Robot-assisted laparoscopic adenomyomectomy : a feasible option of uterus-sparing surgery

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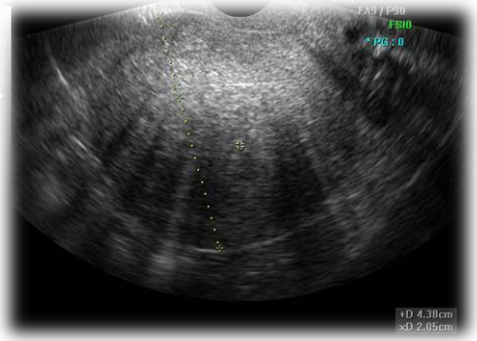
Adenomyosis : ectopic glandular tissue found in muscle

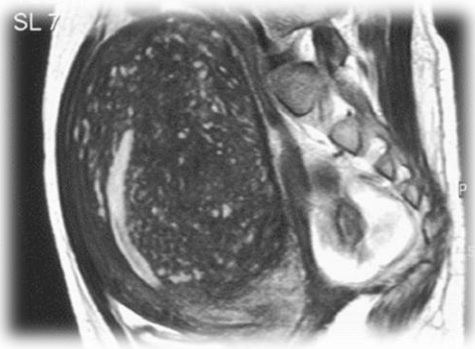
- Risk factors
  - Middle aged
  - Increasing parity
  - Early menarche
  - Shorter menstrual cycle
  - Prior uterine surgery

- Symptoms & complications
  - Dysmenorrhea, Pelvic pain
  - Subfertility, infertility
  - Preterm labor
  - Premature rupture of membrane

Normal uterus

Adenomyosis





Treatment options of Adenomyosis

Hormonal manipulation
Combined or progestin-only oral contraceptives
Progesterone-releasing intrauterine device(LNG-IUS)

Conservative treatment
NSAIDs

Surgical options
Endometrial ablation
Excision of adenomyoma
Hysterectomy

For uterus-sparing
For fertility-preserving

Hormonal suppression
GnRH agonist
Danazole

Adenomyosis. Note thickened wall of uterus which can be mistaken for fibroids.

Non-surgical procedure
Uterine artery embolization

Spontaneous uterine rupture of a twin pregnancy after a laparoscopic adenomyomectomy: A case report

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From the Department of Obstetrics and Gynecology, School of Medicine, Hokkaido University, Sapporo, Japan.

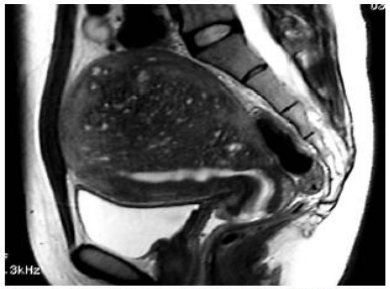

Figure 1 Magnetic resonance image showing diffusely enlarged myometrium at the posterior wall of the uterus.

Abstract. Adenomyomectomy is a treatment option to preserve fertility and reduce symptoms associated with adenomyosis. Although this procedure is reasonably expected to increase the risk of uterine rupture during pregnancy, reports on this issue are scarce. We recently encountered a 33-year-old nulliparous woman with a twin pregnancy who experienced a spontaneous uterine rupture at 30 weeks' gestation. This patient was the first to conceive after undergoing laparoscopic adenomyomectomy at our institution. Her pregnancy was established with in vitro fertilization-embryo transfer 12 months after laparoscopic adenomyomectomy. The uterine rupture was heralded by a sudden onset of severe abdominal pain while she was receiving intravenous ritodrine. This case reinforces that pregnancy after adenomyomectomy should be closely monitored with respect to uterine rupture.

Reproductive Medicine and Biology 2007; 6: 175–177 doi: 10.1111/j.1447-0578.2007.00182.x

Case Report

Uterine rupture during pregnancy soon after a laparoscopic adenomyomectomy

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Although laparoscopic adenomyomectomy may be a possible risk factor for uterine rupture in subsequent pregnancy, few reports have described it. A 35-year-old woman became pregnant 1 month after laparoscopic adenomyomectomy. At the 28th week, uterine contraction occurred, leading to intravenous ritodrine infusion. Severe abdominal pain and a non-reassuring fetal heart rate occurred abruptly and an emergency cesarean section was carried out. The uterus ruptured at the site of previous surgery of the uterine body, which was reconstructed. The mother and the infant did well postoperatively. We report the second case of uterine rupture during pregnancy subsequent to laparoscopic adenomyomectomy. A history of adenomyomectomy and a short interval to subsequent pregnancy may be risk factors for uterine rupture. (Reprod Med Biol 2007; 6: 175–177)

Key words: adenomyosis, interdelivery interval, laparoscopic adenomyomectomy, uterine contraction, uterine rupture.

