Urol Res (2005) 33: 70–71
DOI 10.1007/s00240-004-0441-7

CASE REPORT

M. C. Sighinolfi · S. De Stefani · S. Micali
A. Mofferdin · B. Baisi · A. Celia · G. Bianchi

A knotted multi-length ureteral stent: a rare complication

Received: 16 June 2004 / Accepted: 17 June 2004 / Published online: 30 December 2004

Abstract Ureteral catheters represent essential devices in the management of upper urinary tract obstruction; complications are unusual. Knotting of the stent at its proximal coiled end is a very rare but potentially dangerous event that should be promptly recognized.

Keywords Stent · Ureters · Postoperative complications

Introduction

Ureteral catheterisation represents a common procedure in the modern urological practice; complications are rare but commonly include encrustation and fracture of the stent, ureteral erosion and the development of an ureteroarterial fistula [1]. Knot shapes represent a very rare complication [1, 2, 3, 4, 5] that must be considered among the possible causes that make the stent extraction difficult.

Clinical case

We report the case of a 48 year old man affected by staghorn stones of the right kidney. After percutaneous lithotripsy, a small stone (0.6 cm) remained at the level of the pyelo-ureteral junction. Because of the onset of a right side hydronephrosis, an ureteral stent type double-J with variable-length 22–32×5 Ch was inserted. The patient should have been checked after 1 month. Due to personal problems, he was only revaluated after 4 months. Catheter removal proved to be very difficult, and only the distal end of the stent was extracted from the urethral meatus. Fluoroscopic examination showed a radio opaque image located all around the superior portion of the stent that was at first interpreted as an encrustation. An endoscopic approach in order to break the concretions was carried out unsuccessfully because the ureter was unsoundable at the level of the obstruction. Therefore, we decided to deal with the encrustation by means of ESWL, but even this turned out to be ineffective (Fig. 1). Only after 3 days of continuous slight traction on the stent (tied at the leg with a common catheter strip at the distal coil) could we achieve its spontaneous expulsion, revealing the presence of a knot in the proximal portion (Fig. 2).

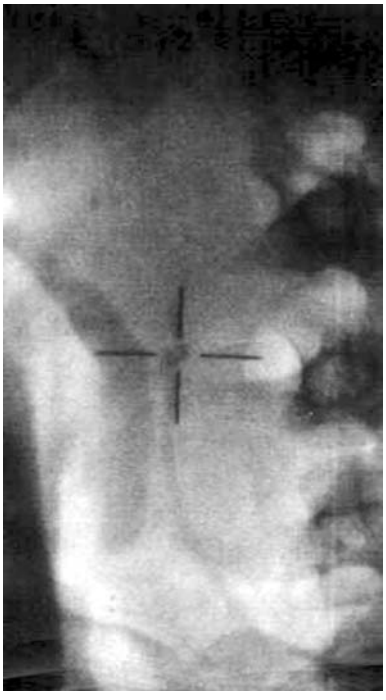

Fig. 1 The attempt at ESWL treatment of a suspected calcific encrustation on the proximal end of the stent

M. C. Sighinolfi (✉) · S. De Stefani · S. Micali · A. Mofferdin
B. Baisi · A. Celia · G. Bianchi
Department of Urology,
University of Modena and Reggio Emilia,
Via Del Pozzo 71, 41100 Modena, Italy
E-mail: sighinolfic@yahoo.com
Tel.: +39-338-9671920
Fax: +39-59-4222863

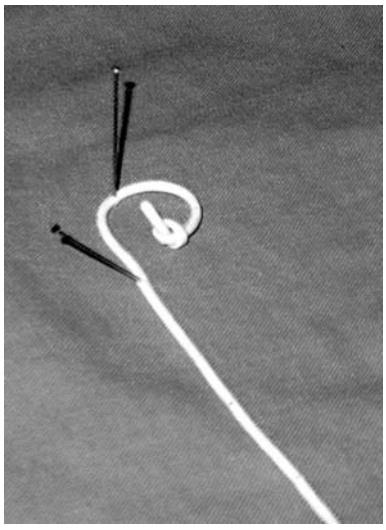

Fig. 2 The spontaneous expulsion of the stent revealed the presence of a knot in the proximal portion

Discussion

Knotting of the extremity of ureteral stents represents a very rare complication [1, 2, 3, 4, 5]. The use of an excessively long stent may support the formation of the knot. Even the variable-length feature of the stent (commonly used to avoid the risk of migration) may lead to this drawback.

The knot is often formed at the distal end so that the removal is uncomplicated. In case of knot development at the proximal end, the use of a rigid guide like Amplatz type inserted in a retrograde way may be helpful in untying the knot [1]; otherwise, percutaneous treatment is considered useful [5].

Owing to the failure of our endoscopic approach, we tried to extract the stent using slight but continuous traction up to its spontaneous expulsion; this procedure is feasible in the case of distal end withdrawal through the urethral meatus.

In conclusion, the knotting of ureteral catheters is a very rare event previously described only in few cases; nevertheless, in the case of a difficult stent removal we have to consider this uncommon but potentially dangerous complication, hardly recognizable by usual radiological examination.

References

1. Baldwin DD, Juriansz GJ, Stewart S (1998) Knotted ureteral stent: a minimally invasive technique for removal. J Urol 159: 2065
2. Kundargi P, Bansal M, Pattnaik PK (1994) Knotted upper end: a new complication in the use of an indwelling ureteral stent. J Urol 151: 995
3. Flam TA, Thiounn N, Gerbaud PF (1995) Knotting of a double pigtail stent within the ureter: an initial report. J Urol 154: 1858
4. Quek ML, Dunn MD (2002) Knot formation at the mid portion of an indwelling ureteral utent. J Urol 168: 1497
5. Braslis KG, Joyce G (1992) Spontaneous knotting of a pigtail ureteric stent in the ureter requiring percutaneous removal. Aust N Z J Surg 62: 825