

# Transvaginal Natural Orifice Transluminal Endoscopic Surgery Myomectomy Followed by Hysterectomy

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## Abstract

Transvaginal surgery is the most minimally invasive surgery for a gynecologic procedure. A 67-year-old woman who had four children with vaginal deliveries and one abortion, with no underlying disease and a body mass index of 22.4 kg/m<sup>2</sup>, came to the hospital due to menorrhagia. Her diagnosis was myoma uteri from an asymptomatic palpated mass at the lower abdomen. The ultrasonography showed a 9 cm × 5.9 cm myoma mass at the anterior wall of the uterus. After counseling, the transvaginal natural orifice transluminal endoscopic surgery (NOTES) operation was conducted on May 2018. The process was a transvaginal NOTES hysterectomy following a transvaginal NOTES-assisted myomectomy. The uterine weight was 376 g. In this case, the surgeons could not enter into the pelvic cavity completely because the myoma mass was attached to the bladder which led to the surgeons safely performing the transvaginal NOTES myomectomy before the hysterectomy.

**Keywords:** Natural orifice transluminal endoscopic surgery, transvaginal natural orifice transluminal endoscopic surgery hysterectomy, transvaginal natural orifice transluminal endoscopic surgery, transvaginal natural orifice transluminal endoscopic surgery-assisted myomectomy

## INTRODUCTION

Transvaginal natural orifice transluminal endoscopic surgery (NOTES) is a recent innovative procedure in gynecology. With the modern developments of transvaginal NOTES, operations for adnexal procedures and hysterectomies can be performed extensively.<sup>[1-6]</sup> The transvaginal NOTES has provided the possibility for scarless surgery and shorter hospital stays when compared with the single-port laparoscopic-assisted vaginal hysterectomy (LAVH) or the LAVH.<sup>[3,5]</sup> Transvaginal NOTES has been reported to result in lower uterine size in hysterectomies when compared with LAVH.<sup>[5]</sup> Transvaginal NOTES can be performed for selected patients for the anterior and posterior colpotomy to enter into the pelvic cavity.<sup>[6-7]</sup>

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## CASE REPORT

A 67-year-old woman who had four children with vaginal deliveries and one abortion, with no underlying disease and a body mass index of 22.4 kg/m<sup>2</sup>, came to the hospital because of menorrhagia. Her diagnosis was myoma uteri from an asymptomatic palpated mass at the lower abdomen. The ultrasonography showed a 9 cm × 5.9 cm myoma mass at the anterior wall of the uterus [Figure 1]. After counseling, the transvaginal NOTES operation was performed on May 2018. The authors certify that the patient has provided the appropriate patient consent form. In preparation for the operation, the posterior and anterior colpotomy was created for entry into the pelvic cavity. The Alexis wound

