

Davinci Robotic Port Sites – New Configurations for Cosmesis

[Dr. Jessica Robertson¹](#), [Dr. Mikhail Sarofim¹](#), [Dr. Assem Kalantan¹](#), [Dr. Sarah Choi¹](#), [Dr. David Rosen¹](#),

[A/Prof Gregory Cario¹](#), [Dr Danny Chou¹](#)

¹Sydney Women's Endosurgery Centre, Sydney, Australia

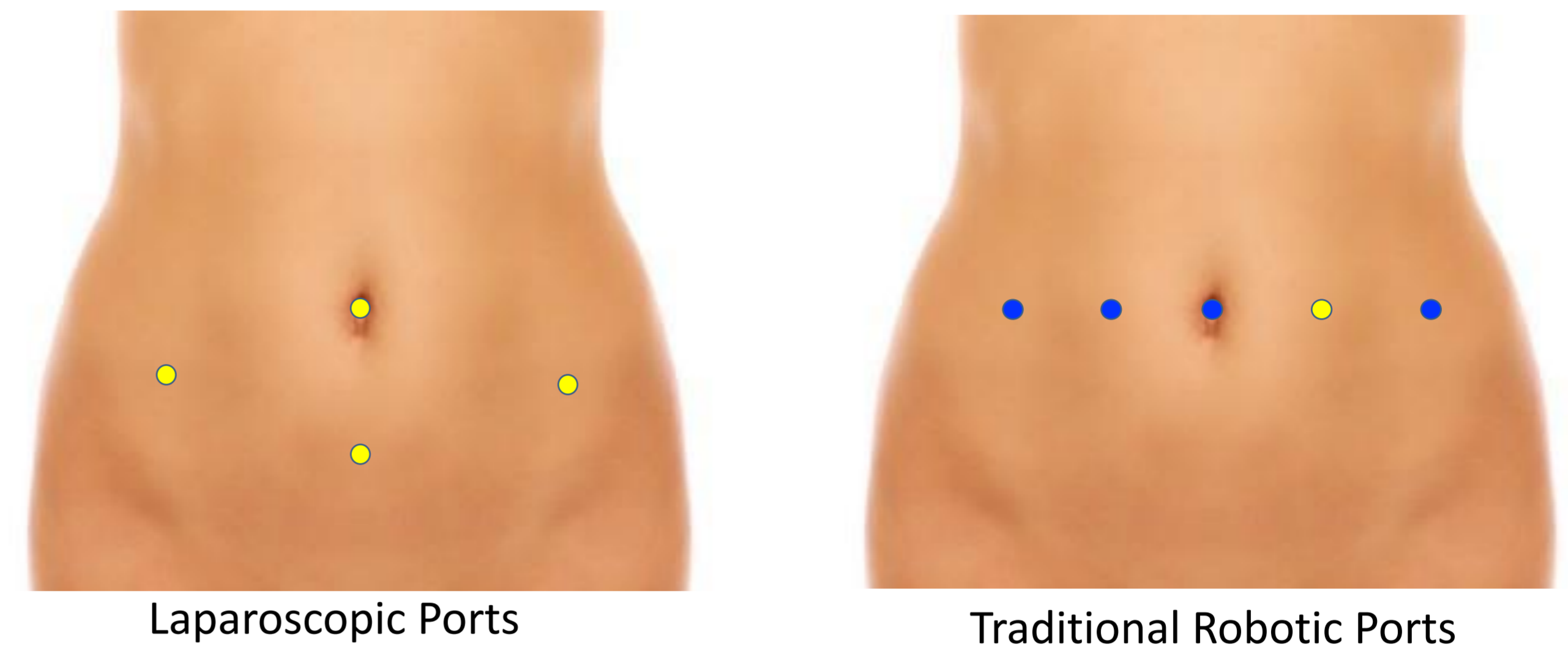


Introduction

The Davinci Xi Clinical Specialty Guide for Gynaecology recommends placing DaVinci ports laterally across the abdomen at the level of the umbilicus. Each port is spaced 6-10cm apart. (1) The cosmetic outcome of this port configuration is a significant deterrent for the use of the Davinci robot in women having surgery for benign gynaecological conditions. A 2014 cross-sectional study, ranked robotic port site scars to be the least favourable incision sites compared to traditional laparoscopic port sites and mini-laparotomy. (2) This finding was further echoed in a 2011 descriptive study. (3) The superior ergonomics, vision and benefits of fully wristed instruments that the robot can provide has caused SWEC surgeons to trial new robotic port configurations that mirror traditional laparoscopic port placement. **We hope to create a standardised, and easily reproducible Davinci robotic port configuration that provides better cosmetic outcomes for our patients.**

Objectives

This study aims to assess the feasibility of modified robotic port placement for benign gynaecological procedures. Primary outcomes include robotic arm clashes, surgeon and surgical assistant satisfaction with respect to surgical access and complication rates as defined by the Clavien Dindo System.