Limitations of Laparoscopic adenomyomectomy

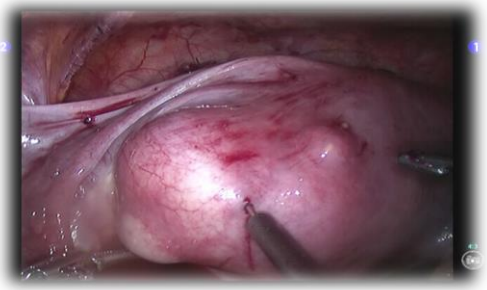
- Difficult to enucleate adenomyoma from normal myometrium
- Difficult hemostasis → excessive electrocoagulation → thermal injury
- Difficult to suture without dead space in myometrium

Robotic Surgery

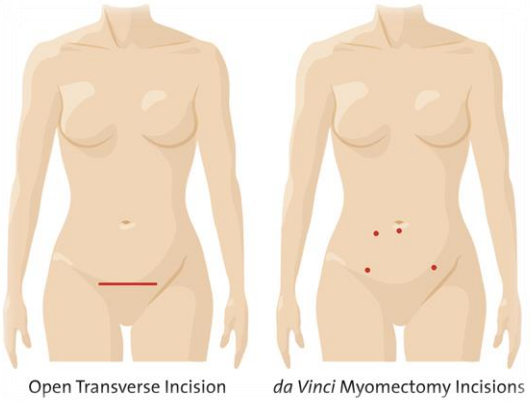
…“ Developed to overcome the limitations of Minimally Invasive Surgery and to enhance the capability of open surgery ”…

…“ Taking Surgery Beyond the Limits of the Human Hand ”…

Robotic surgery



3D HD vision



7 degree of freedom

Minimally invasive

Objective

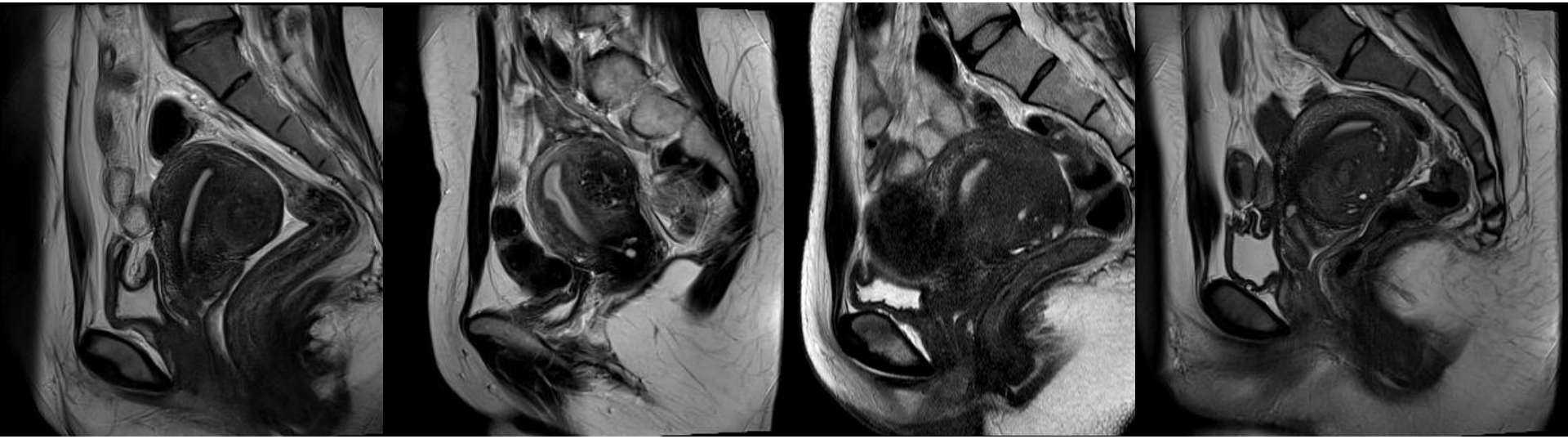
- To evaluate feasibility of Robot-assisted laparoscopic adenomyomectomy

