



ISSN:E: 2319-6475

Available Online at <http://journalijcar.org>

International Journal of Current Advanced Research
Vol 5, Issue 2, pp 625-628, February 2016

International Journal
of Current Advanced
Research

ISSN:P: 2319-6505

RESEARCH ARTICLE

MAMOKATH STENTS IN UROLOGICAL PRACTICE: OUR EXPERIENCE AND OUT COME

Prashant K. Singh, Umar Farouqi* P.B, Singh and Pawan Kesarwani

Department of Urology, Max Patparganj, New Delhi

ARTICLE INFO

Article History:

Received 15th November, 2015
Received in revised form 21st
December, 2015
Accepted 06th January, 2016
Published online 28th February, 2016

Key words:

Benign Prostatic Enlargement (BPE),
Mamokath, Ureteric Stricture, Urethral
Stricture

ABSTRACT

Mamokath are thermo-expandable long-term stents available for all sections of the urinary tract. Pure Nickel-Titanium (NiTi) alloy with precision thermal memory properties is utilized only for the mamokath. It has become available in India since 2012. It is available for ureter (051), prostate (028), bulbar urethra (044) and penile urethra (045). We are presenting our experience of using above mamokaths and its out come.

Methods: A total of 31 patients ineligibile for surgery under general anesthesia who subsequently had a mamokath stent inserted between June 2012 and September 2015 were enrolled in the present study. We evaluated the postoperative postvoid residual (PVR) and presence of pyuria, and reviewed postoperative complications and unassisted urination ability.

Results: Total 31 patients (8 ureteric stricture, 4 BPE,16 bulbar urethral stricture and 3 penile urethral stricture) underwent mamokath insertion. Two out 8 ureteral mamokath had migration and one needed removal. Rest are doing well with follow-up of upto 3 years. Four patients with prostatic stent are catheter free without significant residual urine. Out of 16 bulbar urethral stent, one had migration with ingrowth of tissue at upper end which was managed by laser ablation. Two stents were removed, one because of pain and other because of encrustation. Another pt needed bipolar TURP so stent was removed. All penile stents were doing well.

Conclusion: Mamokaths are good alternative to manage these complex problems with minimum morbidity.

© Copy Right, Research Alert, 2016, Academic Journals. All rights reserved.

INTRODUCTION

Management of strictures in urethra and ureters is a challenging task. Subtle presentation, silent progression and complex aetiology may delay diagnosis. A wide range of available treatment options combined with the lack of adequate randomised trials has led to the introduction of personal bias in the management of this difficult group of patients. Metallic stents offer an alternative to the conventional treatment modalities. Our experience for the currently available metallic stents and their role in the long-term management of strictures is presented.

METHODS

It was a Prospective Observational Study. We investigated treatment outcomes according to postoperative postvoid residual (PVR) and presence of pyuria, and reviewed postoperative complications and unassisted urination ability. From June 2012 to September 2015, 31 patients underwent mamokath insertion (Table 1).

Four patients of BPE were elderly patients with age over 90.

They were on Foley’s catheter ranging from 3 months to year, and could not be subjected to prostatic surgery because of poor cardiac reserve. They were graded as ASA 3/4 because of ejection fraction ranging from 20-30%. Option of mamokath insertion under local anaesthesia and sedation was discussed. After getting consent patient were subjected to mamokath insertion. Three patients had penile urethral stricture from 1 to 3 cm range. They were elderly on frequent dilatation and had previous optical urethretomy and were on self intermittent or frequent dilatation. Option of urethroplasty was discussed with them, they opted for mamokath instead.

Table 1 Patient Distribution

URETERIC	(MAMOKATH TM 051)	8
PROSTATIC	(MAMOKATH TM 028)	4
BULBAR	(MAMOKATH TM 044)	16
PENILE	(MAMOKATH TM 045)	3
TOTAL		31

Etiology of the eight patients of ureteric stricture was: following ureterorenoscopy 5, retroperitoneal fibrosis 2 and tubercular stricture 1. These patients were primarily managed by (double J) DJ stenting. DJ stents were being replaced at 3 months intervals. Majority of stricture were mid ureteric stricture with length varying from 3 to 5 cm. To avoid

frequent DJ stenting patient preferred mamokaths.

Sixteen patients had bulbar urethral stricture with length varying from 1-2 cm. All patients had optical urethrotomy (OIU) done. Four patients had OIU done thrice and were on intermittent dilatation. Majority of 12 patients were above the age of 60 years. These patients were requiring dilatation at interval of 1-2 months. Option of urethroplasty was discussed along with thradvantages, disadvantages and option of mamokaths. They preferred mamokaths over definitive urethroplasty. one patient had haemophilia and preferred mamokath to laser urethroyomy and frequent dilatation .

