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CASE REPORT / OLGU SUNUMU

Entrapped Ureteral Access Sheath: An Unusual Problem

Üreteral Erişim Kılıfının Sıkışması: Sıradışı Bir Komplikasyon

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Abstract

Flexible ureteroscopy is well-known and performed procedure by urologists, yet instrument related complications may suprise even experienced surgeons. In this study, we present a unique instrument related complication during flexible ureteroscopy. A 68 year old male patient with 1.9 cm left upper ureteral stone presented to us. With semi-rigid ureteroscope laser lithotripsy performed. Stone got retropulsed into lower pole of the kidney. The procedure was converted to retrograde intrarenal surgery. Within Porges-Coloplast Retrace® Ureteral Access Sheath 12 Fr and 35 cm (UAS) with Karl Storz Flex-X2 fiber-optic ureteroscope (fURS) stone fragmentation completed. After removal of fURS from the patient, UAS got tried to pull away but it got stuck into the patient. Hanging part of the UAS below the external meatus cut-off and the internal spiral part withdrew. But it didn't come off. So pulling the residual piece of UAS from the orifice level tried with cystoscope and foreign body forceps. It didn't work out and sheath got split to two pieces from the orifice level. After that another enterance to the bladder had performed with cystoscope and left orifice had incised. 8 mg dexamethasone had administerated to the patient and lidocaine including lubricant gel got injected inside and around the UAS. It didn't come off. Decision made that ending the procedure after placing double-J stent, then after 3-4 weeks when the ureteral edema got regressed removal of the residual UAS. Four weeks later with cystoscope and foreing body forceps residual UAS got removed by two pieces. Ureteral edema can led entrapment UAS inside of the ureter. Most of the cases moderate traction and withdrawing the internal spiral part of UAS is enough to pull away. In cases that these solutions are insufficient, stenting and planning another endoscopic procedure after a few weeks may help avoiding unnecessary open surgery.

Keywords: Ureteral access sheath, flexible ureteroscope, urolithiasis

Öz

Flexible (esneyebilir) üreteroskopi, ürologlar tarafından iyi bilinen ve uygulanan bir prosedürdür, ancak ekipman ilişkili komplikasyonlar deneyimli cerrahları bile şaşırtabilir. Bu çalışmada, flexible üreteroskopi sırasında gelişen ekipman ilişkili nadir bir komplikasyon sunuyoruz. Altmış sekiz yaşında erkek hasta 1,9 cm sol üst üreter taşı ile tarafımıza başvurdu. Yarı rijit üreteroskop ile lazer litotripsi gerçekleştirildi. Taş böbreğin alt polüne geri kaçtı. İşlem retrograd intrarenal cerrahiye dönüştürüldü. Porges-Coloplast Retrace® Üreteral Erişim Kılıfı 12 Fr ve 35 cm (ÜEK) Karl Storz Flex-X2 fiber-optik üreteroskop (fURS) ile taş parçalanması tamamlandı. fURS hastadan çıkarıldıktan sonra ÜEK çekilmeye çalışıldı ancak hastaya yapıştı. ÜEK'nin eksternal meatusun altında sarkan kısmı kesildi ve iç spiral kısmı geri çekildi ancak başarılı olunamadı. Bunun üzerine ÜEK'nin kalan parçası orifis seviyesinden çekilerek sistoskop ve yabancı cisim pensi ile denendi. İşe yaramadı ve kılıf orifis seviyesinden iki parçaya ayrıldı. Daha sonra sistoskop ile tekrar mesaneye girildi ve sol orifis açıldı. Hastaya 8 mg deksametazon verilmiş ve ÜEK'nin içine ve çevresine lubrikan jel içeren lidokain enjekte edildi fakat bu müdehale de sonuç vermedi. Double-J stent takıldıktan sonra işleme son verilmesine, üreteral ödem gerilediğinde 3-4 hafta sonra ÜEK kalıntısının çıkarılmasına karar verildi. Dört hafta sonra ÜEK kalan parçası sorunsuz şekilde endoskopik olarak çıkartıldı. Üreteral ödem ÜEK'nin üreter içinde hapsolmasına neden olabilir. Olguların çoğunda orta derecede

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Öz

traksiyon ve ÜEK'nin iç spiral kısmının çekilmesi, kılıfın çıkması için yeterlidir. Bu çözümlerin yetersiz kaldığı durumlarda stentleme ve birkaç hafta sonra başka bir endoskopik işlemin planlanması gereksiz açık cerrahiden kaçınmaya yardımcı olabilir.

