



CASE REPORT/RESEARCH LETTER

Acute urinary retention in elderly female patients after photodynamic therapy of urethral condyloma – Report of two cases



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Summary We report two cases of acute urinary retention (AUR) occurred after intra-urethral aminolevulinic acid (ALA)-mediated photodynamic therapy (PDT) in elderly females (>66 years old) with urethral condylomas.

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Introduction

Condyloma acuminata is a common virally transmitted disease. Twenty percent of genital condylomas caused by human papillomaviruses (HPV) are found in the urethra, predominantly on the external orifice. Some may be located in the proximal urethra and hence difficult to treat [1].

Endogenous production of protoporphyrin IX in condylomas after topical 5-aminolaevulinic acid (ALA) implicates the use of ALA-mediated photodynamic therapy (ALA PDT) in treating condylomas [2,3]. The procedure is well tolerated

and no significant urethral complications have been reported [3,4].

Over the past 10 years, we treated 1050 patients (F:M=1:4.6). The complete remission after multiple ALA PDT is >95% and the recurrence <5%. Although the majority of our patients (>80%) were between 20 and 45 years old, 1.1% male and 6.5% female patients were >60 years old. Recently, acute urinary retention (AUR) occurred in two elderly female patients. Details of this rare adverse effect are presented and discussed below.

Case report

Case 1

The 66 years old female was seeking treatment because of neoplasia in the urethra and occasional hematuria for 3

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months. She received CO₂ laser treatment 3 months ago. Under urethroscopy examination, a 0.5 cm caruncle was seen near the urethral orifice and a soybean-size pinkish wart seen 0.5 cm away from the orifice without a clear foundation and touch-bleeding.

Intra-urethral ALA PDT was carried out after signing the consent form. After voiding, 20% ALA solution (Fudan Zhangjiang Bio-Pharmaceutical Co. Ltd., Shanghai, China) was applied to the warty areas for 3 h. After emptying the bladder again, light (100 J/cm² at 100 mW/cm²) was delivered through a cylindrical diffuser coupled to a diode laser (635 nm; Biolitec GmbH). The patient felt tingling during light irradiation and pain after light irradiation. Swelling could be seen in the external urethral orifice and anterior urethral segment. Four hours later, she had a strong desire to void but unable to. Percussion of the bladder produced a dull sound and the bladder position was 4-finger below the umbilicus. Catheterization was used after the Credé maneuver, the residual volume was 650 ml of clean urine. The catheter was removed next day and self-voiding was resumed.

Another three sessions of PDT were prescribed. No urinary retention occurred during these treatments. Urethroscopy examination revealed that all warts were removed, the external urethral orifice slightly narrowed, and the surface of urethral mucosa and bladder neck was smooth. The patient had no history of urinary retention, uterine tumors nor diabetes. She denied taking medications that might cause voiding dysfunction.

Case 2

The 69 years old female was seeking treatment because of foreign body sensation in the urethra for 2 months. Her husband had a history of genital condyloma. Urethroscopy examination revealed the retraction of the external urethral orifice, significant mucosal congestion, and smooth bladder neck. At 3 and 6 o'clock and 0.5 cm away from the urethral orifice there were two soybean-size warts.

Same PDT procedure was carried out after signing the consent form. The patient felt tingling and pain in the urethral area during and after light irradiation. Five hours later, she had a strong desire to void but unable to. Ultrasound examination confirmed AUR. Catheterization was used after the Credé maneuver, the residual volume was 750 ml of clean urine. The catheter was removed next day and self-voiding was resumed.

Another two sessions of PDT were carried out to completely remove residual lesions. Pain feeling was less intense and no urinary retention occurred during these treatments. The patient had no history of urinary retention, cancer nor diabetes. She denied taking medications that might cause voiding dysfunction.

Discussion

Both cases were elderly women who had a history of urethral condylomas accompanied with senile urinary tract changes (urethral caruncle and retraction in the external orifice of the urethra) but the bladder neck was smooth. AUR occurred a few hours after PDT, which suggested

that its occurrence was related to the intra-urethral PDT. Although intra-urethral PDT-induced temporary urinary pain and difficulty are common but AUR has not been reported before.

Possible reasons for PDT-induced AUR might include: (i) PDT-induced local tissue hypoxia and the accumulation of metabolites could damage the urethral nerves and cause pain and stress responses that trigger urethral sphincter spasm, which was worsened by mental stress, external urethral stenosis, and sympathetic nerve activity. (ii) The use of diffuser fiber in intra-urethral PDT might cause edema in the entire urethral tract, and even spread to the bladder neck and ureter. (iii) Age factor. The contraction function of the detrusor gradually decreased with aging. Especially when holding back voiding for too long, the detrusor became over-relaxed and unable to contract. Senile urethral change, retraction in the external orifice of the urethra, and urethral caruncle could also cause the narrowing of the urethra.

Interestingly, during repeated treatments, pain feeling was less intense than the first treatment since urethral submucosal nerve endings became less sensitive. The reduction in the size/number of the warty lesion might be associated with a reduction in the degree of edema during the second treatment. Better physician–patient communication might also ease the nervousness and tension. These factors might explain why urinary retention did not occur in following sessions.

Although urinary retention is more common in men than in women, we did not observe PDT-induced urinary retention in male patients during our practice. This may be related to the structural differences of the urethral anatomy of different genders. The middle section of the urethra is the most important functional part in controlling urination. The vast majority of male urethral condyloma occur below the navicular fossa. Therefore, intra-urethral PDT is unlikely to cause urinary retention in male patients. Nevertheless, to avoid the occurrence of AUR, especially for elderly female patients, better physician-patient communication is essential. Meanwhile, the fluence rate and total fluence might be reduced to avoid PDT-induced severe urethral pain and edema.

Conflict of interest

The authors declare no conflict of interest.

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References

- [1] Fletcher SG, Lemack GE. Benign masses of the female peri-urethral tissues and anterior vaginal wall. *Current Urology Reports* 2008;9:389–96.
- [2] Ross EV, Romero R, Kollias N, Crum C, Anderson RR. Selectivity of protoporphyrin IX fluorescence for condylomata after

- topical application of 5-aminolaevulinic acid: implications for photodynamic treatment. *British Journal of Dermatology* 1997;137:736–42.
- [3] Wang XL, Wang HW, Wang HS, Xu SZ, Liao KH, Hillemanns P. Topical 5-aminolevulinic acid-photodynamic therapy for the treatment of urethral condylomata acuminata. *British Journal of Dermatology* 2004;151:880–5.
- [4] Mi X, Chai W, Zheng H, Zuo YG, Li J. A randomized clinical comparative study of cryotherapy plus photodynamic therapy vs. cryotherapy in the treatment of multiple condylomata acuminata. *Photodermatology, Photoimmunology and Photomedicine* 2011;27:176–80.