

Urethroscrotal fistula complicating large spermatocele in a male ketamine abuser: A case report

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ABSTRACT

Ketamine related urinary tract complications were first reported in Hong Kong since 2007. The current case report describes a 37 years old male with long history of ketamine abuse, renal impairment, hypertension and HCV hepatitis, presented to us with insidious onset of painful scrotal swelling post bilateral nephrectomy, prostate and seminal vesicle preserving cystectomy. Radiological imaging and intraoperative finding revealed that it was a large spermatocele with urethroscrotal fistula, which was likely due to urethra stricture. The review of literature showed no guidelines for treatment, a symptoms based and multidisciplinary team approach is recommended.

Introduction

Ketamine use is associated with lower urinary tract symptoms (LUTS), functional deficits and structural changes. These were first reported in a case series in 2007 by Chu et al.¹ and similar positive associations were also reported in other studies. Ketamine was once the commonest recreational drug in Hong Kong. Recent data showed that it is on a decreasing trend and it has been superseded by methamphetamine.² However the urological complications of ketamine can persist and this group of populations still require ongoing care for their symptoms.

Case presentation

A 37 years old male with history of ketamine abuse, renal impairment, hypertension and HCV hepatitis, presented to us with insidious onset of painful scrotal swelling after prostate preserving cystectomy.

Patient started abuse of ketamine since he was 18 years old. He first presented with hematuria at the age of 24, and was later diagnosed to have ketamine cystitis. CT scan and intravenous urogram showed bilateral hydronephrosis with bilateral full length strictures from ureteropelvic junction to vesicoureteric junction. There was also thickening of anterior bladder wall and 1.5cm polypoid bladder lesion. Cystoscopy and biopsy of bladder polyp revealed granulosa pyogenicum. Videourodynamic study showed 140 ml bladder capacity with detrusor overactivity. At the age of 33 he was admitted for septic shock due to pyonephrosis with acute on chronic renal failure. Bilateral percutaneous

nephrostomy was inserted. After control of sepsis, antegrade pyelogram showed smooth strictures at both ureteropelvic junctions. Despite urinary diversion by bilateral nephrostomy, patient had progressive renal impairment and required permanent hemodialysis. Bilateral transperitoneal nephrectomy was performed at the age of 34. However patient was then admitted repeatedly for pyocystitis and requiring suprapubic cystostomy for drainage due to pan-urethral stricture. In view of patient's age and future fertility issue, prostate and seminal vesicle preserving cystectomy was then performed 1 year later. Post-operative erectile function was maintained.

On follow up approximately 1 year after cystectomy, he complained of insidious onset of painful scrotal swelling, and the pain was worse after nocturnal tumescence and persisted for a few days. Physical examination showed bilateral gross scrotal swelling >10cm, bilateral testes palpable anterior to tense scrotal swelling (Fig. 1). Scrotal ultrasound showed grossly distended scrotum filled with fluid. MRI scrotum was performed which showed 13.5 × 16.8 × 17.5 cm scrotal sac with communication with penile urethra at root of penis, suggestive of a urethroscrotal fistula (Fig. 2).

Exploration of scrotum with cystoscopy was done and a huge scrotum with collection inside was found which displaced both testes laterally (Fig. 3). 2.5 L of brownish fluid was drained out. The collection cavity was connected to a well-formed fistula tract leading to veru and then via bladder neck to a cavity lined by transitional epithelium mimicking bladder cavity. The urethral lumen distal to the verumontanum was blind-ended. Drainage was performed.

Abbreviations: CT, computed tomography; HCV, hepatitis C virus; LUTS, lower urinary tract symptoms; MRI, magnetic resonance imaging.

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Fig. 1. Large firm left scrotal swelling.



Fig. 3. Exploration of scrotum found a huge scrotal collection displacing bilateral testes laterally. 2.5 L of brownish fluid was drained. Percutaneous drainage was performed.

Discussion

The current case report showed an urinary tract complication previously never reported in patients with chronic ketamine use. This patient suffered from complications involving most of the urinary tract from pyonephrosis, ureteric strictures, pyocystitis, bladder contractures and urethral strictures. Despite bilateral nephrectomy, partial cystectomy, he was also found to have a large spermatocele. It is postulated that the cause of his spermatocele is likely from urethral stricture with the back flow pressure of ejaculates causing a fistula tract leading to the scrotum. Although causes of urethral strictures could be iatrogenic, traumatic or infective, the patient had no history of such insults and he

had no complaints of urethral discharge. Therefore the urethral stricture is likely related to the ketamine irritation.

