one patient had it done three times. Three other patients had to undergo meatoplasty.

Of the initial 310 male patients who came for stricture therapy 286 (92.2%) attended follow up clinic. The database has shown that during this time some patients have discontinued ISD for various reasons. Some have been discharged from the system following a number of years of dilatation. Out of 286, sixty one patients (21.3%) had either been discharged or had left. A further seven patients (2.4%) had left because of non-compliance to

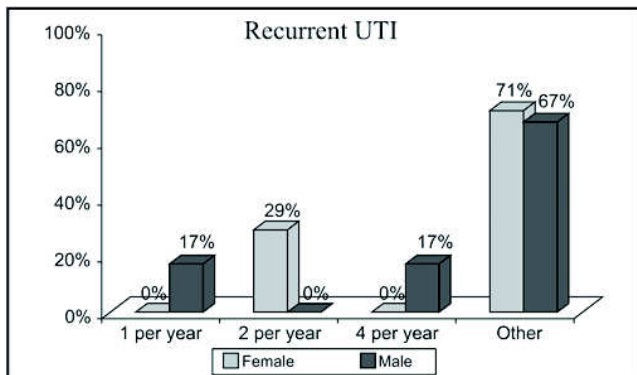


Fig. 5. UTI following intermittent self catheterisation for urethral stricture

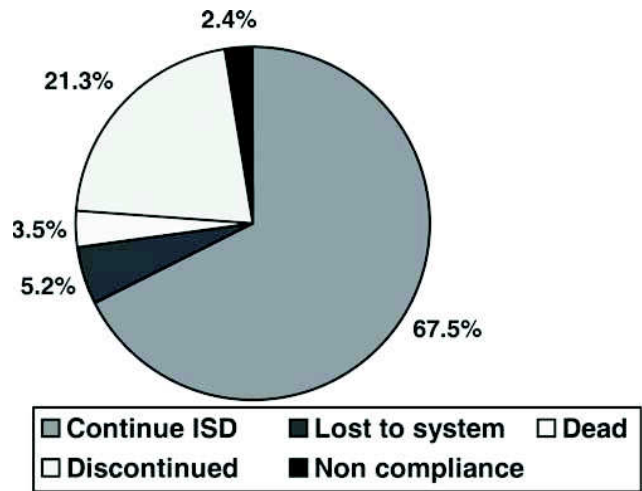


Fig. 6. Patients on follow up and patients who have discontinued ISD

the procedure, which can be taken as significant. Fifteen patients (5.2%) were lost to the system and ten (3.4%) died during the course of the follow up period taken (Fig. 6). Out of the total number 67.7% of the patients are still being followed up and undergoing ISD. The patients were followed up for a mean of 57.68 months with patients dropping out due to various reasons. The longest follow up recorded was 136 months. The graph shows a substantial number of patients who are undergoing follow up around the mean follow up period as can be expected (Fig. 7).

We also wanted to know how the patients felt towards doing intermittent self dilatation. We have recorded 262 answers out of the 286 patients. 212 (84.1%) suggested they had no problems with the procedure, 29 (11.5%) said they had a slight problem while 11 (4.4%) of them had a major problem. This showed that most patients tolerated the procedure well. We also asked them about the difficulty with technique doing ISD, for which we had 241 answers and 192 (79.6%) had no problems while 49 (20.4%) experienced some problem.

DISCUSSION

As stated earlier urethral strictures have plagued man since ages. There are various reasons why this condition does occur, and one of the causes is injury around the perineal area which may go unnoticed.¹⁵ A study done to evaluate the aetiology and characteristics of symptomatic anterior urethral suggested that idiopathic and iatrogenic strictures are common. External trauma was a relatively uncommon cause of anterior urethral stricture disease.³ Urethral strictures following sexually transmitted disease also occur which might cause complex urethral strictures. In the database taken this has not been recorded. Infact most of them do not seem to have any definite cause for the stricture formation,

which corresponds with the study above. The age group most undergoing this form of treatment in this study seems to be in the elderly age group and most are in their seventies followed by patients in their sixties. Most of them are satisfied doing this procedure and they seem to tolerate it well. This suggests that people who are in the older age group do well with ISD and tolerate it well. In consideration with the considerable morbidity associated with major reconstructive surgery endoscopic procedure followed by ISD seems to be a reasonable and viable alternative treatment.

