



Successful management of the stone inside Allium bulbar urethral stent: A very interesting and rare case

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ARTICLE INFO

Keywords:

Allium bulbar urethral stent
Urethral stricture
Stone

ABSTRACT

The stone inside the Allium bulbar urethral stent for treatment of urethral stenosis is an exceedingly rare disease. Herein, we report a case of the stone inside the Allium bulbar urethral stent (BUS) for treating urethral stricture in a 48-year-old Chinese male patient. The patient underwent a cystoscopy and URS for the stone inside BUS. The patient had only a symptom of urodynia. Urination of the patient is unobstructed after removing BUS and the urethral stricture of the patient was cured.

1. Introduction

The stone of the Allium bulbar urethral stent (BUS; Allium Medical Solutions Ltd, Caesarea, Israel) which treats urethrostenosis is a very interesting rare case. The Allium BUS is a self-expanding stent made of a nitinol skeleton and a polymeric cover that has shown to be an effective choice to treat ureteral and urethral stenosis and fistulas. Urethral stricture is a recurrent chronic condition that brings about severe side effects and poor quality of life. Management of the stone of the Allium bulbar urethral stent and urethral stricture is a significant challenge for urologists and no specific guidelines exist.

2. Case presentation

In September 2019, due to straddle injury, a man with urethral joint operation was performed in a local hospital as a result of a urinary tract fracture. About a month later, a cystostomy was done in another local hospital because of the retention of urine. On December 12, 2019, urethral convergence was performed and Allium urethral stent was inserted for the urethral stricture in order to balloon dilatation of the urethral stenosis. After the operation, the patient was lost in the follow-up for a work problem.

In December 2021, He came to our department for a urinary tract infection, without residual urinary bladder.

However, at this time, he had a stone inside the Allium urethral stent with no history of urolithiasis. Ultrasonography (US) showed normal,

without uronephrosis. Laboratory tests were unremarkable except for increased white blood cells in urine. An X-Urography showed 2 cm stenosis of the urethra [Fig. 1]. Kidney scintigraphy showed normal renal function.

Cystoscopy was performed in our hospital but the calculi of Allium urethral stent was discovered and was fragmented using a holmium laser and was extracted by a pair of forceps. The composition of stone is 90% magnesium ammonium phosphate hexahydrate 5% ammonium bicurate 5% carbonate apatite. The broken Allium urethral stent was removed endoscopically [Fig. 2]. After the operation, the patient told us to be smooth urination. BUS has a certain dilation effect. After continuous dilation of the stricture of the urethra, the stricture segment of the urethra is completely dilated, so it has a therapeutic effect. At 3 months of follow-up, he had a good flow of urine.

3. Discussion

Urethral strictures are a recurrent chronic condition that leads to severe side effects and poor quality of life.¹ Management of ureteric strictures is a significant challenge for urologists and no specific guidelines exist.

There are several options, including repeated dilatations, stents, minimally invasive reconstructive surgery, and urinary diversion or nephrectomy. The Allium BUS stent is made of a super radial force while keeping it flexible. On the contrary, a new biocompatible polymer completely covers the stent to prevent tissue ingrowth and early

Abbreviations: BUS, Allium bulbar urethral stent; UTI, urinary tract infection; US, Ultrasonography; URS, ureteroscopy.

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<https://doi.org/10.1016/j.eucr.2022.102148>

Received 15 April 2022; Received in revised form 18 June 2022; Accepted 24 June 2022

Available online 27 June 2022

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Fig. 1. Abdomen X-ray showing Allium urethral stent positioning in the urethra.



Fig. 2. The Broken film and the part of calculi of Allium urethral stent.

encrustation. So BUS is a new device recently introduced to treat urethral and ureteral stenosis.

According to the recent literature, Allium URS are safe and effective but not devoid of side effects, including migration, residual pain, upper tract dilation, and infection.²⁻⁵ However, the patient who has a stone inside the Allium BUS stent is very rare and the reported same case also is very scarce.

Considering that Allium BUS has only recently entered clinical practice, there are few studies on the treatment of urethral stricture, mainly because we have no clear indication on when to remove the Allium BUS. Since 2018, 17 cases of urethral or ureteral stricture have been treated with Allium BUS, and good functional results have been

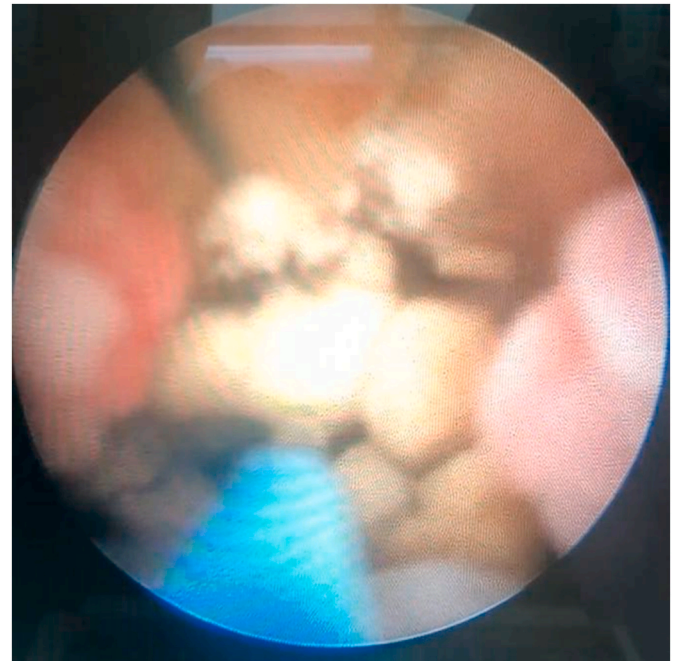


Fig. 3. The views of the cystoscope showed the stone inside the Allium BUS stent.

achieved. We suggest the best time to remove the stent is between 6 and 12 months. It is hypothesized that the prolonged presence of a stent in the urethra or wall of the ureter can cause inflammation and subsequent fibrosis, resulting in the loss of normal urethral or ureteral peristalsis. The stone inside the Allium bulbar urethral stent is primary, not secondary [Fig. 2].

We can confirm that the broken film of the Allium bulbar urethral stent gives rise to the infectious stone. Fortunately, the stone did not cause any serious consequences, only urinary tract infection. Furthermore, the Allium BUS is effective for treating urethral stenosis. Some studies have recommended close surveillance with ultrasound (US) per 3-months as well as check cystoscopy, other studies have reported stent migration or infection as complications of Allium ureteral stent.^{3, 5} We believed that the calculi inside the Allium bulbar urethral stent should also be considered as a possible complication of BUS.

So far this is our first experience with successful management of the stone inside the Allium BUS stone [Fig. 3]. When reviewing the literature, we did not find any publications that described the complication, such as the stone inside the stent [Fig. 3], resulting from the Allium stent in these instances. In our opinion, this is a unique complication for this stent, but further studies on more patients should be conducted for proper evaluation and close follow-up checks.

4. Conclusions

The stone inside the Allium bulbar urethral stent for treatment of urethral stricture is an interesting and rare disease. We have presented a case of a 48-year-old Chinese man with a urinary tract infection. Successful endoscopic removal and analysis of stone composition confirmed the stone inside Allium bulbar urethral stent. Our case adds to the body of evidence of successful endoscopic management of the calculi inside Allium bulbar urethral stent of urethral stricture and gives us a significant tip of the follow-up about the Allium bulbar urethral stent. For these reasons, we recommend a close instrumental follow-up all the time after the procedure so to decide the optimal removal time of the stent or to identify the reason for the urinary tract infections stone.

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