

# Micro-ureteroscopy (m-URS) for treatment of upper ureteral stones in children: A new, different approach

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## Introduction

Miniaturization of the endoscopic equipment has enabled the development of minimally invasive new operation methods in recent years.<sup>[1-3]</sup> This video presents an alternative technique for the management of upper ureteral stones in pediatric patients using micro-ureteroscopy (m-URS).

## Material and methods

A four-year-old girl with left pain was admitted to our clinic. Computer tomography scan revealed a 5.8 x 5 mm calculus in the left upper ureter and hydronephrosis. The procedure was performed with the patient in the lithotomy position under general anesthesia using the standard URS technique with a m-URS that had a caliber of 4.85 Fr. m-URS, a 3-part all-seeing needle, consisting of micro-optics with a diameter of 0.9 mm and a 120-degree angle of view, an irrigation channel, and an integrated light (PolyDiagnost, Pfaffenhofen, Germany). After the guidewire (0.022") was sent to the ureter, a 4.85 Fr micro sheath was sent over the second guidewire (0.035") up to the stone under fluoroscopy. Then, a micro-optic and a laser set were placed in the sheath. Stone fragmentation was performed with a 272-μm Holmium laser fiber with a frequency of 10 Hz and power of 0.5 joules. Irrigation was provided by the gravity effect 70 cm above the patient. The irrigation pump was not used. At the end of the operation, no ureteral stent was placed.

## Results

The operation lasted for 20 minutes. The patient was discharged at the post-operative 12th hour without complications.

## Conclusion

Unlike rigid URS, a 4.85 Fr micro sheath allows fast and safe access to the stone through a guidewire. This technique does not usually require a pre-operative double J stent for passive ureteral dilatation; post-operative J stent placement depends on the stone burden and the preference of the surgeon. This technique reduces the time taken for the fragmentation of the stone. m-URS also allows the use of 1.2 Fr or 1.3 Fr baskets to take samples for stone analysis as in rigid URS. m-URS is considered to be a safe and effective technique for treatment of distal ureteral stones in animal models and adult and pediatric patients.<sup>[1-4]</sup> Our study shows that m-URS can also be applied as a safe and effective technique for the treatment of upper ureteral stones in pediatric patients.

**Informed Consent:** Written informed consent was obtained from the parents of the patients who participated in this study.

**Peer-review:** Externally peer-reviewed.

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**Conflict of Interest:** The authors have no conflicts of interest to declare.

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