

# Transanal Endoscopic Microsurgery by Using Single Incision Port: A Novel Approach

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## Abstract

Transanal endoscopic microsurgery (TEM) is a well-established surgical approach for certain benign or early malignant lesions of the rectum under specific indications. The skill required in performing the procedure and the prolonged learning curve period necessitate an experienced surgeon. Furthermore, the procedure is known as expensive for a health care system. We describe a novel hybrid technique of transanal surgery using a single incision laparoscopic port (SILS™ Port, Covidien, Norwalk, CT, USA), a reasonable method for polyp resection without the need of the sophisticated and expensive instrumentation of TEM which can be applied whenever endoscopic or conventional transanal surgical removal is not feasible.

**Categories:** Internal Medicine, General Surgery

**Keywords:** sils port, rectal lesions, single incision laparoscopic port, transanal endoscopic microsurgery

## Introduction

The presence of any polypoid lesion is an indication for a complete colonoscopy and polypectomy, if feasible. TEM is a minimally invasive technique for rectal lesions, and was introduced by Buess, et al. in 1984 [1-2]. TEM instrumentation is not readily available in every operating room, and the cost and the technical difficulties may discourage surgeons from application of TEM, even when this is indicated. TEM proctoscope insertion has also been blamed for rectal incontinence and rectal sphincter dysfunction [3]. We describe a promising approach for such polypoid lesion by using SILS™ port.

## Case Presentation

### Case 1

A 85-year-old male was admitted with complaints of increased frequency of stools and occasional mucous discharge of four months duration. There was no history of bleeding from the rectum. Colonoscopy showed a large polypoidal mass at mid-rectum; biopsy revealed villous adenoma without dysplasia. CECT abdomen showed 9cm x 8cm polypoidal mass in mid-rectum (Figure 1).

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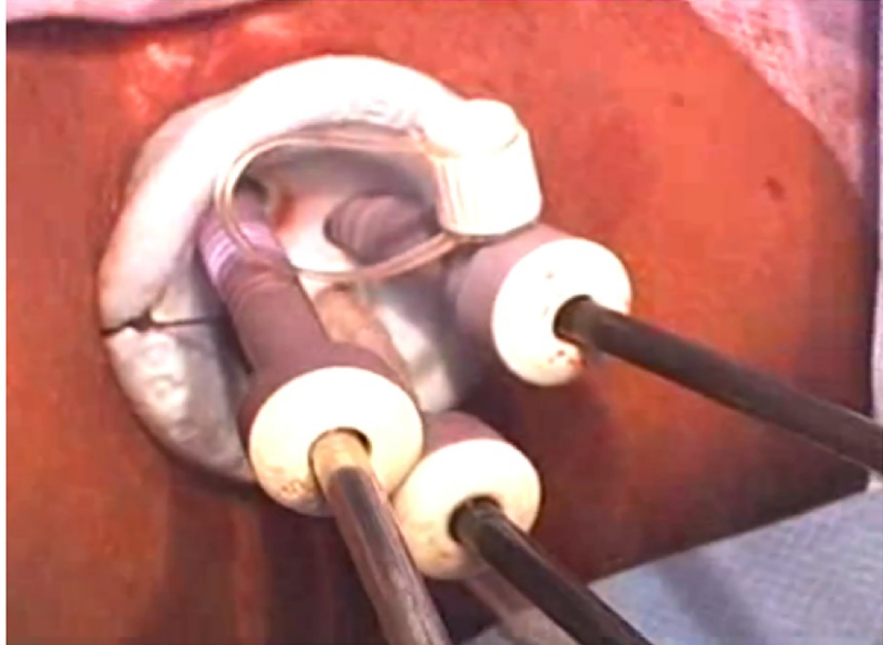


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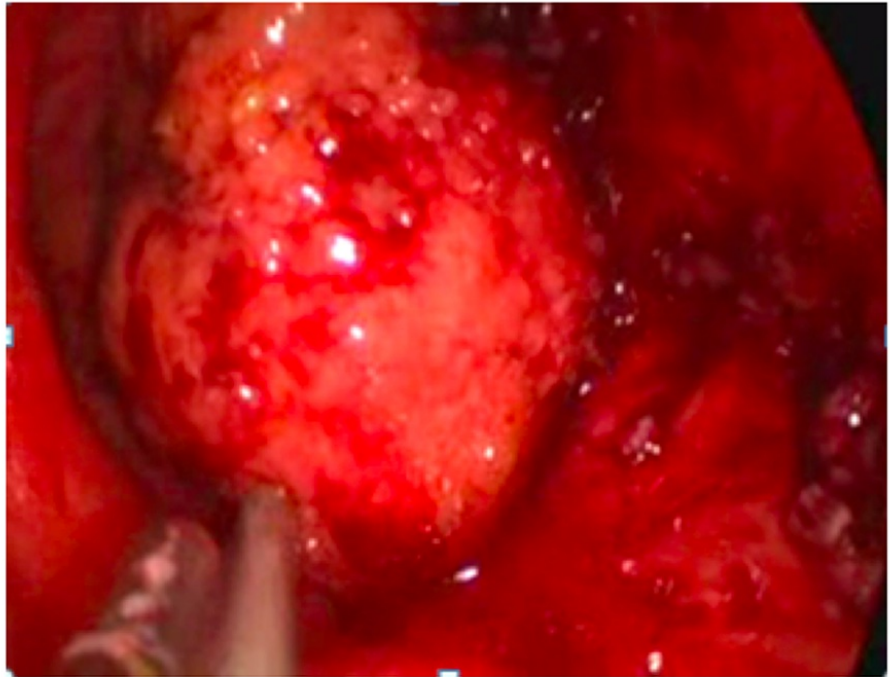
**FIGURE 1: CT scan of the abdomen showing polypoidal lesion in mid-rectum**

An unsuccessful trial of piecemeal excision was attempted by the endoscopist. Hence, transanal excision of rectal adenoma with SILS port was planned. Bowel preparation was done before surgery. Under general anaesthesia and lithotomy position, a SILS port was inserted through anus after anal dilation and fixed to perianal skin with silk sutures (Figure 2).