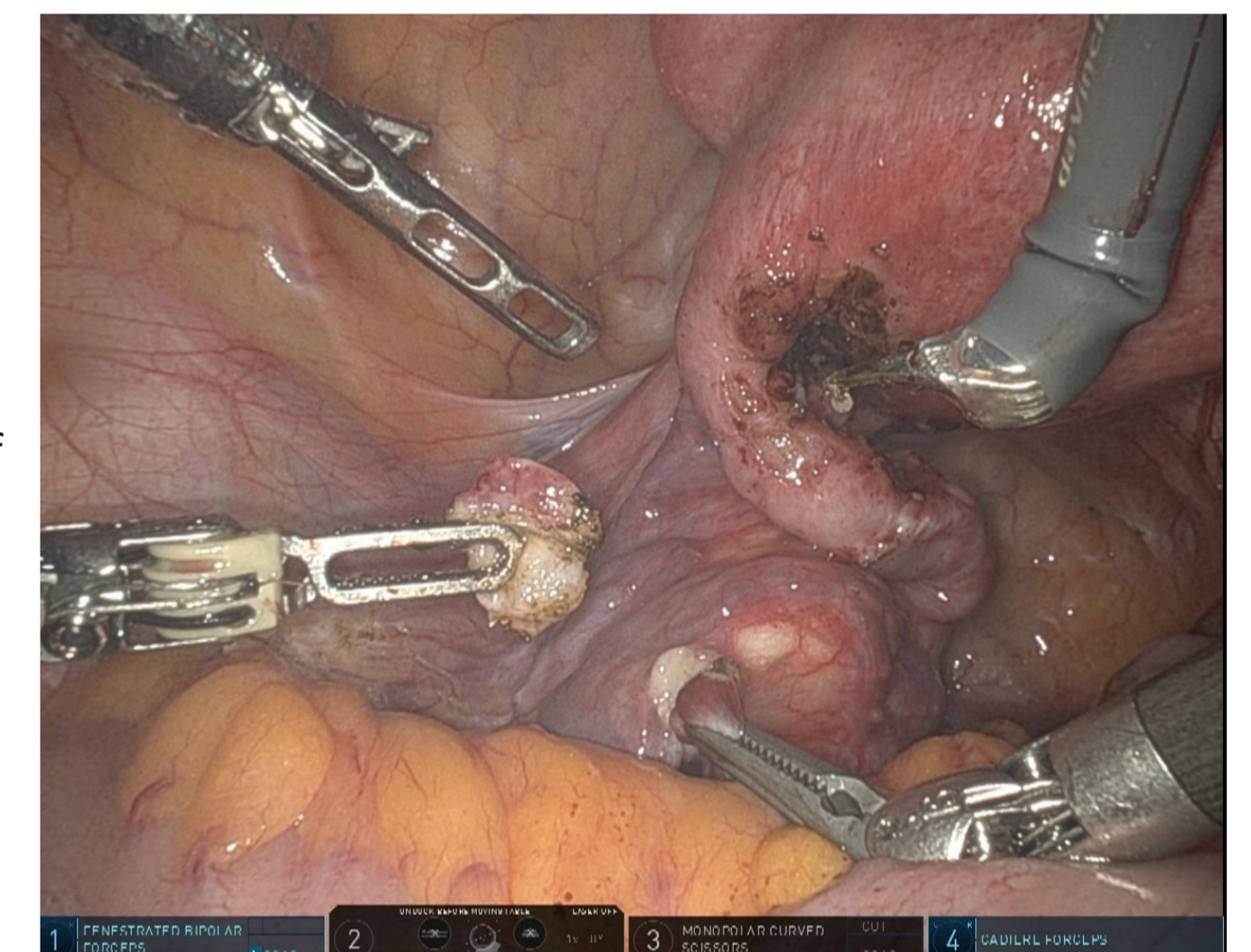


Methodology

A prospective review of 22 patients from February 2022 until August 2022 was performed. Inclusion criteria was benign pathology. Number of ports and each port site location was measured in centimeters relative to the left or right ASIS and umbilicus with no pneumoperitoneum. Robotic arm location at the FLEX joint was noted. Robotic arm clashes were recorded. The surgeon and surgical assistant were asked to rate access to surgical site and ergonomics. Intra-operative complications and Estimated Blood Loss (EBL) were noted.



"Double Back" Rotation of robotic instruments for optimal surgical access



Results and Discussion

Patients included in the study had robotic surgery for either total laparoscopic hysterectomy, excision of endometriosis (Stage 1 -4) or bilateral salpingo-oophorectomy. The median age of patients was 36 (Range: 26-46) and median BMI was 24 (Range: 19 -36). 3 - 5 ports were used, with the removal of robotic arm 2 in 3 cases. Arm 2 was removed as this allowed increased access for the assistant port. A suprapubic assistant port was placed in the midline for 1 case, however due to restrictions in lateral access suprapubic ports were then placed 3 cm left of the midline. Utilising a robotic airseal port, eleven cases had no assistant port. The assistant in these procedures undocked arm 1 to remove pathological specimens, introduce suture needles and perform suction and irrigation. In cases when target anatomy was less than 10 cm away, a shallow port insertion was performed and wristed robotic instruments were utilised to 'double back' towards target anatomy. The port configuration with the least clashes and increased surgeon and assistant satisfaction scores was:

	Location	FLEX joint	Function
Robotic Arm 1	Median 2 cm (Range 1-3 cm) distance from the left ASIS	L or E	Bipolar, Assistant port.
Robotic Arm 2	Umbilicus	E or X	Camera
Robotic Arm 3	Median 9cm (Range 7-12 cm) distance from the right ASIS, at a level of median 2 cm above the pubic symphysis	L, E or X	Monopolar scissors, Needle driver
Robotic Arm 4	Median 2 cm (Range 2-4 cm) distance from right ASIS	L, E or X	Vessel sealer or Cadiere forceps

