Advancing Pelvic Reconstructive Surgery: Vaginal Access Retroperitoneal Sacrocolpopexy with Hysterectomy Using Single-Port Robotic Da Vinci System

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Hypothesis / aims of study

Retroperitoneal sacrocolpopexy is a standard surgical procedure for pelvic organ prolapse.

Current methods involve abdominal access, necessitate peritoneal dissection, and pose a risk for bowel complications, as well as post-operative constipation and discomfort.

We introduce a novel transvaginal retroperitoneal technique with a purpose-built Da Vinci Single-Port robotic system.

Study design, materials and methods

- We positioned a female cadaver in dorsal lithotomy with Trendelenburg.
- We accessed the retroperitoneum via a vaginal incision in the posterior fornix, followed by the placement of a purpose-built single port Access Kit for docking (Fig 1).
- The robot was directed caudo-cranially utilizing a floating dock technique (Fig 2).
- We performed retroperitoneal dissection to the level of sacral promontory (SP). The robotic approach facilitated optimal visualization and precise retroperitoneal dissection (Fig 3). Hysterectomy was then successfully performed robotically.

Results and interpretation

Initial findings indicate the feasibility of completing the natural orifice transluminal endoscopic surgery extraperitoneally via the vagina using the single port system.

The benefits of the approach include enhanced surgical precision, complete preservation of the peritoneum and intraperitoneal organs, and improved visualization of the pre-sacral area.

Limitations of our technique include the need for a learning curve working in a confined space and restricted angles of access.

Fig. 1

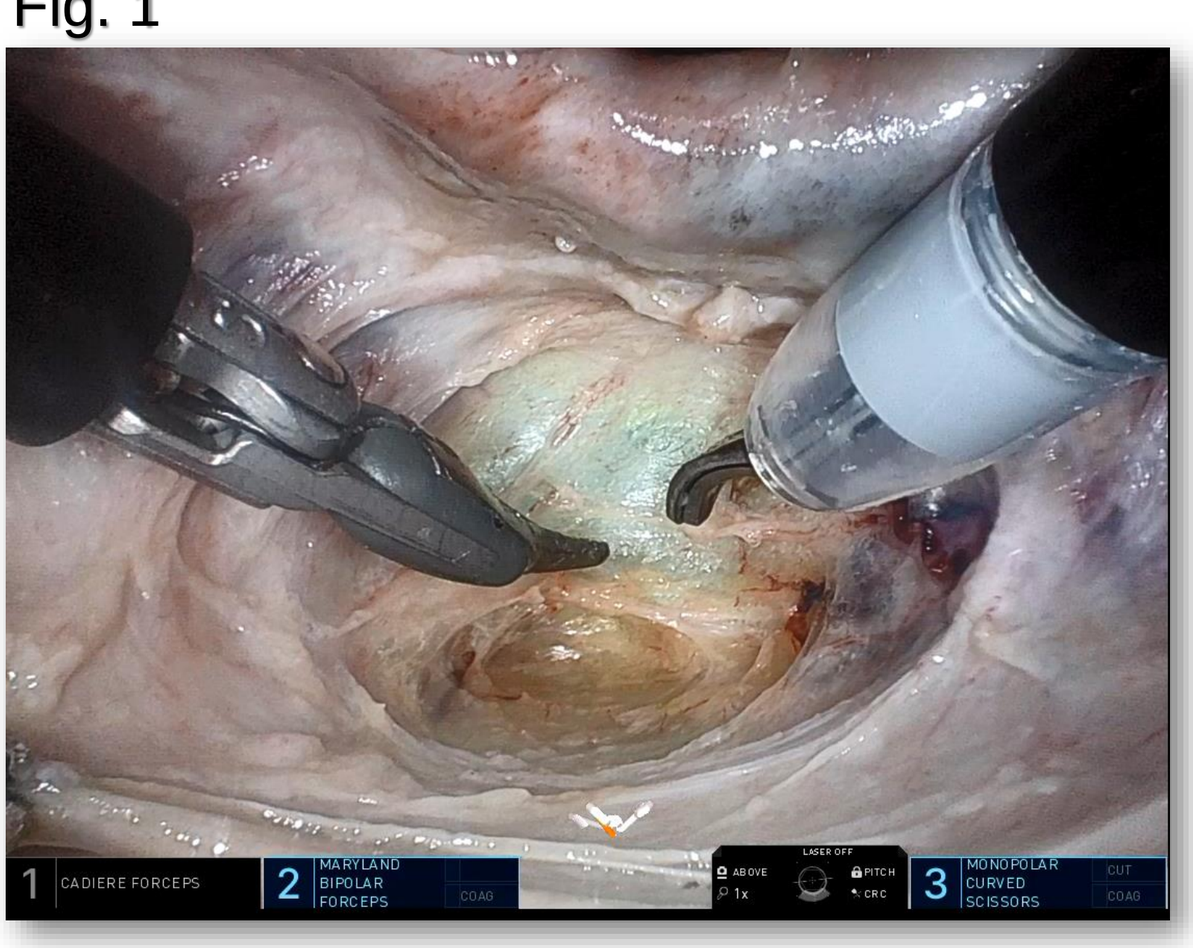

Fig. 2

Fig. 3

Conclusions

Vaginal access to retroperitoneal sacrocolpopexy using a single port robotic Da Vinci system represents a significant advancement in pelvic reconstructive surgery.

The robot's narrow profile, flexible endoscope, and double-jointed instruments allow transvaginal retroperitoneal access to improve surgical outcomes and customize our surgical approaches.