Operative Procedure

Ureteric Stricture

Under anaesthesia with patient in lithotomy position, retrograde pyelography was done to see site and length of ureteric stricture. With help of flouroscopy a mosquito forcep was placed at upper and lower end of stricture (fig 1). Distance between two were measured to determine length of stricture. Now guide wire was passed into kidney and dilatation of stricture was done up to 12 to 14 Fr using teflon ureteric dilators. 12 Fr access sheath was negotiated up to upper end of stricture and was secured in position. Mamokath 051 which is 10.5 Fr in diameter was selected 1cm more in length than length of stricture. Mamokath was inserted through access sheath till it reaches upper end above upper boarder of stricture. Mamokath can not be brought back if accidently it is pushed ahead so all precaution is taken that it reaches at required position smoothly. Once its position was ascertained, hot water at 60 degree was injected and expansion of upper end of stent observed on flouroscopy. Gradually access sheath along with assembly is withdrawn to leave stent in position (fig 2).



Fig 1 Uretric Stricture - Length assessment on retrograde pyelogram



Fig 2 uretric stricture stent placement

Prostatic Stent

Most important step is measurement of prostatic urethral length. It was measured from bladder neck to mid of verumontanum. It was measured 3 times and mean of it is taken as exact length of prostatic urethra. A stent slightly bigger in size was chosen. Urethra was dilated up to 30 Fr and under vision stent was passed up to bladder neck. Great precaution is taken to keep at exact position because if stent is moved ahead accidently it can not be brought back. Once in position 60 degree warm water was instilled till expansion of lower end is seen on flouroscopy. Gradually assembly was withdrawn leaving stent in position (fig 3).



Figure 3 prostatic stricture stent placement



Figure 4 bulbar stricture stent placement

Bulbar And Penile Urethral Stricture

First optical internal urethrotomy was done in lithotomy position. Length of stricture was measured by pulling urethrotomy sheath and putting clamps on sheath. Urethra was dilated up to 30 Fr so that stent is negotiated smoothly in exact position. Stent of 1cm in size is chosen. Remaining step is like prostatic stent. Bulbar urethral stent has upper expandable end (fig 4) and penile stent has expandable both ends.

After putting prostatic or urethral stent, we did cystoscopy using ureteroscope to see the exact position. Once satisfactory a 10 Fr infant feeding tube (IFT) is inserted through stent for 24 hours. Patient was discharged next morning after removing IFT.

It was an observational study. This study was carried out after the approval by the Institutional Ethical Review Board of Max Academy of Medical Education and Research.

RESULTS

Ureteric Stents

Eight patients with long ureteric stricture were being managed by DJ stenting requiring replacement every 3 monthly. Six patients have now a follow-up of more than 2 years and are doing well. Third patient was doing well for 9 months and suddenly developed total incontinence. He was brought to emergency and plain X-ray revealed upper end in bladder and lower end in bulbar urethra. Overnight patient was managed with condome catheter and next morning stent was removed using cold saline. Patient is still being maintained on DJ stent. Last patient also had migration of stent with upper end lying in mid way of stricture and lower end in bladder. He is being maintained in this position with repeated ultrasound. Now it is over one year and upper end had not developed re -stricture.

Prostatic Stents

These four patients were cardiac cripple and not fit for any major surgery. They were on Foley’s catheter for period varying from three months to one year. After prostatic stents they are able to void but peak flow rate is between 8 to 12 ml/sec. follow-up ultrasound has not shown significant post void. These patient have been kept on combination therapy (silodosin with dutasteride).

Bulbar Urethral Stricture

First patient was a case of haemophilia. He underwent laser urethrotomy with mamokath after getting factor VIII. He did well for 6 months. He used to feel pricking sensation in perineum and ejaculation was painful. In spite of normal voiding he requested to remove stent. Now it is over 9 months since his stent is removed but he is free of dilatation and voiding normally. He had an episode of UTI which was treated conservatively with antibiotics.

Second patient did well for 9 months and again developed thinning of urinary stream. Retrograde urethrogram showed little migration of stent with stricture at upper end of stent. Cystoscopy using ureteroscope revealed in growth of tissue but ureteroscope could be passed easily into bladder. Laser ablation of in growing tissue was done and now patient is voiding normally with 4 month follow-up.

Third patient had stricture and prostatic enlargement. He underwent mamokath for bulbar urethral stricture and prostate was managed by alpha blockers. He gradually developed increased post void with symptomatic LUTS. Cystoscopy revealed stent in position with bilobar obstructive prostate. After counselling his stent was removed and patient underwent bipolar TURP. He is also voiding normally without need of dilatation with follow-up over 10 months. Another patient with bulbar urethral stricture did well for 2 years and gradually developed difficulty in passing urine. Endoscopy revealed marked encrustation inside stent. After breaking encrustation with lithoclast, stent was removed. This patient needed regular dilatation at interval of 2 to 3 months. Remaining all patients are voiding normally. Occasionally they complain of mild pain in perineum.

Penile Urethral Stricture

All patients with penile mamokath are voiding normally though they feel uncomfortable during erection. All these patients are followed with urine culture and plain x-ray at three monthly intervals to see for position of stent.