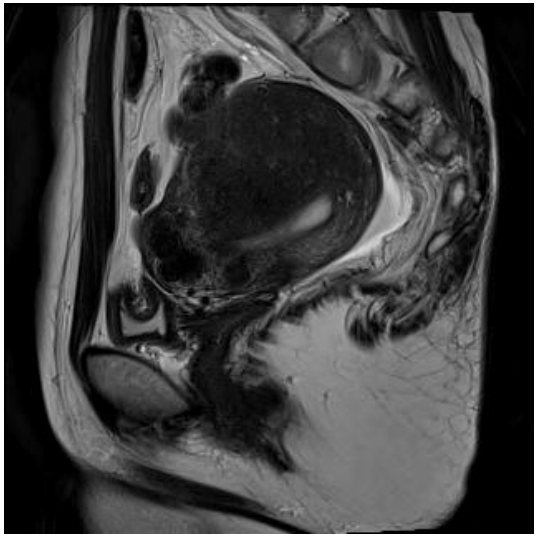
Materials and Methods

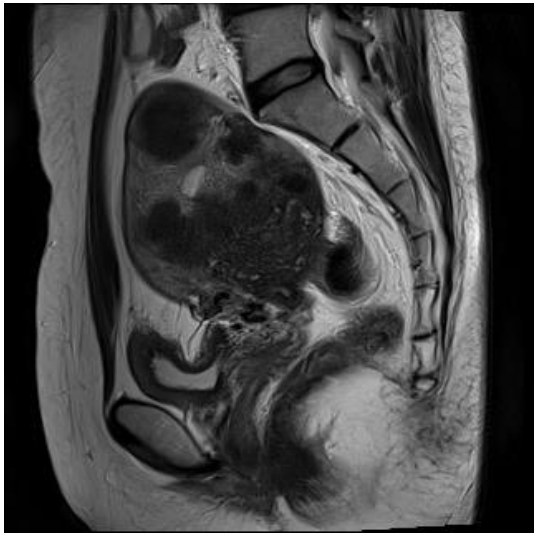
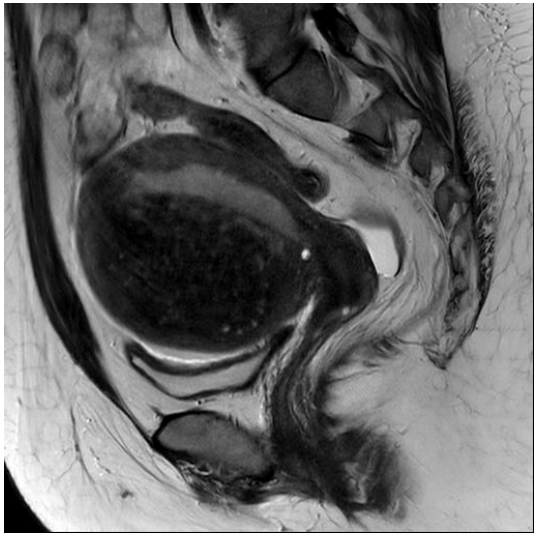
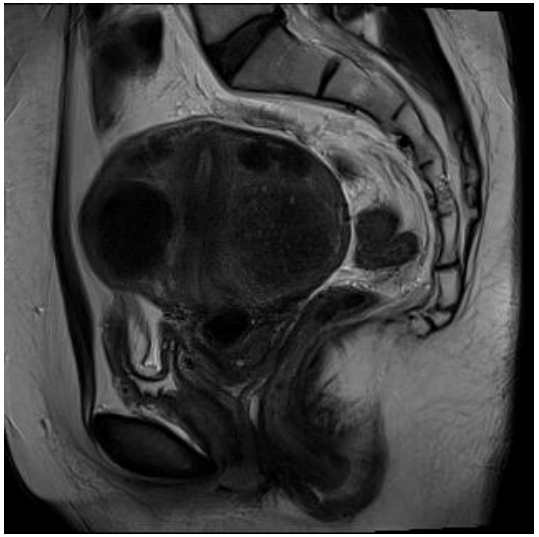
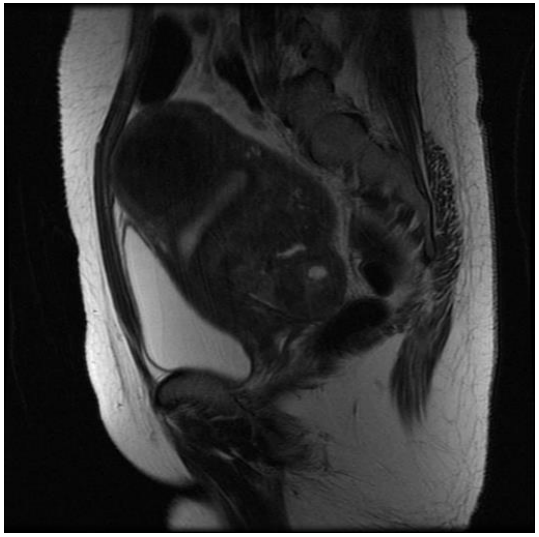
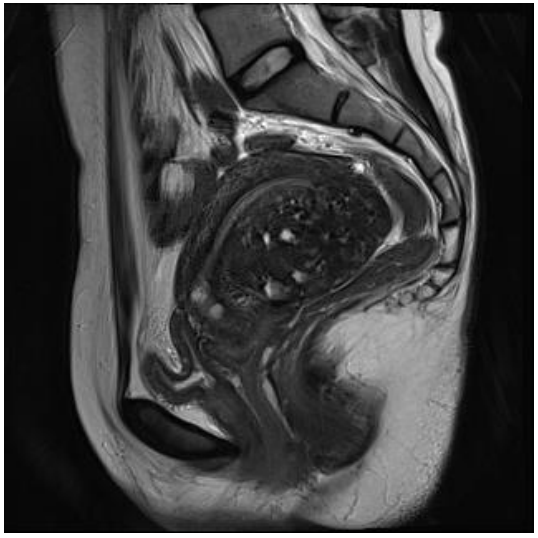
- May, 2011 ~ November, 2016 in Seoul St. Mary's Hospital
- Robot-assisted laparoscopic adenomyomectomy in 23 patients
- Indications
  - severe dysmenorrhea, severe pelvic pain
  - unresponsive to medical therapy
  - focal adenomyosis
  - nulliparous women who want to preserve their fertility