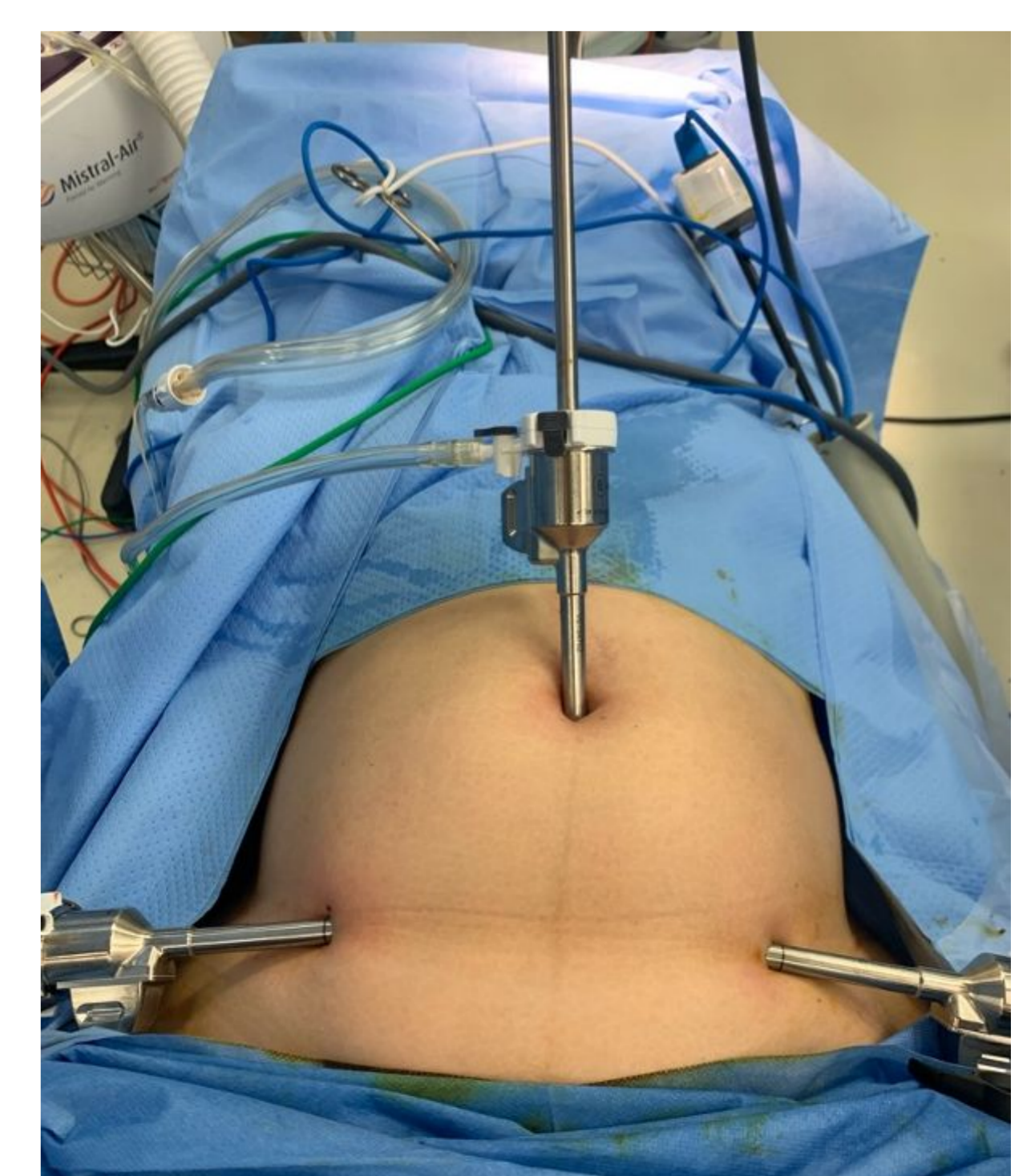
There was no significant difference in length of operation between the different port configurations. There were no complications in all included cases. Estimated blood loss for all cases was < 100ml.

Conclusion

This study shows that robotic port sites can be modified for benign gynaecological procedures to allow for improved cosmetic outcomes for patients whilst still allowing adequate surgical access. There were no complications in this cohort.



Port site wounds after 4 robotic arm total laparoscopic hysterectomy



3 arm robotic bilateral salpingo-oophorectomy

References
 1. Davinci Xi Clinical Specialty Guide, 2017 Intuitive Surgical Inc
 2. Goebel, K, Goldberg, J. Women's Preference of Cosmetic Results After Gynecologic Surgery. *J Minim Invasive Gynecol.* 2013; 21: 64-67.
 3. Bush A, Morris S, Millham F, Isaacson K. (2011) Women's Preferences for minimally invasive incisions. *J Minim Invasive Gynecol.* 2011; 18: 640-643
 Nil Disclosures