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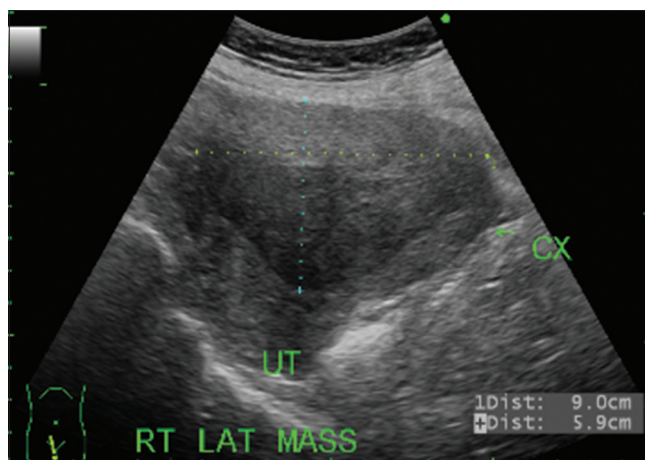
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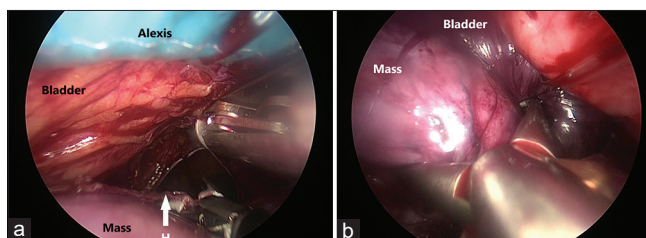
retractor with glove port was placed transvaginally, and one 10-mm and two 5-mm cannulas were placed in the fingers of the glove. The bladder wall was attached to the anterior wall of the uterus, which did not allow dissection to be completed [Figure 2a]. The decision was made to modify the operation with the myomectomy performed before the hysterectomy in order to avoid bladder injury. A tenaculum grasped the anterior myoma mass and then pulled it down through the vagina [Figure 2b], and the Alexis wound retractor with glove port was removed. The 9 cm × 5.9 cm myoma mass at the anterior wall of the uterus was safely morcellated through the vagina without complications [Figure 3]. The myoma mass was removed, followed by the transvaginal NOTES hysterectomy. The distinctly lateral space could allow an effortless placing of the Alexis wound retractor with glove port and the instruments into the pelvic cavity. The bilateral uterine arteries and ovarian ligaments were sealed and cut. The uterus was extracted through the vagina, followed by observation of all pedicles to ensure hemostasis. The wound retractor with glove port was removed, and the vagina was sutured with 1-0 polyglycolic acid afterward. The cystoscopy evaluation showed normal urine jet bilaterally without urinary complications. The operative time was 180 min with intraoperative blood loss of 50 ml, and the postoperative period was uneventful. The uterine weight was 376 g, and the histopathology was leiomyoma.

## DISCUSSION

The transvaginal NOTES for adnexal procedures and hysterectomy was first reported in 2012.<sup>[1,2]</sup> The uterine weight after hysterectomy was 115–1630 g, with most diagnoses being myoma uteri, in which the uterus was morcellated at the same time as the myoma mass.<sup>[2-6]</sup> The limitation of anterior colpotomy is in not identifying the ureterovesical junction which cannot be dissected, so the anterior colpotomy is not complete under laparoscopic guidance.<sup>[2]</sup> This case presented a 9 cm × 5.9 cm myoma mass at the anterior wall of the uterus with the mass attached to the bladder. The operation was a transvaginal NOTES hysterectomy following a transvaginal NOTES-assisted myomectomy. The uterine weight was 376 g. The transvaginal NOTES myomectomy is a novel approach technique.<sup>[8,9]</sup> This case is the first report of a transvaginal NOTES-assisted myomectomy, followed by a transvaginal NOTES hysterectomy. In this case, the anterior approach technique was used to identify the ureterovesical junction in order to dissect the intersection after the myomectomy procedure.<sup>[10,11]</sup> The bladder had an attachment with the myoma mass, so that the ureterovesical junction could not be dissected for complete anterior colpotomy. The unique technique is the transvaginal NOTES-assisted myomectomy through the vagina by a skilled expert surgeon, and the hysterectomy could



**Figure 1:** The transabdominal ultrasonography showed 9 cm × 5.9 cm myoma uteri. CX: Cervix, UT: Uterus



**Figure 2:** The laparoscopy showed incomplete anterior colpotomy, H-arrow (a). Tenaculum grasped at mass to pulled down through the vagina (b)



**Figure 3:** The myoma mass was morcellation through the vagina

be accomplished by transvaginal NOTES.<sup>[7,9]</sup> The case is an innovative operation for a transvaginal NOTES hysterectomy. If surgeons cannot completely enter into the pelvic cavity due to myoma mass being attached to the bladder, this case will provide guidance to safely performing a transvaginal NOTES myomectomy before a hysterectomy.

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### Ethical approval

This study was approved by the institutional review board of Chang Gung Medical Foundation (approval no. 202000553B0 obtained on March 31, 2020) and the IRB approved the waiver of the participants' consent.

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Nil

### Conflicts of interest

There are no conflicts of interest.

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