Patients' Characteristics

- Age ; 35.91 ± 4.71 years old
- Nulliparous women ; 91.3% (n=21)
- Unmarried women ; 73.9% (n=17)
- Pre-op CA 125 ; 128.46 ± 27.37
- VAS ; 8.9 ± 1.0

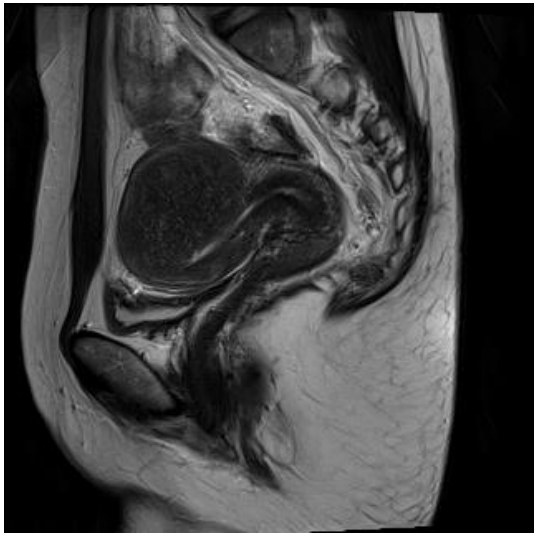


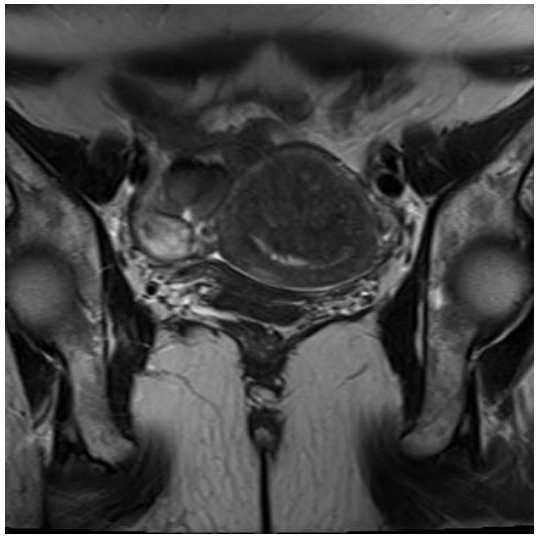


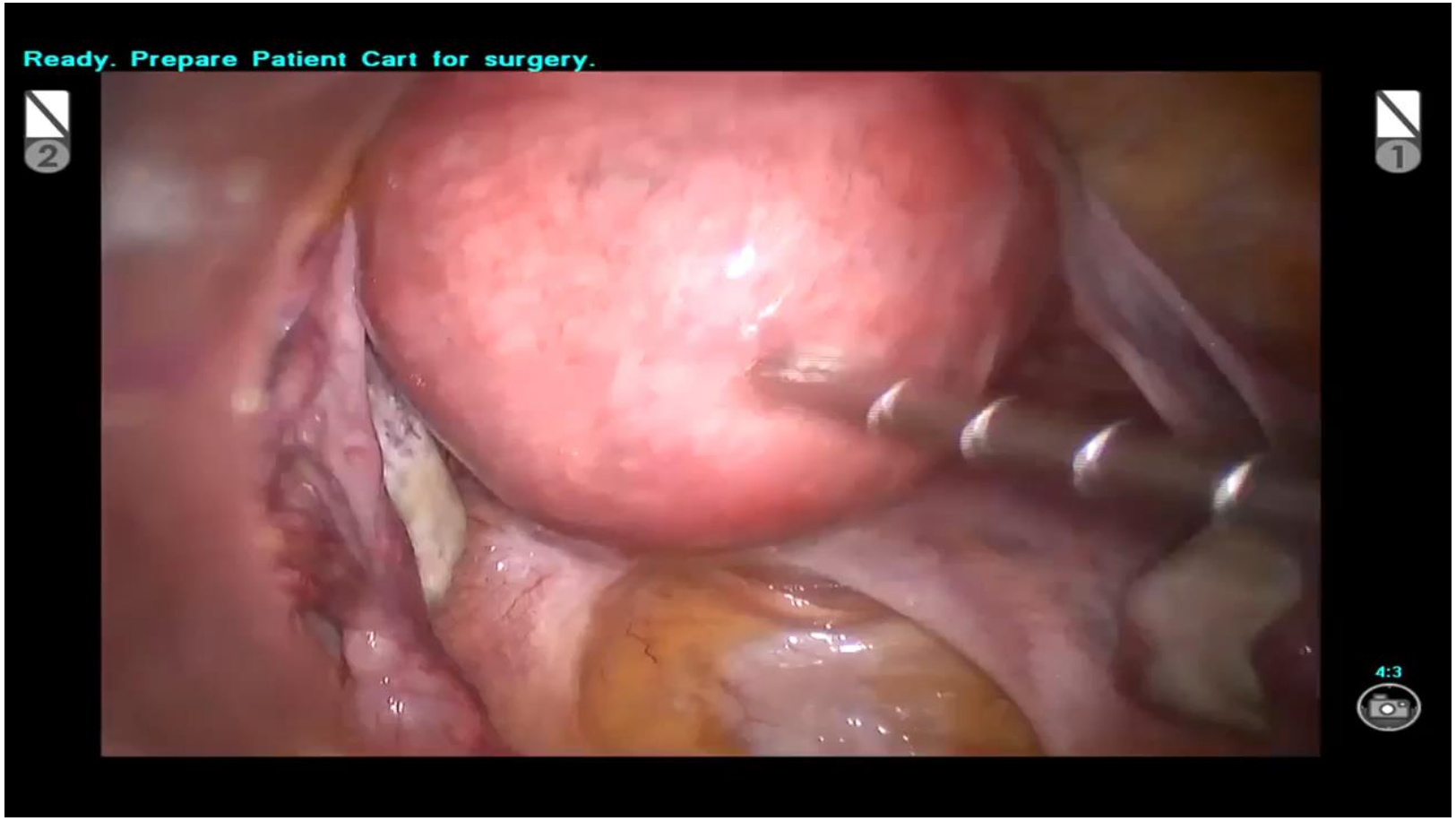

Case

- 40/F, 0-0-2-0, single
- Dysmenorrhea (VAS 10)
- CA 125 : 44.19





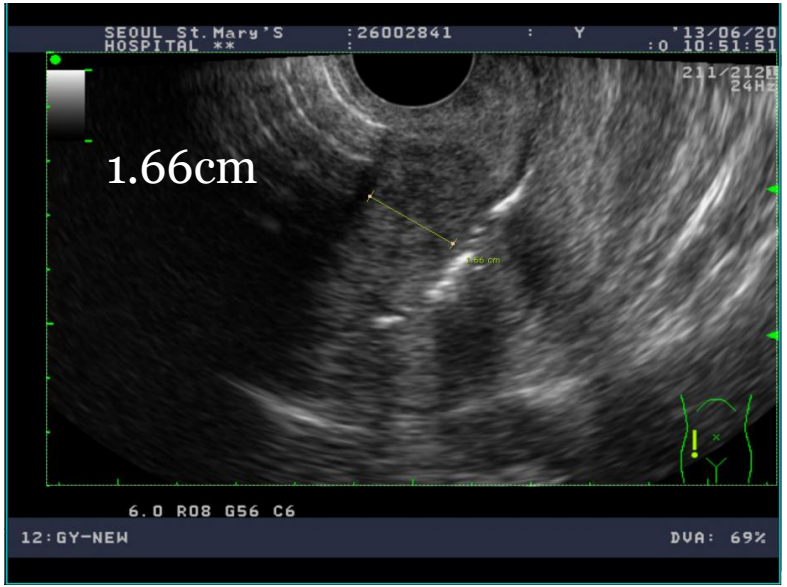
Operative procedures



Procedures to compensate the limitations of minimally invasive surgery

- Absence of tactile sensation

→ Real-time sonography during surgery to assess the remaining lesion



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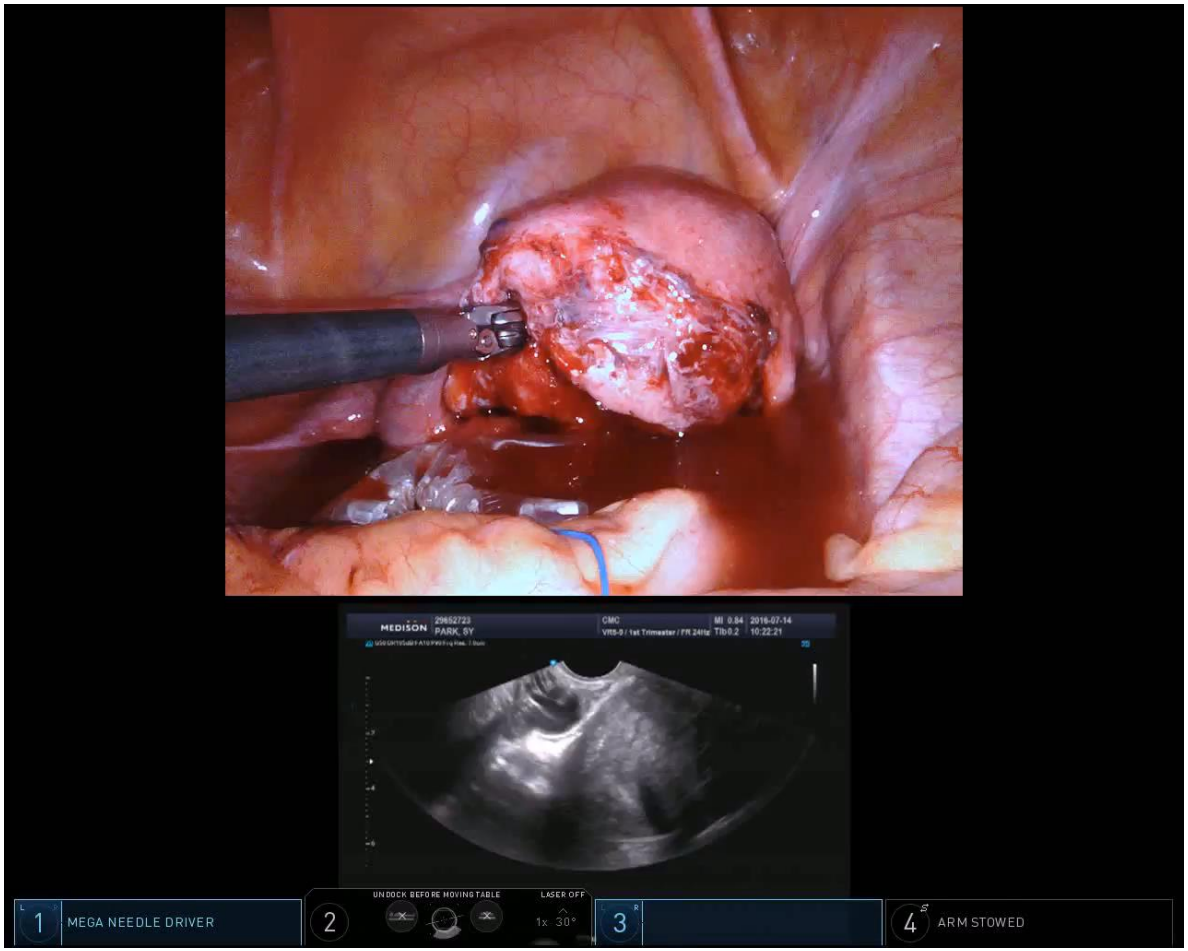