The effectiveness of various ketamine uropathy treatment are still lacking. The mainstream treatment of ketamine cystitis is pain control. Intravesical pentosan polysulphate, a heparin like compound, showed effectiveness in symptoms relieve and is proposed to protect and assist repairing of the polyglycan layer of the damaged urothelium.³ In cases refractory to medication, hydro-distension with or without botulinum toxin injection were performed for improvement of bladder capacity and symptoms.⁴

In terms of surgical intervention, urinary tract strictures were relieved by drainage with ureteric stents or percutaneous nephrostomy. Selected cases may undergo augmentation cystoplasty and subtotal cystoplasty,³ but case series of augmentation cystoplasty in refractory patients showed deterioration of symptoms and/or renal function, which could be due to resumption of ketamine use, causing further

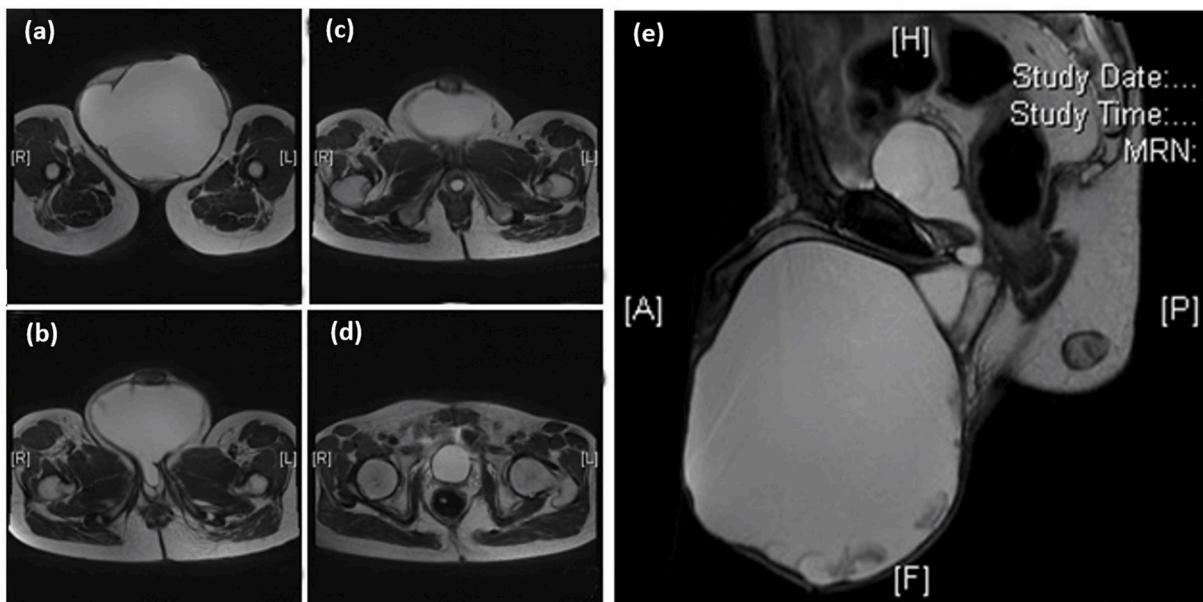


Fig. 2. MRI T2 phase of scrotal and pelvis showing 13.5 × 16.8 × 17.5cm scrotal sac filled with fluid showing communication with the penile urethra at the root of penis, the prostate and seminal vesicles were not well seen. Transverse planes at: (a) lower scrotum; (b) & (c) level of the bulbous urethra; (d) base of the remnant bladder; (e) sagittal plane of pelvis and scrotum.

damage of the urinary tract.⁵ Currently there are no guidelines, treatment strategy are based on individual symptoms, multidisciplinary team involving urologist, physician, psychiatrist and social worker should work together to provide all-rounded services to ensure the best outcome for the patients.

Conclusion

Ketamine was once the most commonly abused drugs in Hong Kong, despite the efforts of drug cessation regimens and education, a group of patient still suffers from urinary tract complications. The current case report demonstrated multiple complications on the urinary tract in a patient with chronic ketamine use and a rarely seen complication of large spermatolcele with urethroscrotal fistula probably due to urinary tract strictures. Symptoms based multidisciplinary treatment approach is needed for care of this minority group.

Consent

Consent was obtained from the patient for the above information to be released for research purposes.

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Declaration of competing interest

No conflicts of interest, financial or otherwise, are declared by the authors.

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References

1. Chu PS, Kwok SC, Lam KM, et al. 'Street ketamine'-associated bladder dysfunction: a report of ten cases. *Hong Kong Med J.* 2007;13(4):311–313.
2. Central registry of drug abuse sixty-seventh report. https://www.nd.gov.hk/en/crda_67th_report.htm2019.
3. Yek J, Sundaram P, Aydin H, Kuo T, Ng LG. The clinical presentation and diagnosis of ketamine-associated urinary tract dysfunction in Singapore. *Singap Med J.* 2015;56(12):660–664. ; quiz 665.
4. Zeng J, Lai H, Zheng D, et al. Effective treatment of ketamine-associated cystitis with botulinum toxin type a injection combined with bladder hydrodistention. *J Int Med Res.* 2017;45(2):792–797.
5. Ng CF, Chiu PK, Li ML, et al. Clinical outcomes of augmentation cystoplasty in patients suffering from ketamine-related bladder contractures. *Int Urol Nephrol.* 2013; 45(5):1245–1251.