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Short Communication

Female-only Ureteral Stent Placement and Replacement Technique Using Pig-tail Straightener

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Summary

Introduction: We introduce a convincing method of placing and replacing ureteral stents in women using a pig-tail Straightener.

Materials and Methods: Eleven female patients with a median 78 years old (range 65 to 89) who underwent pre-stenting on urinary tract stones (4 kidney stones and 7 ureteral stones) with written informed consent were included. Prior to retrograde intrarenal surgery, pull the end of the stent out of the urethral meatus with Pean forceps under fluoroscopy. Very gently insert the guidewire into space outside the stent within the pig-tail Straightener until the tip is resistant, that is the state in which the pig-tail Straightener hits the ureteral orifice. Properly adjusting the position and angle of the pig-tail Straightener ensures that the guidewire is inserted into the ureter. Subsequently, the Double J stent is removed, and another insertion as a safety guidewire is possible by the same operation again.

Results: All procedures have been successful without adverse events.

Conclusions: The pig-tail Straightener may be useful for placement and replacement of a ureteral stent in a woman.

Key Words: Female, ureteral stent, pig-tail Straightener

Introduction

Ureteral stent placement and replacement is a fundamental task for urologists.

Many urologists spend a considerable time on the stent procedure in daily clinical practices. It can be done more efficiently with a little ingenuity[1)-4)]. We introduce a convincing method of placing and replacing ureteral stent in women using pig-tail Straightener (Fig. 1a), such as a straw that is packaged to straighten the J-tail (pig-tail) in a double-J stent catheter kit (Fig. 1 b).

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Materials and Methods

Eleven female patients with a median 78 years (range 65 to 89) who underwent pre-stenting on urinary tract stones (4 kidney stones and 7 ureteral stones) with written informed consent were included. When a ureteral stent has been already in place, the following procedures can be completed without using a cystoscope. Prior to retrograde intrarenal surgery (RIRS) such as transurethral ureteral lithotripsy (TUL), pull the end of the stent out of the urethral meatus with a crochet hook[5)] or Pean forceps under fluoroscopy. Very gently insert the guidewire into space outside the stent within the pig-tail Straightener until the

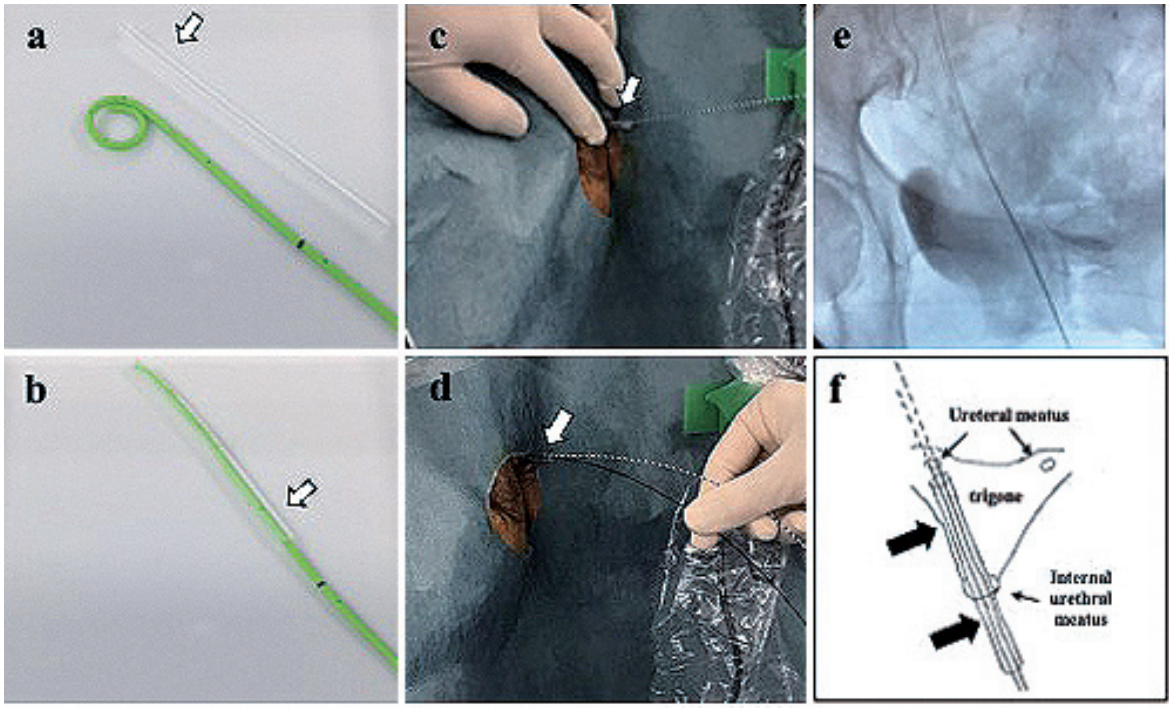

Figure 1 Double J stent, pig-tail Straightener, and inserted guidewires

White and black arrows show pig-tail Straightener.

