



Clinical utility of intraoperative laparoscopic ultrasound in robot-assisted laparoscopic myomectomy

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Objective

Uterine leiomyomas are the most common gynecologic tumors, often causing pain, abnormal uterine bleeding, and menorrhagia. Compared to open myomectomy, laparoscopic myomectomy offers superior cosmetic outcomes, fewer complications, and shorter hospitalization. However, the lack of tactile feedback makes identifying and removing deeply embedded intramural myomas challenging. Robotic surgery shares this limitation. Intraoperative laparoscopic ultrasound can improve surgical accuracy by precisely localizing myomas. Given this, we investigated the benefits of ultrasound-assisted laparoscopic guidance during robot-assisted myomectomy.

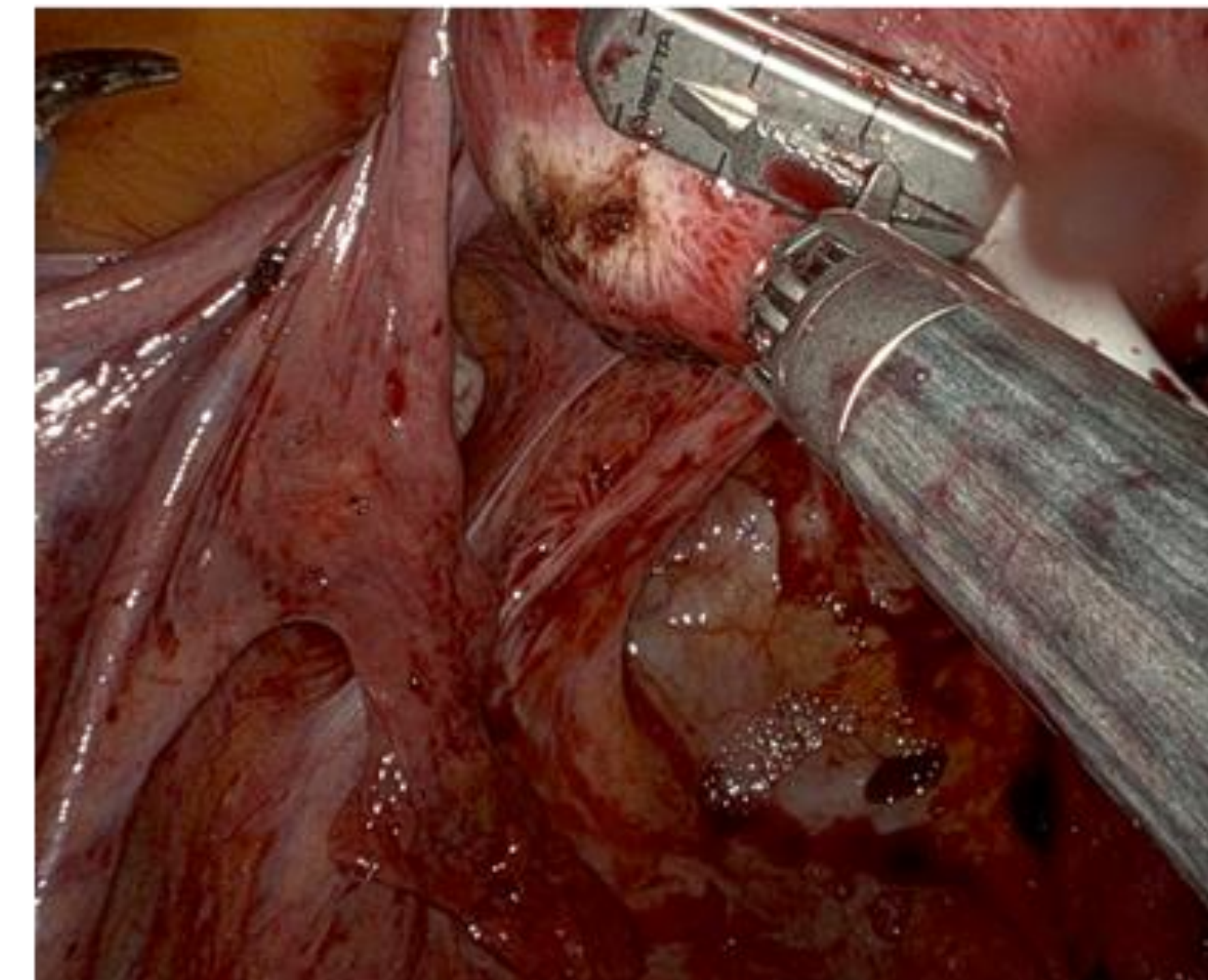
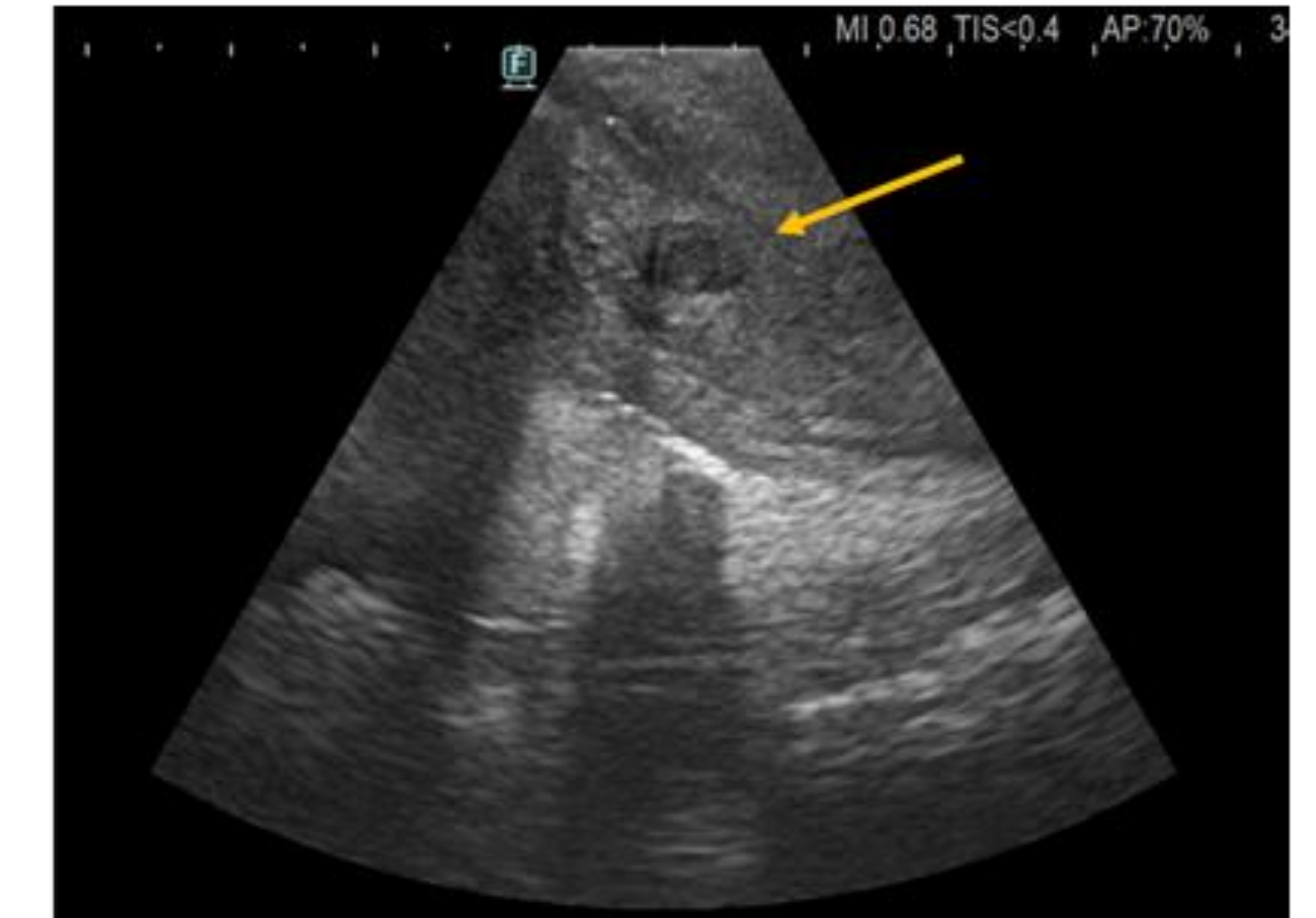
Material and methods

This retrospective study was conducted at Yonsei University Yonjin Severance Hospital. Between June 2020 and March 2024, a total of 268 robotic surgeries were performed. Of these, 195 patients underwent laparoscopic ultrasound-guided myomectomy, while 73 underwent myomectomy without ultrasound guidance. For intraoperative ultrasonography during myomectomy, the Arietta ultrasound system, with an L51K Hitachi 8 mm linear drop-in probe operating at a frequency of 3–15 MHz, was used in the study. Patients were followed up to assess residual and recurrence rates of uterine leiomyomas using vaginal ultrasound at the 6th month and between the 12th and 18th months postoperatively.

Results

The median follow-up period was 18 months (range, 6–27 months). The residual number of myomas in the laparoscopic ultrasound-guided group was also lower than that in the laparoscopic group without ultrasound. (0.84, 3.21, $P < 0.05$). The recurrence rate of laparoscopic ultrasound guided group was significantly lower than that of laparoscopic group without ultrasound. (7.6%, 19.0% $P < 0.05$).

Figure 1. Intraoperative laparoscopic ultrasound detecting myoma



Conclusion

The application of intraoperative ultrasound in robot-assisted myomectomy may reduce the residual and recurrence rates of uterine leiomyomas.