Endourology

The half-loop transurethral incision technique for bilateral ureterocele in adult

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Introduction

Ureteroceles are divided into intravesical and extravesical ureteroceles. Only 20 cases of bilateral ureterocele in adult male patients have been reported in the literature. Intravesical ureteroceles can be cured by endoscopic surgery. An incision is made to reduce hydronephrosis, improve the renal function, reduce the risk of urinary tract infection, and prevent vesicoureteral reflux (VUR). The endoscopic treatments of ureteroceles vary; however, the standard procedure is incision using a transurethral resection device. We herein report an adult case of bilateral ureterocele that was successfully treated by a half-loop transurethral resection technique.

Case presentation & technique

A 31-year old male patient was referred to our hospital to undergo further examination for post-exercise gross hematuria and bilateral ureterocele with bilateral hydronephrosis. He had no relevant past or family history and a laboratory examination revealed normal findings, including a serum creatine level of 0.72 g/dL. Ultrasonography (US) and CT revealed bilateral ureterocele and bilateral ureteral stones without a double ureteral collecting system [Fig. 1]. 99mTc-MAG3 renal scintigraphy showed late excretion, but no decrease of RI accumulation. He was admitted to our department to undergo transurethral incision for bilateral ureterocele. Because the bilateral ureteroceles were highly closed, an incision using a point electrode would have risked causing coagulation on the other side of the ureterocele [Fig. 2a]. We therefore cut the loop to create a half loop, which was used to cut the bilateral ureteroceles [Fig. 2b, c, and 2d]. The ureteral stones were passed two days after surgery. At one month after surgery, US revealed the reduction of the bilateral ureteroceles and the improvement of hydronephrosis. At two months after surgery, the patient's renal function was maintained at a normal state, and CT and cystography revealed no hydronephrosis or vesico-ureteral reflux (VUR) [Fig. 3].

Discussion

Ureteroceles are usually seen in pediatric patients and have a female predominance. Bilateral ureterocele is rarely observed in adult male patients. Ureteroceles are divided into two types: 1) intravesical ureteroceles and 2) extravesical ureteroceles. An intravesical ureterocele is localized in the bladder without any upper urinary tract abnormalities. In contrast, an extravesical ureterocele extends to an extra bladder and is sometimes seen in the urethra. In most cases, patients with an extravesical ureterocele show a double ureter. With regard to treatment, an endoscopic incision can help to reduce an intravesical ureterocele and prevent hydronephrosis; however, in the case of extravesical ureterocele, a ureteroscopic incision is associated with a risk of reflux from the incised lesion. Thus, an endoscopic incision is not recommended in the treatment of extravesical ureteroceles. Partial nephrectomy,
uretero-ureterostomy, and uretero-cysto-neostomy are the main treatments for extravesical ureteroceles.

Three types of endoscopic procedures have been reported: incision of the ureterocele; endoscopic removal of the ureterocele; and the watering can puncture technique in which ureterocele is reduced by numerous punctures. In the present case of simple ureterocele, endoscopic incision was planned because the ureteral orifices were tightly closed.

Ureteroceles are treated to maintain the renal function, prevent VUR, and avoid UTI. The incision or resection of a ureterocele is associated with the risk of VUR. The patient in the present case had ureteral stones without protrusion; thus, endoscopic incision was planned. Previous case studies of pediatric patients have reported the use of a Collins knife or an electrocautery hook with a 9.5-Fr ureteroscope. In the present case, a 26-Fr resectoscope was used because the patient was an adult.

The polar points were thought to be appropriate; however, the dull thick polar was associated with a risk of coagulation on the
other side of the ureteral orifice. We therefore cut the loop and successfully incised the ureteral and bilateral ureteral orifices using the half-loop. Ureteroceles are rarely encountered in adult patients and only 20 cases of bilateral ureteroceles have been reported. The development of new devices to treat this rare disease is difficult. Thus, in the future, this half-loop technique might be useful for the treatment of bilateral ureteroceles.

Conclusion

We herein described a case of bilateral ureteroceles that was successfully treated by a half-loop transurethral resection technique.

Declarations

Ethical approval and consent to participate & Consent for publication.

The present study was approved by the IRB and written informed consent was obtained from the patient. A copy of the written consent form is available for review from the Editor-in-Chief of this journal.

Availability of data and material

Due to ethical restrictions, the raw data underlying this paper is available upon request to the corresponding author.

Competing interests

We declare no conflicts of interest in association with the present study.

Funding

The present study was supported with funding from grants from KAKENHI grants (16K20152) from the Ministry of Education, Culture, Sports, Science and Technology of Japan and a grant from the 2016—2017 Research Development Fund (Nos. WJ2810) of Yokohama City University.

Authors contribution

Conceived and designed the experiments: SN, TK. Analyzed data: SN, TK. Performed the experiments: SN, TK, TM, JT, NO, HU. Wrote the paper: SN, TK.

Acknowledgements

N/A.

Appendix A. Supplementary data

Supplementary data related to this article can be found at https://doi.org/10.1016/j.eucr.2018.02.017.

References

1. Godinho AB, Nunes C, Janeiro M, Carvalho R, Melo MA, da Graca LM. Ureterocele: antenatal diagnosis and management. *Fetal Diagn Ther*. 2013;34:188–191.
2. Naitoh Y, Oishi M, Kobayashi K, et al. Transvesical laparoscopic surgery for double renal pelvis and ureter with or without ureterocele. *Int J Urol*. 2016;23:332–336.
3. Golebiewski A. Editorial Comment to Transvesical laparoscopic surgery for double renal pelvis and ureter with or without ureterocele. *Int J Urol*. 2016;23:337.
4. Kim KH, Lee HY, Im YJ, Jung HJ, Hong CH, Han SW. Clinical course of vesicoureteral reflux in patients with hypospadias. *Int J Urol*. 2011;18:521–524.
5. Palmer BW, Greger H, Mannas DB, Kropp BP, Frimberger D. Comparison of endoscopic ureterocele decompression techniques. Preliminary experience—is the watering can puncture superior? *J Urol*. 2011;186:1700–1703.