

Successful management of hair follicles following urethroplasty with holmium:YAG laser epilation: A case report

Üretroplasti sonrası kıl foliküllerinin holmium:YAG laser epilasyon ile başarılı tedavisi: Olgu sunumu

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Abstract

A 27-year-old male presented with recurrent urinary tract infections, calculus formation and hair follicles in urine following urethroplasty. The patient was treated with urethroscopic holmium laser in 2012, which was performed by Beiko for the first time in the literature to remove stones and epilate hair follicles. At 3-month, 3-year and 6-year follow-ups, the patient was symptom and infection-free. Urethrocytoscopy was performed in the 6-year follow-up, and no stone formation was observed. There were only a few hair follicles that were too short to require re-surgery. Urethral hair follicles and stone formation are uncommon long term complications following urethroplasty. Endoscopic holmium laser hair epilation is a rarely performed treatment option for hair follicles and urethral stone. Holmium:YAG laser epilation may be an alternative, minimally invasive treatment option with successful long term outcomes.

Keywords: Laser, Urethroplasty, Hair follicles, Epilation, Stone

Öz

27 yaşında erkek hasta, tekrarlayan idrar yolu enfeksiyonu, idrarda taş oluşumu ve idrarla kıl gelmesi şikayetleri ile başvurdu. Hasta 2012 yılında, Beiko tarafından literatürde ilk kez uygulanan üretradan taş çıkarmak ve kıl köklerinin epilasyonu için yapılan üretroskopik olarak holmium lazer ile tedavi edildi. Kısa süreli 3.ay ve uzun süreli 3 ve 6 yıllık takiplerde hastada enfeksiyon gelişmedi. Üretrosistostokopi 6.yıl takibinde yapıldı. Üretrosistostokopide cerrahi gerektirecek taş ve kıl kökü oluşumu görülmedi. Semptom vermeyen ve cerrahi gerektirmeyecek kadar kısa olan birkaç kıl kökü görüldü. Üretral kıl folikülleri ve taş oluşumu, üretroplastiyi takiben nadir görülen uzun dönem komplikasyonlardır. Endoskopik holmium lazer epilasyonu kıl kökleri ve üretra taşı için nadiren uygulanan bir tedavi seçeneğidir. Holmium:YAG lazer epilasyonu minimal invaziv yaklaşım ve iyi uzun dönem sonuçlar ile alternatif bir tedavi seçeneği olabilir.

Anahtar kelimeler: Lazer, Üretroplasti, Kıl kökü, Epilasyon, Taş

Introduction

Urethral hair growth is an uncommon and historical complication of urethroplasty using hair-bearing skin as the graft. Although there is not enough data about the correct incidence of this complication, Rogers et al. [1] reported it as 5%. The hair-bearing urethra may cause obstruction, recurrent urinary infections or calculus formation [2]. This complication of urethroplasty has been solved by using nonhair skin flaps, preoperative epilation of the skin, clipping of urethral hair, Nd: YAG laser depilation or Holmium: YAG laser epilation [3]. Holmium: YAG laser treatment of the hair-bearing urethra was reported for the first time in 2011 [4]. We herein present a case of urethroscopic Holmium: YAG laser epilation of urethral hair follicles and long-term follow-up results.

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Case presentation

A 27-year-old male presented with recurrent urinary tract infections and calculus formation in urine. His history included two urethroplasties and one urethral diverticulectomy. Seventeen years ago, urethroplasty was performed using an 8x2 cm skin graft from the scrotum due to a firearm injury causing urethral trauma. Physical examination revealed scarring of the ventral penile and perianal skin due to previous surgeries. Urinary system ultrasonography was normal, and his post-void residual urine volume was 53 mL. Retrograde urethrogram revealed a dilated posterior urethral segment (Figure 1). Under general anesthesia and in the dorsal lithotomy position, cystourethroscopy was performed using a 21 french urethroscope, during which hair-follicles and stone formation was observed in the dilated penile urethral segment (Figure 2). Using a 400-micron holmium: YAG laser fiber, hair follicles were epilated. The laser equipment was set to work at 1.0 J, 8 Hz and 8 W. Laser epilation of the hair follicles may damage the urethra, and like we did in our case, keeping the power as low as possible may help avoid that. Approximately 26 hair follicles were removed and around 600 laser pulses were required to remove all follicles and stones. We aimed to shoot the pulses towards the roots of the hair follicles (Figure 3). Urethral hair epilation was completed successfully, and all epilated hairs were removed with a grasper (Figure 4). There were no intraoperative or postoperative complications. The foley catheter placed during the surgery was removed 3 days later. The patient remained symptom and infection-free at 3-month, 3-year and 6-year follow ups. A repeat urethroscopy was performed at the 6-year follow-up visit, no stones were observed, and only a few hair follicles were seen.

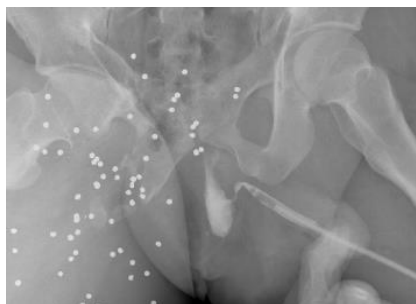


Figure 1: Retrograde urethrogram, dilated posterior urethral segment and small bullets



Figure 2: Urethroscope view: Stone formation and hair-follicles



Figure 3: Ho-YAG laser shooting the most proximal parts of the hair follicles near the uroepithelium



Figure 4: A few hair follicles following epilation treatment

Discussion

Urethral hair and stone formation are historically uncommon long-term complications of urethroplasty [1]. However, urologists still encounter it today. Urethral hair may cause urinary obstruction, dysuria, and stone formation [2]. The diagnosis of urethral hair formation is usually based on the patient's suspicious history. The most common diagnostic tools include retrograde urethrogram and urethroscopy. It is also important to assess residual urine volume. Currently, hair-free skin flaps such as the buccal mucosa are used for urethroplasty to avoid these complications. The most important method to prevent urethral hair growth and stone formation is to use hair-free skin flaps. However, some methods have been described to prevent hair follicle formation in patients with hair-bearing skin flaps, including using depilation agents, preoperative thermocoagulation, carbon dioxide (CO₂) laser desiccation, neodymium: YAG laser photocoagulation, grasper extraction, surgical revision and Holmium: YAG laser treatment [3,4]. The use of laser in surgical practice has advanced significantly in the last 30 years. Laser technology is used in both non-urological procedures such as iridotomy and urological procedures, such as prostatic surgery, urinary-tract tumors, stricture of ureter and skin lesions [5]. Ho-YAG laser treatment of hair-follicles bears various disadvantages: Fever, urethritis, urethral stenosis, urethrocutaneous fistula and regrowth of hair-follicles can occur following laser treatment. However, we preferred this treatment modality because its advantages outweigh the disadvantages. First, it is easy to perform and can be safely used in luminal organs. Second, if one shoots the pulses as close to the epithelium and to the root of the hair follicle as possible, the success rate will increase [6]. To the best of our knowledge, there is no article reporting the long-term follow-up results of urethral laser epilation in the literature.

Limitations

In our institution, we can only use the 400-micron holmium: YAG laser, which prevents us from comparing this laser fiber with the others. The outcomes of the laser epilation can vary according to laser fiber type.

Conclusions

In the treatment of urethral hair follicles following urethroplasty, holmium: YAG laser epilation is an alternative, minimally invasive treatment option which can easily be performed by many endourologists. It constitutes an option in the treatment of symptomatic hair-follicles and calculi following urethroplasty in adults with favorable long-term results.

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