Anahtar Kelimeler: Üreteral erişim kılıfı, flexible üreteroskop, ürolitiyazis

Introduction

Flexible ureteroscopy is a well-known procedure performed by urologists; however, instrument-related complications may surprise even experienced surgeons. In this study, we present a unique instrument-related complication during flexible ureteroscopy.

Case Report

A 68-year-old male patient with a 2-year history of nephrolithiasis presented to us with mild left flank pain. Known comorbidities were type 2 diabetes mellitus and hypertension. Both were regulated. He also had a traumatic subarachnoid hemorrhage history with no sequel. On evaluation with non-contrast enhanced computed tomography, he was found to have 1.9 cm left upper ureteral stone with grade 3 hydronephrosis (Figure 1).

His blood workup was within the normal limits and urine cultures was sterile. After obtaining informed consent form under general anesthesia with a semi-rigid ureteroscope and Holmium laser using 376 µm fiber, lithotripsy was performed. During fragmentation, the stone was retropulsed into the lower pole of the kidney. The procedure was converted to retrograde intrarenal surgery. While the semi-rigid ureteroscope was removed, guidewires were left into the ureter. Porges-Coloplast Retrace® Ureteral Access Sheath 12 Fr and 35 cm (UAS) was placed to the left ureter above the guidewire. Within the UAS with Karl Storz Flex-X2 fiber-optic ureteroscope (fURS) stone fragmentation completed using 272 µm fiber Holmium laser. After removal of fURS from the patient, UAS tried to pull away but it did not come off. The hanging part of the UAS below the external meatus cut and the internal spiral part withdrew so that the remainder of UAS could pull away easily (Figure 2).

But removal failed. With gentle traction, the sheath splits into two pieces from the orifice level. Therefore, pulling the residual piece of UAS from the orifice level was attempted with a cystoscope and foreign body forceps. It also failed. After that another entrance to the bladder was performed with a cystoscope and the left orifice was incised with 272 µm fiber Holmium laser. 8 mg dexamethasone was administered to the patient and lidocaine including lubricant gel was injected inside and around the UAS. After these administrations, removal still couldnot be complete. The decision was made to end the procedure after placing the double-J stent, then after 3-4 weeks when the ureteral edema regressed to removal of the residual UAS (Figure 3).

Four weeks later after obtaining informed consent form under general anesthesia with cystoscope and foreign

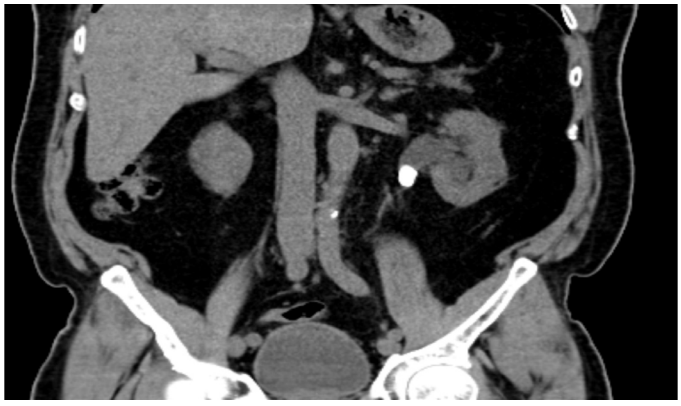

Figure 1. Pre-operative CT of 1.9 cm left upper uretral stone with grade 3 hydronephrosis

CT: Computed tomography

Figure 2. Postoperative kidney, ureters, and bladder X-ray with residual UAS

UAS: Ureteral Access Sheath

body forceps, residual UAS was removed by two pieces. After removal of UAS, uretrorenoscopy was performed with a semi-rigid ureteroscope. 0.5 cm nylon piece of UAS was seen in the renal pelvis and removed with foreign body forceps. After complete ureterorenoscopy and confirmation of no residual fragments of UAS, double-J stent was placed and the procedure ended (Figure 4). Four weeks after the second procedure double-J stent was removed without any complications.