**FIGURE 2: External view of SILS port fixed to perianal skin with all instruments**

Pneumoinflation was done with a pressure of 12-14mmHg and a flow rate of 6l/min. A 30 degree telescope (5mm), a fan retractor, and a 5mm harmonic scalpel were used. The polypoidal tumour was retracted with a 5mm retractor to expose the pedicle. We excised the lesion circumferentially with a harmonic scalpel and extracted it out (Figure 3).

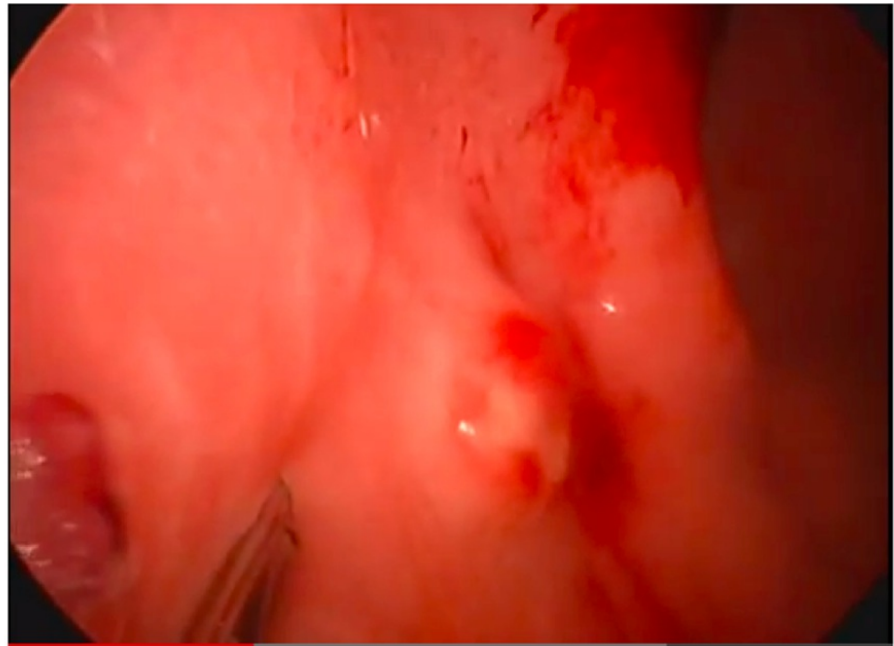


**FIGURE 3: Intraoperative view showing large polypoidal lesion in mid-rectum being dissected**

The mucosal defect was closed by an absorbable suture. The total operative time was 45 min. The patient had no complaints of bleeding and did not require any analgesic medicine during the postoperative period. He was discharged home with a liquid diet on the first postoperative day. Histopathology showed a tubulovillous adenoma without dysplasia. Clinical follow-up and surveillance rectosigmoidoscopy after six months revealed no recurrence.

## Case 2

A 52-year-old female patient was admitted with rectal bleeding with a five month history. She had an elevated blood pressure. Colonoscopy showed a 2cm x 2cm sessile polypoid lesion in the mid-rectum. Colonoscopic biopsy revealed a neuroendocrine tumour of the rectum. Other routine blood investigations were within normal limits. A transanal excision was done by using the described technique (Figure 4).



**FIGURE 4: Neuroendocrine tumour of mid-rectum**

The histopathology report confirmed the diagnosis of a neuroendocrine tumour with negative margins. The postoperative period was uneventful. She was asymptomatic after six months follow-up.

## Discussion

TEM is a dedicated procedure with respect to treatment results, less pain and shorter hospital stay, beneficial both for both patients and surgeons. However, TEM is expensive and cost can be two-thirds higher as the cost of the standard procedure. Another problem affecting the patient's life quality after TEM is a possible mild incontinence.

Endreseth, et al. [4] reported that 6% of patients in their study had soiling-moderate anal incontinence that persisted 12 months after the procedure. The SILS™ port harms the sphincter less because of a smaller diameter of the port ring (30 mm). The dissection of the rectal lesion via a rigid rectoscope in the TEM procedure requires specific instruments. Using the SILS port conventional laparoscopic instruments and articulating instruments may be used.

TEM is beneficial for the complete removal of rectal polyps with a single-step procedure. We believe that the SILS™ Port as a modified surgical technique is a safe and feasible procedure for removing polyps located in the middle and upper rectum. The technique could become an alternative method for rectal lesions, sharing the same indications with TEM but having a number of advantages, including cost effectiveness [5]. Laparoscopic instruments, along with a single incision technology, can be safely applied transanally for certain indications. Long-term outcomes, cost effectiveness and definite indications should be cautiously evaluated in the future.

## Conclusions

The SILS™ Port as a modified surgical technique is a safe and feasible procedure for removing polyps located in the middle and upper rectum.

## Additional Information

### Disclosures

**Human subjects:** All authors have confirmed that this study did not involve human participants or tissue.

**Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

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