



SKILL AND TALENT

Micro-ureteroscopy: Initial experience in the endoscopic treatment of pelvic ureteral lithiasis[☆]



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KEYWORDS

Ureteroscopy;
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Abstract

Objectives: To present the first case of ureteral lithiasis resolved using a new endoscopic approach, which we call micro-ureteroscopy (m-URS), and attempts to reduce the ureteral damage caused by conventional instrumentation.

Material and methods: We selected a 53-year-old patient with a 16-mm calculus in the right distal ureter. For endoscopic access, we used a 4.8-Fr sheath from the microperc set and fragmented the stone with a 230-micron laser fiber.

Results: Complete fragmentation of the stone was achieved. We placed a JJ catheter due to significant ureteral edema. The surgical time and postsurgical stay were 156 min and 24 h, respectively. There were no complications, the requirements for analgesia were minimal, and the patient was free of residual stones.

Conclusions: The m-URS technique is feasible, simple and effective for the treatment of pelvic ureteral lithiasis in women and optimizes minimal invasion, with results that can be comparable to conventional endoscopic techniques in terms of ease of access and quality of endoscopic vision without affecting the resolution capacity. Larger studies and greater technological development are needed to define the definitive role of this procedure. Currently, its major limitations lie in the treatment of proximal ureter lithiasis and in the treatment of men. This technique could also be a viable alternative for pediatric patients.

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PALABRAS CLAVE

Ureteroscopia;
Miniaturización;
Láser;
Litotricia;
Litiasis urinaria

Micro-ureteroscopia: Experiencia inicial en el tratamiento endoscópico de litiasis de uréter pelviano

Resumen

Objetivos: Presentar el primer caso de litiasis ureteral resuelto mediante un nuevo abordaje endoscópico que denominamos micro-ureteroscopia (m-URS) y que pretende reducir el daño ureteral que se produce por el instrumental convencional.

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Material y métodos: Seleccionamos a una paciente de 53 años de edad con una litiasis de 16 mm en el uréter distal derecho. Para el acceso endoscópico empleamos la vaina de 4,8 Fr del set de micro-Perc y fragmentamos la litiasis con una fibra láser de 230 μ .

Resultados: Se consiguió la fragmentación por completo de la litiasis. Colocamos un catéter JJ debido al importante edema ureteral. El tiempo quirúrgico fue de 156 min y la estancia posquirúrgica de 24 h. No hubo complicaciones, los requerimientos de analgesia fueron mínimos y la paciente quedó libre de litiasis residuales.

Conclusiones: La m-URS es una técnica factible, sencilla y eficaz en el tratamiento de litiasis ureteral pelviana en mujeres, que optimiza la mínima invasión con unos resultados que pueden ser equiparables a las técnicas endoscópicas convencionales en cuanto a la facilidad del acceso y la calidad de visión endoscópica sin afectar la capacidad resolutive. Se requiere de estudios más potentes y de un mayor desarrollo tecnológico para definir el rol definitivo de este procedimiento. Las mayores limitaciones actuales residen en el tratamiento de litiasis en el uréter proximal o en varones. Podría ser una buena alternativa también en pacientes pediátricos.

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Introduction

Miniaturization of endoscopic equipment opens new possibilities, both in the diagnosis and in the treatment of renal and ureteral lithiasis.¹⁻³ In recent years, the Mini-Perc, Ultra-Mini Perc, and Micro-Perc^{4,5} have been developed as variants of the standard procedure which is percutaneous nephrolithotomy,⁶ while retrograde intrarenal surgery is born.⁷

As the different working groups gain experience in these techniques and communicate their results, their respective indications are being defined. One of the most controversial aspects in the treatment of ureteral stones is ureteral injury and its consequences⁸⁻¹⁰: renal-ureteral colic, ureteral stenosis, analgesic requirements, or the need for subsequent placement of a ureteral catheter.

Our group works to minimize the damage that the work item causes to the ureter without affecting the success of the procedure. We present the first communication worldwide of a new technique for the treatment of ureteral stones in women, using a 4.8-Fr ureteral access that we call micro-ureteroscopy (mURS).

Material and methods

We treated a 53-year-old woman who presented a first episode of renal-ureteral colic secondary to a stone at the right pelvic ureteral level, approximately 3 cm from the ureteral meatus. The measures of the lithiasis (Fig. 1) were 16.2 \times 7.9 \times 7.9 mm (1011 mm³ total volume). iv 500 mg levofloxacin was prescribed as antibiotic prophylaxis. Informed patient consent was obtained and spinal anesthesia was performed.

We used a Storz HD Wide View image systemTM, a Storz Xenon Nova 300TM light source, and a 0.9-mm diameter, 120°-view, and 27-cm long semi-rigid lens, used in the micro-percutaneous technique (Micro-Perc, PolyDiagnostTM, Pffeffenhofen, Germany).^{11,12}

In order to infuse saline we used a Storz Endomat LCTM with a flow between 50 and 100 ml/min. The laser generator

used was a Karl Storz Calculase ITM with a maximum theoretical power of 10 W. The fiber selected was 230 μ Karl StorzTM (Karl Storz, Germany).

We opted for the 4.8-Fr ureteral access sheath and 22.5-cm of length (Fig. 2).

We lubricated the urethra and emptied the bladder with a 12-Ch urinary catheter placed that we left placed throughout the procedure. In order to access the ureter, we used the 4.8-Fr access sheath which is connected to a piece called 3-port LuerLock, and to it by one of the side channels, a Touhy Borst adapter. Through the straight channel of the 3-port LuerLock we introduced the lens and through another channel we infused the saline.

We identified without difficulty the trigone and the right ureteral, orthotopic, straight, and thin lip meatus. Access was made without resistance to visualize the lithiasis. The

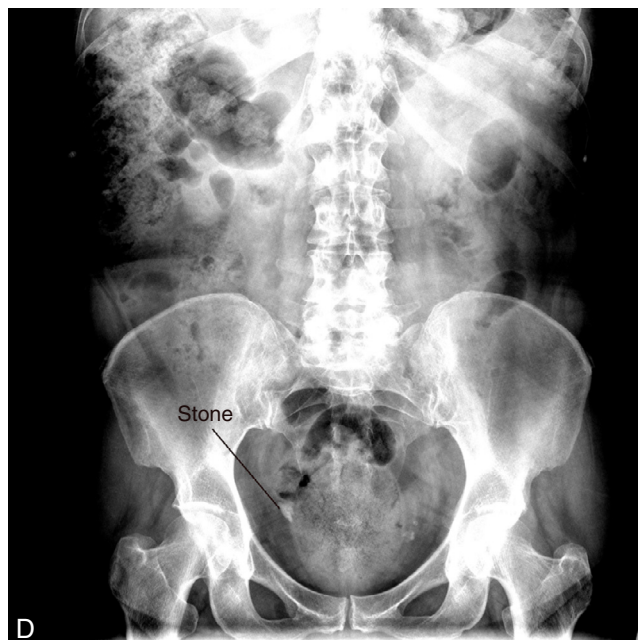


Figure 1 Plain X-ray of the preoperative image.

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