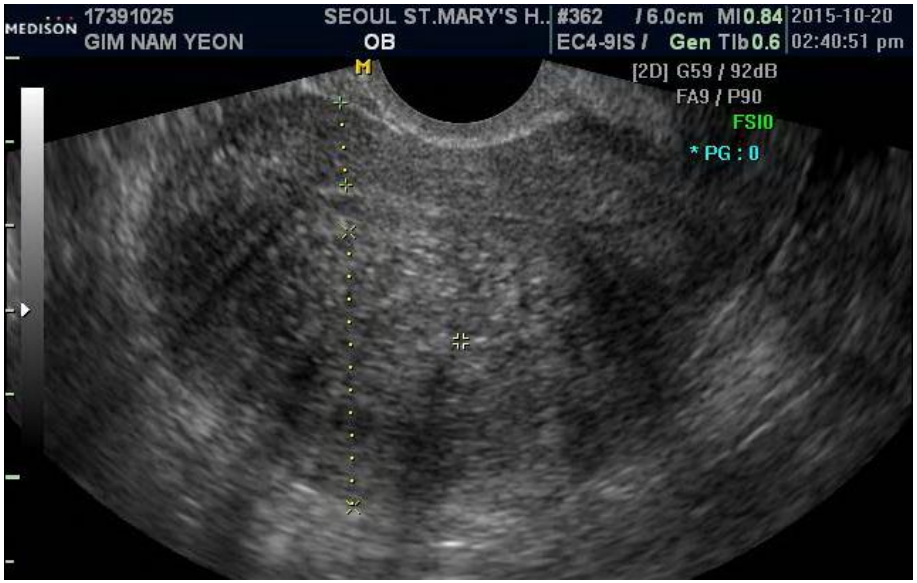


Follow-up Sonography

Pre-op



Post-op 2months

Robot-assisted laparoscopic adenomyomectomy

- could repair remaining myometrium by multi-layer & layer-by-layer manner
- could minimize thermal damage to normal remaining myometrium → maybe helpful for healing process
- could reduce bleeding
- could reduce post-op adhesion formation

Robot-assisted vs. Open surgery

	Robot (n=7)	Open (n=11)	*P*-value
Age(yr)	33.29±4.30	37.55±3.41	0.029
Married patient(%)	0	45.5	0.054
BMI(kg/m2)	25.86±6.01	21.09±2.4	0.033
Gravida	0	0.18(2/11)	0.245
Adenomyosis(cm)	4.51±0.94	5.83±2.16	0.297
CA-125(U/mL)	84.19±93.86	370.23±663.09	0.258
Op time(min)	328±126.89	253.18±37.02	0.277
EBL(mL)	250±249.6	690.91±776.47	0.035
Transfusion(%)	28.6 (2/7)	45.5 (5/11)	0.417
Hospital day	2.57±0.53	4.0±1.09	0.006

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Limitations

- Low percentage of married women

→ Limitations to evaluate pregnancy outcomes

- Lack of long-term follow-up results
- Higher cost

Conclusion

- Robot-assisted laparoscopic adenomyomectomy
  - Less blood loss than open surgery
  - Shorter hospital stay than open surgery
  - Comparable operation time to open surgery

: a feasible option of uterus-sparing surgery,

especially for focal adenomyosis patients

Thank you for your attention!