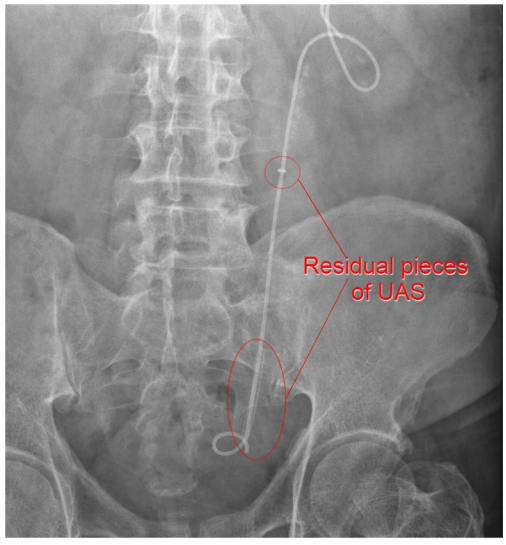

Figure 3. Postoperative kidney ureters bladder X-ray (KUB)
UAS: Ureteral Access Sheath

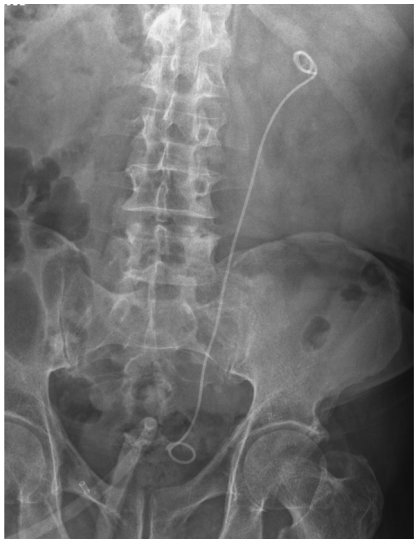

Figure 4. KUB X-ray afers second procedure
KUB: Kidney ureters bladder

Discusison

During the last decades, flexible ureteroscopes (fURS) are widely used for treating upper urinary tract pathologies such as urolithiasis and urothelial tumors. Improvement of ancillary equipment such as laser technology, baskets and improvement of fURS itself for example; minimizing the outer diameter and increased deflection capability capability[1,2] expanding the indications of fURS also expanded the use of UASs. UASs have several advantages such as increasing the irrigation outflow, lowering intrapelvic pressure, and lowering infectious complications[3].

Beside that some unique instrument-related complications come with fURS. Thakur et al.[4] reported a case in which the tip of the fURS was entrapped inside the UAS. They were able to manage the problem endoscopically. Huynh et al.[5] reported two cases of retained digital fURS with accordionist of the outer scope shaft skin. One of the cases had to be managed by an open surgical approach. Another report from Gadzhiev et al.[6] described valve-type retainment of fURS entrapped between the ureteral orifice and stone fragment. They were also able to manage the complications with muscle relaxants and gentle instrument maneuvers.

In the index case, apart from the previous reports not the ureteroscope but the UAS entrapped in the ureter. In our literature search, we have not met any similar case. Previously, we had difficulties when pulling the UAS after fURS procedures, but with moderate traction and when it is not enough to cut-off the hanging part of the UAS below the external meatus and withdraw the internal spiral part have given us the ability to remove the UAS. With a few weeks of stenting and waiting for ureteral edam to regress, we were able to endoscopically remove residual part of the UAS. In such situations when endoscopic approaches are not sufficient, surgeons must keep open surgery in mind as an alternative solution.

Conclusion

Ureteral edema can lead to entrapment UAS inside the ureter. In most cases, moderate traction and withdrawing the internal spiral part of the UAS is enough to pull away. In cases where these solutions are insufficient, stenting and planning another endoscopic procedure after a few weeks may help avoid unnecessary open surgery.

Presentation: This study was presented as a poster at the 14th National Endourology Congress.

Ethics

Informed Consent: Written consent was obtained from the patient before submission.

Peer-review: Externally peer-reviewed.

Author Contributions

Surgical and Medical Practices: E.K., M.H.Ö., Ç.B., Y.Ö.İ., Concept: E.K., T.S., Desing: E.K., T.S., Y.Ö.İ., Data Collection or Processing: E.K., M.H.Ö., Ç.B., Analysis or Interpretation: E.K., T.S., Y.Ö.İ., Literature Search: E.K., M.H.Ö., Writing: E.K., Y.Ö.İ.

Conflict of Interest: No conflict of interest was declared by the authors.

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