A False Route Case of Primary Excision Anastomosis (EPA) Procedure in the Treatment of Traumatic Bulbar Urethral Stricture

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Abstract

The bulbar urethra stricture is the most common form of anterior urethral stricture. The treatment of urethral strictures are varied and remains a challenging field in urology. Excision Primary Anastomosis (EPA) described as the most effective intervention for traumatic urethral stricture cases with a long-term success rate. This case report described male, 42 years old, with a history of pelvic injury. He had undergone cystostomy and conservative management for his pelvic injury. After EPA and pubectomy procedure in September 2019, he was still unable to void from his urethra. Radiologic evaluation with BVUC was done in October 2019, showing total obstruction of urethral as high as superior aspects of pars bulbosa, unfavorable anastomosed, and displaced urethra. Acquired urethral stricture or fistula is an unexpected result of urethral reconstruction and leads to much inconvenience as well as a psychological problem for the patient. This condition is avoidable by the operation that was performed by an experienced urologist and using a flexible cystoscopy as guidance.

Keywords: *Urethral Stricture, EPA, reconstruction*

Introduction

The bulbar urethra stricture is the most common form of anterior urethral stricture. Urethral stricture defined as a narrowing of the urethra due to scar tissue, which often leads to obstructive voiding disturbance.¹ One of the causes is traumatic scarring after blunt straddle injury that compresses the urethra against the pubic symphysis causing urethral in continuity, bleeding as well as urinary extravasation, eventually developed into inflammation and scarring. The treatment of urethral strictures are varied and remains challenging in urology as there is no more superior approach towards another.²

Management of urethral stricture comprises of intermittent urethral dilation, internal urethrotomy, urethral stent placement, and urethroplasty. Unfortunately, frequent urethral dilation and internal urethrotomy are neither clinically effective nor cost-effective.³ As a general rule of every reconstruction, the urethral tissue is the best substitute for itself. The removal of the traumatic scarred tissues is mandatory in traumatic strictures as not removing it may cause stricture recurrence over time. Excision Primary Anastomosis (EPA) described as the most effective intervention, with a long-term success rate of approximately 90%. The overall complication of EPA is low including erectile dysfunction that tends to be transient, some prospective studies have reported that erectile function is more inferior after EPA than after augmentation and stricturotomy.^{4,5}

Recurrence after EPA is usually due to inadequate removal of the fibrosis and inadequate

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removal of the fibrosis and inadequate urethral mobilization (where excess anastomotic tension results in blood supply disturbance). For strictures longer than 2.5 cm, the surgeon can use more appropriate techniques.⁴ In this case report, we present an unexpected outcome of anterior urethral stricture reconstruction that showed the false route of urethra anastomosis. This condition is rare and avoidable. The patient's informed consent was obtained before the writing of this article.

Case Report

A 42-year-old male came to our department due to persistent urethral stricture after EPA and pubectomy procedure. His history revealed an initial episode of difficulty in urinating one year before the presentation. He was diagnosed with total bulbar urethral stricture and was treated by cystostomy one year ago as the initial treatment in another hospital and underwent EPA workshop operation in our hospital one year later. He did not undergo any operation for the pelvic fractures. He had experienced urethral trauma due to crushed by wall ruins in the pubic area, which was suggestive of a traumatic stricture etiology. Now, he voids from his cystostomy because he only can secrete a small amount of urine from his urethra. On physical examination, we found a cystostomy catheter on the suprapubic area with 500mL clear urine production. The male external genitalia was normal, and there is no sign of infection. There was no prostate enlargement on the rectal toucher examination.

