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Aspiration endoscope device

Tech ID: 33461 / UC Case 2022-750-0

BRIEF DESCRIPTION

This technology is an innovative endoscopic device designed specifically for use in the ureter to remove ureteral and renal stone particle debris from patients. The device is equipped with a force sensor to ensure safe passage without injuring the ureteral wall.

SUGGESTED USES

·Stone Removal Procedures: a. Ureteroscopic lithotripsy: Breaking up and removing kidney or ureteral stones using laser lithotripsy; b. Percutaneous nephrolithotomy: Minimally invasive surgery to remove kidney stones via a small incision in the back. c. Shock wave lithotripsy: Using shock waves to break up kidney stones into smaller pieces for easier passage.

·Stone Size and Location: Suitable for treating ureteral stones, renal stones, and bladder stones. Effective for stones of varying sizes, including small stones (<5 mm), larger stones (>2 cm), and stones up to 1.5 cm in diameter. Capable of removing stone fragments as small as 800 microns.

·Patient Population: Applicable for patients with symptomatic kidney stones or ureteral stones. Particularly useful for patients with recurrent stone disease or those at risk of complications from larger stones.

·Clinical Settings: Suitable for use in hospitals, surgical centers, and outpatient clinics. Can be used by urologists and trained medical professionals specializing in stone management procedures.

·Overall, the recommended uses encompass a wide range of stone removal procedures, patient populations, and clinical settings, highlighting the versatility and effectiveness of the described endoscopic device in managing nephrolithiasis.

FEATURES/BENEFITS

- Provides higher stone clearance rates compared to shock wave lithotripsy.
- Offers better stone removal efficiency and safety compared to traditional ureteroscopes.
- Reduces the need for additional stone removal procedures by thoroughly clearing stone fragments.

TECHNOLOGY DESCRIPTION

Nephrolithiasis, or the presence of kidney stones, is a prevalent and growing health issue globally. Current treatment options include pain management, shock wave lithotripsy, ureteroscopic lithotripsy, percutaneous nephrolithotomy, and laparoscopic stone removal. Existing treatments have limitations, including incomplete stone clearance and potential complications. There is a need for more effective and less invasive methods for stone removal. The objective of the invention is to provide an endoscope with an aspiration channel equipped with a blocking bar to prevent clogging and ensure the removal of stone debris. The device is suitable for ureteroscopic or percutaneous nephrolithotomy laser lithotripsy procedures. It features a larger aspiration channel compared to conventional endoscopes, allowing for better suction of stone fragments. The device also includes multiple working channels for laser fiber passage, irrigation, and stone basket or guidewire insertion. Additional features include a self-contained battery pack, wireless connectivity, and ergonomic

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OTHER INFORMATION

KEYWORDS

Endoscopic device, Ureteroscopy, Stone removal, Kidney stones, Renal calculi, Laser lithotripsy, Urology equipment, Ureteral obstruction, Nephrolithiasis treatment, Percutaneous nephrolithotomy

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design for ease of use. The endoscope device comprises an insertion tube with an aspiration channel, blocking bar, working channels, image sensor, and light source. The blocking bar prevents clogging of the aspiration channel and facilitates passage over guidewires. Unique technical features contribute to improved stone removal efficiency and reduced risk of complications. Disposable ureteroscopes of various sizes are provided to accommodate different patient needs. The device includes a force sensor to monitor ureteral wall pressure during insertion, ensuring safety.

STATE OF DEVELOPMENT

Prototype developed

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Published Application	20230190078	06/22/2023	2022-750

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