



## Hybrid transvaginal natural orifice transluminal endoscopic surgery of radical sigmoidectomy for sigmoid colon cancer

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### ARTICLE INFO

#### Keywords:

Transvaginal natural orifice transluminal endoscopic surgery  
Sigmoid colon cancer  
Radical sigmoidectomy

### ABSTRACT

**Background:** Transvaginal natural orifice transluminal endoscopic surgery (NOTES) is a surgical technique – “scarless” abdominal operations performed with a multi-channel endoscope passed through a natural orifice (mouth, urethra, anus, vagina etc.) and offers less invasive and more excellent cosmetic results [1]. It is regarded as safe and feasible in patients with benign disease [2,3]. The first case of pure NOTES for sigmoid colon cancer was reported in 2012 [4]. We describe here a case of curatively intended resection for early-stage sigmoid colon cancer using the hybrid transvaginal NOTES approach.

**Methods:** This video demonstrates the case of a 52-year-old woman with sigmoid colon cancer treated by hybrid transvaginal NOTES. Her body mass index was 20.4 kg/m<sup>2</sup>. A laparoscope was inserted above the umbilicus and tumor's position was located. Two 5 mm trocars inserted in the right lower abdominal quadrant were mainly used for the assistant's instruments to provide traction and exposure. A single-port was inserted into the abdominal cavity transvaginally through the colpotomy. Then all the procedures were performed transvaginally with conventional rigid laparoscopic instruments. The sigmoid colon was mobilized using a lateral to medial approach. Then the root of the inferior mesenteric artery and the inferior mesenteric vein were divided with absorbable clips. After complete isolation of the proximal rectum, the rectum was transected 5 cm distal to the lesion with a linear stapler inserted through the single port. The proximal resection margin of descending colon was identified and the transection of the colon was performed. The specimen was removed transvaginally. The colon was then exteriorized and the anvil was fixed in the colon. An end-to-end anastomosis was performed using a circular stapler, and a leak test was done.

**Results:** The operative time and estimated blood loss were 182 min and 50 mL. A 20 cm long segment of sigmoid colon was resected with negative tumor margins, and 16 lymph nodes were harvested. There was no intraoperative or postoperative morbidity. The patient was with out-of-bed activity on day 1, fluid diet on day 2, bowel movement on day 3, and the drainage tube and catheter removing on day 4. On day 5, she was discharged. Pathological examination revealed a moderately-differentiated adenocarcinoma: 50 × 45 × 10 mm, with growing into subserosa, without vascular or nervous invasion, pT3N0M0 and pStage IIA. There were two scars less than 5 mm and one scar less than 10 mm visible on the abdominal wall at one month. The patient was alive without recurrence after one year's follow-up.

**Conclusion:** Hybrid transvaginal NOTES of radical sigmoidectomy may be safe and feasible for selected patients with sigmoid colon cancer and give less pain, potentially low rates of complication, faster recovery, and better cosmesis. A future large study is warranted to better evaluate this procedure. Although there are many reasons for skepticism, there is undoubted interest in this field from both surgeon and patient.

### Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

### Conflicts of interest

The authors have no conflicts of interest to disclose.

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<https://doi.org/10.1016/j.suronc.2019.05.022>

Received 6 March 2019; Received in revised form 4 May 2019; Accepted 25 May 2019

0960-7404

### Author's contribution

TF performed the surgery and wrote the manuscript. All authors read and approved the final manuscript.

### Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.suronc.2019.05.022>.

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