From a pan endoscopy pre-EPA procedure, we found that there was a total obstruction of the bulbar urethra where the sheath of cystoscopy can only penetrate about 15cm from meatus urethral externus (MUE). The EPA procedure was performed later under general anesthesia and lithotomy position. A vertical midline incision was made through the Colles fascia, and the subcutaneous tissue is dissected away from the midline of the bulbospongiosus muscle. The bulbospongiosus muscle is incised in the midline in the same direction as the skin incision. The corpus spongiosum then identified and divided from corpora cavernosa. Then the scarred urethra is identified and excised. Pubectomy then done afterwards. After that, the two ends of the urethra are spatulated on opposite sides over a 14 F Silicone catheter. The distal and proximal urethra was anastomosed by two-layer technique (mucosa to mucosa and sponge to sponge closure). Finally, re-approximation of bulbospongiosus muscle is performed. The duration of the procedure was 2 hours 10 minutes with a total 1000 ml intraoperative bleeding.

Fig 1. Bipolar voiding urethrocytography (BVUC) after blunt trauma showing total obstruction in the proximal bulbar urethra

Fig 2. Preoperative BVUC showing total obstruction in the proximal bulbar urethra

The patient was followed-up for one month, and cystoscopy was performed. The result was a total stricture of the bulbar urethra, and the patient is still unable to void from the urethra. BVUC examination was done, showing poorly anastomosed and displaced urethra (Figure 3). The second stage EPA was planned to correct the result.

Fig 3. One month postoperative BVUC (15th October 2019). The image shows total obstruction of urethral as high as superior aspects of pars bulbosa, anastomosis tract that connects the inferior aspect of the bulbar urethra – prostatic urethra (with contrast leakage around it), urethro-perineal fistula, neurogenic bladder with cystitis and superior-inferior ramus deformity os pubis dextra, suspect an old fracture.

Discussion

Urethral trauma due to the saddle injury often unnoticeable until the patient complains of voiding symptoms due to stricture obstruction. In most cases of straddle trauma, reconstruction of the bulbar urethral injury is possible.⁶ This case report presents Male, 42 y.o with a history of pelvic injury after being crushed by wall ruins. He had undergone cystostomy and conservative management for his pelvic injury. After EPA and pubectomy procedure in September 2019, his still unable to void from his urethra. Radiologic evaluation with BVUC then done in October 2019, showing total obstruction of urethral as high as superior aspects of pars bulbosa, anastomosis tract that connects the inferior aspect of the bulbar urethra – prostatic urethra (with contrast leakage around it) and urethro-perineal fistula.

One of the successful predictors of the urethral reconstruction operator technique and experience. One dealing with reconstruction surgery of the urethral strictures must be very familiar with the various surgical techniques to manage any condition of the urethra that might emerge at the time of urethroplasty.⁷ Excision and primary anastomosis (EPA) urethroplasty procedure involves transection and

removal of the narrowed segment of urethra and corresponding spongiobrosis with anastomosis of the two healthy ends of the urethra. This procedure is a gold standard for urethral stricture management due to its high success rate and overall low outcome.⁵

This case report illustrated a false anastomosis by the surgeon despite persisting postoperative problems. A similar case by Liu *et al.*³ reported a urethral false passage formation as a complication of treatment for post-traumatic posterior urethral strictures. Apart from their recognition, it is essential to identify the likely causes of false anastomosis in the first place. The first is the hesitation/inexperience of the surgeon to perform the adequate posterior urethral dissection. This can be more complicated in the event of past pelvic trauma that also happened in the patient in this case report. The second possible cause is the blind use of the Hey Grove dilator without flexible cystoscopic guidance can contribute to a false route anastomosis.⁸

A case report by Li *et al.*³ also described a similar experience that the distal urethral end had been anastomosed to the proximal false passage in the initial surgery, and the proximal urethra was located in the dorsal side of the false passage. They performed tubularized preputial flap urethroplasty to correct that condition. Ten months follow up duration showed his peak urinary flow was 18.3 milliliter per second. Jordan *et al.*⁹ suggested the use of flexible cystoscopy, or temporary vesicostomy to avoid false anastomoses, anastomosis to regions other than the normal urethral lumen can lead to strictures.

Conclusion

Acquired urethral stricture or fistula is an unexpected result of urethral reconstruction and leads to much inconvenience as well as a psychological problem for the patient. This condition is avoidable by the operation that is performed by an experienced urologist and using cystoscopy as guidance. Urethroplasty is one of the curative choices for the management of this unexpected condition.

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