a. Double J stent and pig-tail Straightener.

b. Straightening of Double J Stent with pig-tail Straightener.

c. The tip of the pig-tail Straightener inserted from the urethra meatus over the safety guidewire is positioned near the ureteral orifice.

d. A new guidewire is inserted into the cavity of the pig-tail Straightener

e. Two guidewires; the safety guidewire (right side) that was already inserted and the new guidewire (left side) that was inserted using the pig-tail Straightener.

f. Schematic diagram of Fig. 1e.

tip is resistant, that is the state in which the pig-tail Straightener hits the ureteral orifice. Properly adjusting the position and angle of the pig-tail Straightener (Fig. 1c) ensures that the guidewire is inserted into the ureter (Fig. 1d, 1e and 1f). Subsequently, the Double J stent is removed, and another insertion as a safety guidewire is possible by the same operation again.

Results and Discussions

All procedures have been successful without adverse events. The pig-tail Straightener can be very useful for placement and replacement of a ureteral stent in a woman.

First, the length and thickness of pig-tail Straightener may be suitable for playing the role of a short sheath that does not insert into the ureteral orifice followed by ureteral stent placement and replacement without cystoscope under fluoroscopy[4]. Second, this procedure using pig-tail Straightener can be applied in several situations. For example, assuming that two guidewires are inserted on the same side including the safety guidewire when inserting the first guidewire, if there are two operation channels under a rigid cystoscope, use each of them. Alternatively, if there is a space through which two guidewires can pass even with a single operation channel, two guidewires can be inserted by one-time cystoscope insertion. However, for a rigid cystoscope or a flexible cystoscope that has only one operation channel that does not allow two guidewires to pass, remove the cystoscope after inserting one guidewire, reinsert the cystoscope again, and insert another guidewire. The same operation will be performed to insert the guidewire. That is, it becomes troublesome twice. At the time of the second insertion of the cystoscope, if the first guidewire is covered with the pig-tail Straightener without inserting the

cystoscope again as described above, the second guidewire can also be inserted (Fig. 1d, 1e and 1f). The fact that only one cystoscope insertion is required will support the usefulness for the patient in terms of reducing risk and discomfort without compromising safety. Thus, the method described in this study not only helps in exchange of the stent, but also reduce the time for RIUS, such as TUL. Third, this procedure can be cost-effective and economical. When placing or exchanging a ureteral stent, the package of the ureteral stent kit is always opened, so the pig-tail Straightener can be used at any time and there is no cost.

This research was a retrospective study with a small sample size at local general hospital. Further progress awaits larger-scale prospective and randomized trials.

Conflict of interest

None.

References

1) Carrafiello G, Coppola A, De Marchi G, et al.: Trans-Urethral Ureteral Stent Replacement Technique (TRUST): 10-Year Experience in 1168 Patients. Cardiovasc Intervent Radiol **41**: 610-617, 2018. https://doi: 10.1007/s00270-017-1854-3.

2) Leslie SW, Sajjad H: Double J Placement Methods Comparative Analysis. StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing. https://www.ncbi.nlm.nih.gov/books/NBK482453/. Published January 2021. Accessed September 17, 2021.

3) Mahmood N, Pasha T: A new technique to prevent curling of guide wire in urinary bladder during J stent insertion with flexible cystoscope. Can Urol Assoc J **10**: E34-E35, 2016. https://doi: 10.5489/cuaj.3079.

4) Kose O, Gorgel SN, Ozbir S, et al.: Manual Replacement of Double J Stent Without Fluoroscopy (Double j stent replacement). Int Surg **100**: 381-385, 2015. https://doi: 10.9738/INTSURG-D-13-00248.1.

5) Kawahara T, Ito H, Terao H, et al.: Ureteral stent retrieval using the crochet hook technique in females. PLoS One **7**: e29292, 2012. https://doi: 10.1371/journal.pone.0029292.