Robotic single site sentinel lymph node fluorescence detection

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Abstract: In the last decades, new technologies such as robotics, single-site surgery, and near infrared fluorescence sentinel lymph node mapping has reduced invasiveness in the surgical management of oncological cancer patients. We present our surgical technique to treat low risk endometrial cancer with total hysterectomy and fluorescence sentinel lymph node mapping using robotic single site approach. The Da Vinci® Si System Single port platform, with 3D 8.5 mm firefly endoscope, semi rigid monopolar hook, bipolar forceps and wristed needle holder, has been used. Robotic single-site approach with sentinel lymph node fluorescence detection is feasible and applicable for the treatment of low-risk endometrial cancer.

Keywords: Sentinel lymph node; endometrial cancer; robotic single site; indocyanine green

Operative technique

Following we describe our surgical technique to perform total hysterectomy and sentinel lymph node mapping for the treatment of low risk endometrial cancer using Da Vinci robotic single site device.

Patient had antibiotic prophylaxis and postoperative low molecular weight heparin. After general anesthesia, Foley catheter was placed in the bladder and Hole intrauterine manipulator was placed in place after coagulation of tubes, 4 milliliters of indocyanine green (2.5 mg/mL) was injected into the cervix at 3 and 9 o’clock.

A 2.5 cm intra umbilical incision was made to access into the peritoneal cavity. The single-site port was inserted into the abdominal cavity. The pneumoperitoneum was inflated at a pressure of 12 mmHg. Four specific trocars were introduced in the port: two 250 mm-long curved 5 mm trocars for robotic instruments, one 8.5 mm toca for the high-definition three-dimensional endoscope, and one 5 mm straight trocar for standard laparoscopic instrument. The Trendelenburg position was applied, till sufficient exposition of the pelvic surgical field. The Da Vinci® Si System was docked between the patient’s legs. 3D 8.5 mm firefly endoscope, monopolar
hook and bipolar forceps were used on. Total hysterectomy, bilateral salpingo-oophorectomy and SLN mapping, were performed following the technique previous described (15) and shown in the Video 1. Uterus with manipulator, adnexa, and SLNs in endobag were extracted through the vagina. The vaginal cuff was internally sutured using a snaked 5 mm robotic needle-holder with number 0 Vicryl. Hence the robot was undocked, the single-site port removed and the umbilical incision was sutured in planes with number 1 Vicryl on the fascia aponeurosis, and Monocryl 3–0 on the skin.

**Comments**

The combination of laparoscopy, robotics, single access and sentinel lymph node mapping makes possible to minimize surgery improving peri-operative outcomes.

Robotic single-site approach with SLN fluorescence detection is feasible and applicable for the treatment of low-risk endometrial cancer.

Further studies are needed to demonstrate the applicability of the SLN algorithm and to compare different minimally invasive surgical techniques of the management of endometrial cancer.

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**References**


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