DISCUSSION

Stricture of ureter and urethra are complex problems. Ureteric stricture are usually managed by dilatation and DJ stenting if feasible otherwise may require complex reconstructive procedures. DJ stent require frequent replacement at interval of 6 weeks to 2 months. It has its own morbidity affecting quality of life. Mann *et al* [1] compared quality of life with DJ stent and mamokath and found 70% patient with DJ stent has frequency of less than 2 hrs as compared to mamokath (47%) and 31.8% with DJ stent were extremely bothered as compared to 5.6% in mamokath group. Mamokath are good alternative and claimed to be lasting for years without much co-morbidity. In Indian scenario cost is an important factor before considering this option. Migration of stent is known as has happened in two of our patients and it creates a great dissatisfaction to patient if he is brought back to DJ stent after spending good amount of money around 2.5 lacs. There is no subsidized package from supplier in case of migration. Second issue is proper placement of stent. If stent is

positioned at higher level it is very difficult to bring back. It is always advisable to use longer length of stent so that stricture area remains bypassed by stent. Arya *et al* [2] also reported encrustation in ureteric stent though manufacturer claims minimum encrustation. Various studies have shown that mamokath are good treatment option and can be left in situ for longer time as compared to DJ stent with fewer side effects [2, 3, 4, 5].

Retention of urine following enlargement of prostate (benign or malignant) require surgical intervention to relieve obstruction. Though minimal invasive procedures are currently practiced but many patients with morbidities particularly cardiac cripples are not fit enough to undergo even minimal invasive procedures. In such scenario prostatic stents are good options. We have used prostatic stent in 4 cases with satisfactory outcome. Measurement of length of prostatic urethra is key to get successful outcome. Three measurements are taken from bladder neck to mid of verumontanum to determine length of prostatic stent. Well placed stent give a good quality of life in these morbid patients.

Urethral stricture disease is a complex problem with long term morbidity. Endoscopic treatment with optical internal urethrotomy is good option with minimum morbidity but main issue is how to maintain long term patency of urethra. Various options available are intermittent self catheterization or intermittent dilatations. As per severity of stricture these procedures also become cumbersome affecting quality of life. Other long term options are urethroplasties but it has its own morbidity and complications. Recurrence after OIU's may go up to 90%. [6, 7, 8].

Permanent stents (urolume TM, AMS Minnetonka) have been used in past but now no longer used because of discouraging results following ingrowth of tissue causing reocclusion [9]. Mamokath stents are nickel-titanium alloy with advantage of causing minimal encrustation or tissue ingrowth. Other advantage is smooth removal of stent with cold saline whenever required. Mamokath is good alternative for managing such strictures as seen in our 19 cases with bulbar and penile urethral stricture. Only 4/16 bulbar urethral stricture had problem. One had migration and ingrowth of tissue above stent which was lased to maintain patency. Two stents were removed one due to local pain and ejaculatory problem and other due to encrustation. None of case had tissue in growth. Migration and encrustation may occur on long term follow-up. Remaining all patients are comfortable free of infection and voiding normally.

CONCLUSIONS

Mamokath thermo-expandable stent is safe and effective for treating strictures in urogenital tract. Stents are available in different lengths for ureter, prostate, bulbar and penile urethra. Migration and encrustation may occur in long term follow-up. Cost of stent is an issue in country like India.

References

1. Mann Z, Patel D, Moraitis K, El-Husseiny T, Papatsoris AG. Comparison of stent related symptoms between

- conventional Double –J stents and new generation thermoexpandable segmental metallic stents: a validated- questionnaire based study. *J.Endourol* 2010; 24: 589-593.
2. Arya M, Mostafid H, Patel HR, Kellett MJ, Philip T. The self retaining metallic ureteric stent in the long term management of benign ureteric strictures. *BJU Int* 2001; 88: 339-349.
 3. Papatsons AG, Buchholz N. A novel thermo-expandable ureteral metal stent for the minimally invasive management of ureteral strictures. *J Endourol* 2010; 24: 487-491.
 4. Klarskov P, Nording J, Neilson JB. Experience with memokath 051 ureteral stent. *Scand J urol Nephrol* 2005; 39:169-172.
 5. Agarwal S, Brown CT, Bellamy EA, Kulkarni R. The thermo-expandable metallic ureteric stent: an 11 year follow up. *BJU* 2009; 103: 372-376.
 6. Heynes CF, Steenkamp JW, De Kock ML *et al.* Treatment of male urethral strictures: is repeated dilation or internal urethrotomy useful? *J Urol* 1998; 160: 356-8.
 7. Voelzke B, Wessells H. Role of direct vision internal urethrotomy in the management of urethral stricture. *AUA Update series* 2010.
 8. Santucci R, Eisenberg L. Urethrotomy has a much lower success rate than previously reported. *J Urol* 2010; 183: 1859-62.
 9. Mundy AR, Andrich DE. Urethral strictures. *BJU Int* 2011; 107:6-26.
