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Case report

Ureterolithiasis after Cohen re-implantation – case report

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Abstract

Background: In the past decades, the widespread use of cross-trigonal ureteral reimplants for the treatment of children with vesicoureteral reflux has resulted in a large population of patients with transversely lying ureters. As this population gets older they will consequently be entering an age group at higher risk for stone and urothelial cancer formation. If ureteroscopy becomes necessary, the transverse position of the ureter makes ureteric access often impossible.

Case Presentation: We present the case of a young man who not only suffered from urolithiasis due to hyperparathyroidism, but also further jeopardized his treatment by omitting the fact that as a child he underwent Cohen reimplantation of the right ureter.

Conclusions: This case illustrates the particular difficulties the endoscopist may face in this group of patients. Patients with difficult ureteric access, abnormal anatomy, or those with known cross-trigonal ureteric reimplantations should be managed in a specialised endourology unit.

Case Presentation

A 28-year-old man with known primary hyperparathyroidism presented with right-sided colicky pain in the lumbar region radiating to the groin. A XKUB demonstrated the presence of two urinary calculi, one 8 mm right renal pelvis stone, and one 10 mm stone in the right distal ureter. IVU revealed hydronephrosis of the right kidney and a dilated ureter up to the ureteric stone. The ureter distal of the stone was not opacified on any of the films. After a failed attempt by a colleague to insert a ureteric stent to de-block the right kidney, the patient was referred to our endourology service. The colleague had failed to find the right ureteric orifice.

At no point did the patient mention that he underwent bladder surgery as a child for a large bladder diverticulum on the right and had a Cohen ureteric reimplantation on that side.

A percutaneous nephrolithotomy (PCNL) and a combined retrograde-anterograde flexible ureteroscopic approach (URS) were planned. Again, an initial attempt to localize the right ureteric orifice on cystoscopy failed. A PCNL was performed and the kidney stone removed. A guidewire was passed anterogradely down the right ureter alongside the stone into the bladder. At that point, it became clear that immediately distal of the stone the right ureter angulated 90 degrees to the left within the posterior wall of the bladder and exited in the left bladder half. The stone was firmly lodged within that bend. The stone could be visualized endoscopically anterogradely and retrogradely, but due to inflammation, bleeding and lack of

vision, a safe laser lithotripsy could not be attempted in that session. Finally, a thin anterograde double-J stent was inserted.

Only now, questioned again about this most unusual anatomy, the patient remembered his childhood operation. He was scheduled for another retrograde transurethral URS, and this time the operation was successful due to an easy and marked access by the double-J stent. Four weeks later, the patient underwent hyperparathyroidectomy. So far, he is doing well without stone recurrence or complications.

Conclusions

To date, urologists are increasingly confronted with a group of patients that had a childhood cross-trigonal reimplantation of one or both ureters. With this technique, first described by Cohen in 1975, the ureter is tunnelled cross-trigonally within the posterior wall of the bladder to exit in the contralateral bladder half. This allows in almost all patients to achieve adequate submucosal length of the ureter. These patients are now coming into an age where they are prone to develop all sorts of urological pathologies necessitating a retrograde ureteric access [1]. This is nicely illustrated by our case where a young man with such a reimplantation happens to develop hyperparathyroidism and urolithiasis. Not knowing about the reimplantation, several factors played together to obscure the picture for the surgeons. Firstly, the patient did not report his complete medical history, or perhaps, since this had happened in early childhood, he had simply forgotten about it. Secondly, the stone was lodged into the angulation of the ureter, therefore still projecting over the natural course of the right ureter. And finally, the stone blocked the ureter completely, thus not revealing any information about the course of the distal part of the ureter on IVU.

Cohen reimplantation has been reported as leading to difficulties in ureteric access [1-4]. A variety of approaches to solve the problem has been proposed such as a combination of cystoscopy and suprapubic percutaneous ureteric catheter insertion [2,3], percutaneous transvesical ureteroscopy [1], and transurethrally by using a curved tip vascular catheter combined with an angled tip glide wire [4]. Where the expertise is readily available, the ureter can also be accessed anterogradely and then later, if needed, retrogradely as in our case. We also found that once the ureter is marked, the insertion of an extra stiff guidewire will straighten the ureter and make access straightforward [4].

Patients with difficult ureteric access, abnormal anatomy, or those with known cross-trigonal ureteric reimplantations should be managed in a specialised endourology unit.

Competing Interests

None declared.

Authors' contributions

SC and ML researched the literature and wrote a first draft of the manuscript. HA provided clinical background, supervision and reviewed the paper. NB supervised the work and wrote the final version of the manuscript.

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