مؤسسة قطر
Qatar Foundation
Unlocking human potential لإطلاق قدرات الإنسان

IPTT • Qatar Foundation's Office of Intellectual Property & Technology Transfer

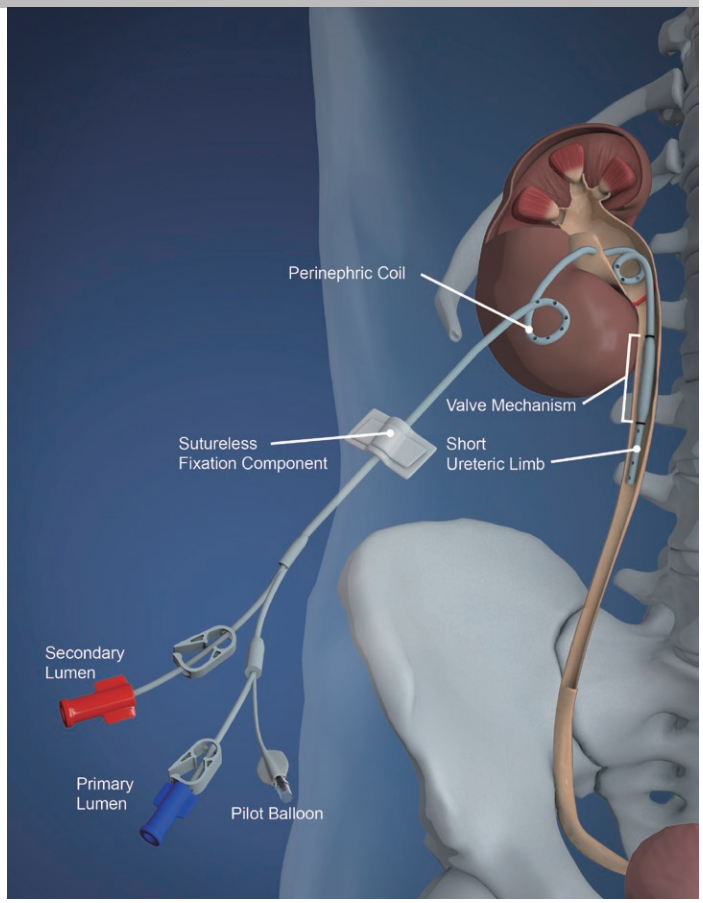
Double-Lumen Valve-Controlled Pyeloureteral Catheter

An improved device to reduce surgical risk and improve patient comfort

LICENSING & PARTNERING OPPORTUNITY

A researcher at Hamad Medical Corporation has developed the double-lumen, valve-controlled intraoperative pyeloplasty stent (VIPS)—a catheter that can be percutaneously inserted and positioned within a patient during surgery and can be removed without the need for a cytoscopic procedure. The device can be sized to fit the patient and addresses many primary risk areas surrounding the use of stents in urologic surgical procedures, including reducing the risk of infection, reducing patient pain and discomfort, and improving sensitivity in postoperative contrast imaging.

The device's improvements over conventional stents make it ideal for lowering the risks associated with surgical procedures used to treat urological disorders, such as congenital uretero-pelvic junction (UPJ) obstruction or other disorders that may require surgical intervention to restore the normal flow of urine from the kidneys to the bladder.



Technology Benefits

- **Flexible:** Can be sized precisely to fit the patient's anatomy and can be externally controlled to improve sensitivity of contrast imaging
- **Risk-mitigating:** Improves post-operative care and accuracy of patient monitoring; requires no separate tube for blood or urine drainage from around the surgical area—eliminating the need for further incisions, stitches, and patient discomfort
- **Pain-reducing:** Reduces bladder spasms compared with traditional stents, improving overall comfort
- **Streamlined:** Easily retrievable, eliminating the need for a surgical removal procedure
- **Cost-effective:** Lowers the total costs of urologic surgery by limiting incisions, stitches, and associated anesthesia, for both insertion and removal

Applications

- Pyeloplasty
- Urologic surgical procedures
- Robotic surgery
- Laparoscopic surgery
- Open surgery

Development Status

Researchers are preparing for clinical trials.

Tech #: QH-2017-008

Licensing Opportunities

Qatar Foundation is offering this technology for license. For more information about **VIPS for urologic surgical procedures**, please contact:

technologies@qf.org.qa

About the Technology

Under normal circumstances, the tubular passageway known as the ureter transports urine from the kidneys to the bladder. Urological disorders and disease may disrupt this process—leading to obstruction of the ureter that must be cleared through surgical procedures (e.g., pyeloplasty). A pyeloureteral stent (or catheter) is required to facilitate urine transport while the obstruction is removed.

HOW IT WORKS

VIPS features a double-lumen design; a renal coil and wick is positioned in the kidney with a second coil adjacent to the surgical site; one end of the stent is directed outside the body wall of the patient while the other extends into the ureter. The primary lumen drains urine from the kidney and can also be used to inject dye for imaging in a controlled manner via activation of the internal valve, while the secondary lumen drains the surgical area of blood or urine leakage. Small catheter bags are connected to the external ends of the device for blood and urine collection.

WHY IT IS BETTER

Currently available stents can be effective but pose challenges and risks during and after surgery—many of which are addressed by VIPS.

Prior to surgery, surgeons approximate the size of stent to use, which can cause complications if the estimate is not accurate. By contrast, VIPS can be custom fit to each patient by simply cutting the distal end of the stent. Two adjacent coils, along with a unique fixation component, further stabilize the device in the desired position and minimize risk of dislodgement.

During and after surgery, blood and urine leakage around the kidney must be collected; to do this, many stents require a second incision (along with its associated risks) for insertion of a separate perinephric drain. The double-lumen design of VIPS requires no additional incisions and gives medical personnel the ability to precisely monitor leakage volumes.

Following surgery, VIPS can be easily retrieved by pulling on the exposed end, eliminating the need for a cytoscopic removal procedure—again mitigating its associated time, costs, and risks. In addition, valve-supported postoperative contrast imaging enables more accurate detection of leaks and helps monitor healing, whereas many traditional stents can inhibit their clarity.

Finally, whereas conventional stents may not be compatible with laparoscopic or robotic surgery, the robust VIPS design can be applied to these procedures.

PATENT PROTECTION

A provisional patent has been filed in the United States (62/483,940).