The initial endoscopic procedures prior to ISD were either urethrotomies or urethral dilatation. In a study both have been shown to be equally effective in treating strictures of a short length.¹⁶ It was seen that the chances of stricture recurrence decreases with intermittent dilatation for a substantial period following the initial procedure.¹⁷ Studies have shown that the recurrence rate of strictures is around 16.7%, with recurrences occurring on an average 11.9 months after internal urethrotomy. The recurrence rate was dependent on the stricture length.^{15, 17} Unfortunately because of the lack of data on the length of individual strictures we have not been able to verify this in our study. However, the number of people who had probable re-stricturing was 16.9% which is very similar to the above study. We do not have data on the time factor involved for the process of re-stricturing. However, we do see that some people needed re-procedures in the form of repeat urethral dilatation or urethrotomies but unfortunately there is no data to suggest if any of the group went on further to have any reconstructive surgery. It was also seen that the incidence of UTIs' was quite low with 67% saying that they did not have any infections in a year, however, about 16% had 4 infections during the same period of time. This showed that most patients were complication free while doing this procedure.

The study also showed that most patients tolerated the procedure well and found it straight forward and were happy to continue with it, despite a few who had minor

problems. It is also seen by the study that 67.7% of patients continued ISD inspite of 32.3% discontinuing owing to various reasons. However, out of this only 2.4% left because of non-compliance to the procedure as such. This shows very good tolerance to the procedure.

The follow up period varied from one month to 136 months. The mean follow up has been shown to be 57.6 months but there were a number of new cases hence probably the decrease in the mean follow up. It has been shown that if this procedure is continued for more than 1 year then the recurrence rate for urethral strictures was significantly lower than if it was stopped in six months.¹⁷

The cost implications also seem to be better if a patient requires single procedures and is followed up by ISD. A previous study showed that urethrotomy/urethral dilatation would cost 2,250 pounds sterling compared with one stage urethroplasty at 5,015 pounds sterling and a 2 stage urethroplasty was 10,370 pounds sterling.¹⁸ The cost for the surgery would have changed but the cost for intermittent self dilatation following the initial procedure for the average follow up period (57.68 months) is around 322.56 pounds for a patient following intermittent catheterisation once a week as would be the case for most patients with strictures. This amount has been calculated by multiplying the number of weeks a patient on average follow up is on by the cost of one catheter which is approximately £ 1.40. This is more cost effective as can be seen. A similar result was obtained by a study which showed urethrotomy followed by ISD was cost effective.¹⁹ Obviously careful selection of patients is essential because the cost will rise for people who have more than a single procedure done, which is a similar comment to the previous study mentioned.

The definitive management of urethral strictures in the modern context is by reconstructive surgery.²⁰ However, a recent study in the USA suggested that even now the majority of urologists feel there is a ladder system for the treatment of urethral strictures. Somehow, they all seem to perform endourological procedures which are accessible to them prior to thinking of urethroplasty. Even the majority who do urethroplasties as a first line of management do not seem to do more than 10 cases a year.⁸ This suggests that inspite of evidence in the literature suggesting the management policy for this condition most still hold on to their old beliefs.

The study shows that ISD following a previous procedure is still a viable treatment option for urethral stricture disease. It is seen in selected cases and in the elderly age group a simple endoscopic procedure followed by long term ISD still is a viable alternative to urethroplasties. There is low stricture recurrence rate if

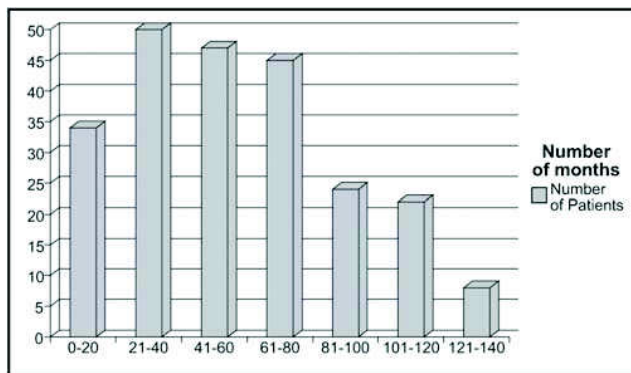


Fig. 7. Follow up in months of patients doing ISD

ISD is continued for a long period of time. Patients undertaking ISD seem to be tolerating the procedure well and they are happy continuing with it.

However, the follow up of these patients needs a dedicated team of doctors/nurse practitioners. The elder age group are more satisfied with the benefits rather than the younger patients. From the results of the questionnaire it is also suggested that patients are satisfied with their quality of life while doing this procedure. Even today this form of treatment for urethral strictures is viable as long as the patients are chosen carefully and the provisions are in place to refer them on if they develop subsequent further strictures or complications.

There is also a cost benefit in patients who have had single procedure followed by ISD. There is however no doubt that, complex strictures should be treated by reconstructive surgery in specialised centres or by urologists who have appropriate training.

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