Robotic assistance in surgical systems is becoming dominant, and initially, the da Vinci surgical system (Intuitive Surgical Inc., Sunnyvale, CA, USA) was approved for clinical use in 2000. It has opened the door to a new surgical era with more delicate surgery with three-dimensional vision and improved accuracy in the surgical field. By the end of 2022, there were more than 7,554 da Vinci surgical systems in use worldwide, and approximately 1,875,000 robotic surgical procedures were performed (Intuitive 2022 annual report).

In order to enhance the efficiency of robotic surgery in 2018 (Meere Company Inc., Hwaseong, Korea), in Korea manufactured and launched a robotic surgical system named Revo-i the first Korean innovative laparoscopic surgical robot approved by The Korean Food and Drug Administration (KFDA) for clinical use so that patient care can be enhanced through robotic systems and technologies. By the end of 2021, more than 200 surgeries have been performed with Revo-i.

Initially, robotic surgery was performed using a multi-port robotic system; however, when single-port surgery became more popular, a single-port robot was manufactured. Therefore, the number of single-port robotic surgery cases is increasing. In single-site robotic surgery, the size of the incision limits the number of equipment that may simultaneously enter the operation field to one camera and two robot arms. In some robotic single-site surgery, fighting between the robotic arms can occur; therefore, another incision has to be made for one arm to give more space and maintain a better range of motion for both robot arms.

In parallel to laparoscopic and robotic-assisted surgeries, smaller and more natural surgical ports have been used, thus requiring fewer incisions. Together, these developments have yielded less invasive surgeries, e.g., transvaginal natural orifices transluminal endoscopic surgery (vNOTES), with safer and better outcomes. Nonetheless, the challenges of maintaining adequate vision and contact with the target organ remain. So, robotic transvaginal natural orifices transluminal endoscopic surgery (RvNOTES) is an innovative technology that provides the technical capabilities that will encourage surgeons to prefer procedures through natural orifices, thus bridging the gaps of both robotic-assisted...
surgery and conventional vNOTES.

In order to conduct this research, we performed robotic vNOTES and single-port robotic salpingo-oophorectomy in a female cadaver by using the Revo-i robotic system.

In the beginning, a 3cm posterior colpotomy was performed, and opened the pouch of Douglas. Revo-i robotic system camera and arms were inserted through a single port platform, and vNOTES right salpingectomy was done.

After that, an incision of 3 cm is done on the umbilical while inserting the single port system having monopolar scissors in arm A, bipolar forceps in arm B, and a camera in arm C. Initially, there were challenges in surgery because the instruments were too close to do the movement together (fighting between the instruments). In order to resolve this problem, we did a camera cross and reassigned the arms (switched by the software). This makes the two instruments work with enough space to do the surgery, and each arm can be moved once at a time, and right oophorectomy was done.

Finally, we added another port in the right lower lateral abdomen through an incision while removing one arm from the umbilical port and inserting it through the torcher (single port +1); then, lift salpingo-oophorectomy was done while maintaining the 360 motion of robotic arms easily without limitation of movement. The results of the clinical trial remain influential.

Based on the clinical results, it is concluded that the robotic v-NOTES and single port robotic and single port +1 salpingo-oophorectomy by Revo-i system in a female cadaver is technically feasible.

**Video related to this article**

The video related to this article can be found online at 10.36637/grs.2023.00206.

**Conflict of interest**

No potential conflict of interest relevant to this article was reported.
Video 2.

Video 3.