

Single Port Assisted Trans-Anal Local Excision

Tek Port Yardımlı Trans-Anal Lokal Eksizyon

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ÖZET

Transanal endoskopik cerrahi, trans-anal eksizyon için genel olarak kullanılan tekniktir. Transanal endoskopik cerrahinin genel prensipleri tek port operasyonlara oldukça benzerdir. Tek port aleti, laparoskopik enstrümanların kullanılacağı trokarların yerleştirilmesi ve rektum lümeninde havanın trans-anal lokal eksizyon süresince ameliyat sahasında tutulması için gereklidir. Bu çalışmada, polipektomi sonrası bir bölümü rektumda kalan nöroendokrin tümörün manuel insuflatör implante edilmiş tek port yardımı ile trans-anal lokal eksizyonu tarif edilmiştir.

Anahtar Kelimeler: *Tek port, Trans-anal, Rektum, Lokal eksizyon*

ABSTRACT

Common technique which is used for trans-anal local excision is transanal endoscopic microsurgery. General concepts of transanal endoscopic surgery are also similar with single port operations. A single port device could provide the platform which is needed to insert trocars for placing laparoscopic instruments while keeping the air in the rectal lumen during transanal local excision procedure. Hereby we described a technique for single port assisted trans-anal local excision by applying a manual air insufflator for excising a rectal remnant of a neuroendocrine tumor which remained after a polypectomy procedure.

Key words: *Single port, Trans-anal, Rectum, Local excision*

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Introduction

Transanal endoscopic microsurgery (TEM) has been a treatment option for local excision of the rectal lesions such as polyps and early cancers. Considering the current popular trends of minimally invasive surgery, TEM is the first application of natural orifice transluminal endoscopic surgery (NOTES) in the field of colorectal surgery¹ many years before the first laparoscopic colorectal resection which was performed by Dr. Jacobs.² This technique has become a treatment option for the rectal lesions described above by presenting advantages of minimally invasive surgery such as less postoperative pain, a very short hospital stay and quick convalescence time with good anorectal functional outcomes.³ Additionally, general concepts of TEM are also similar with single port operations. From this standpoint, we adapted one of current single port devices in to trans-anal local excision technique and used laparoscopic equipment for excising a rectal remnant of a neuroendocrine tumor which remained after a polypectomy procedure.

Case and technical description

A forty-four years old man was admitted to the clinic complaining with constipation. During colonoscopy, a polyp (figure 1a) was noticed on the posterior surface of the rectum eight cm from the anal verge and excised with a rigid snare. A neuroendocrine tumor with positive excisional margin was diagnosed in histopathological evaluation (low Ki 67 expression).

The blood of gastrin was 1400 pg/ml. Octreotide scintigraphy was negative. Upper gastrointestinal system endoscopy, pancreas, thyroid ultrasonography and function tests was entirely normal. Multiple endocrine neoplasia was excluded according to these findings. A metastatic work-up was performed, including chest X-

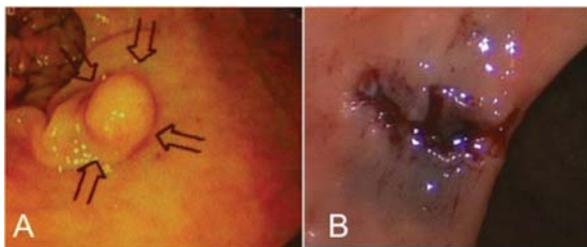


Figure 1. A) Appearance of the polyp before snare polypectomy; B) India ink dye of the remnant lesion.



Figure 2. The SILS TM port with a manual air insufflator placed in to the anal canal.

ray, computed tomography and magnetic resonance imaging. There was no distant organ metastasis. Diagnosis of the rectum located neuroendocrine carcinoma was verified and a decision was made to perform a trasanal local excision. A single port assisted transanal local excision was performed two weeks after polypectomy.

Single post assisted transanal local excision

The patient was fastened a night before surgery and trans-anal sodium biphosphate enema was administered two hour before surgery. The previous polypectomy side (Figure 1b) was marked with India ink just before surgery. Standard intravenous antibiotic prophylaxis and subcutaneous heparin was given preoperatively. The patient was placed Lloyd-Davies position and a urinary catheter was inserted, following the induction of general anesthesia. The SILS TM port (Covidien, Dublin, Ireland) was placed through the anal canal. The inflation was maintained with manual insufflator (Figure 2). Three 5 mm trocars were inserted in the SILS TM port. The 30-degree 5 mm rigid laparoscope was used.

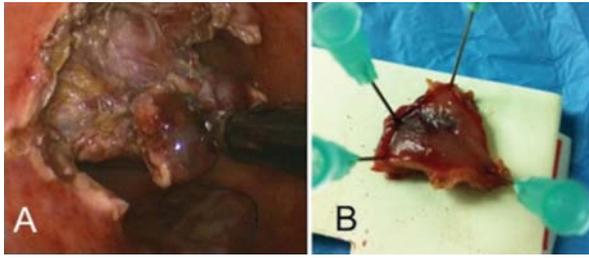


Figure 3. Appearance of the lesion during (A) and after (B) the procedure.

A full-thickness excision of the marked area of the rectal wall was performed with 1.5 mm clear margin (figure 3) with the 5 mm LigaSure™ (Covidien, Dublin, Ireland). After removing the specimen out of the rectum, a 5 mm trocar was changed with a 10 mm one and the defect on the rectal wall was sutured with the Endo Stitch™ (Covidien, Dublin, Ireland). Even in the limited space of the rectal lumen, the endo stitch worked well for closing the rectal wall defect. The SILS™ port was removed and patient was extubated. The patient was started to drink liquid 6 hours after surgery. Flatus and bowel movement started on postoperative day one and day two respectively. However, a scrotal crepitation was noticed and so the patient was observed two days after surgery. This finding disappeared and eventually the patient was discharged on postoperative day 3 without taking any analgesics postoperatively. There was no malignancy identified in the resected specimen which was excised with single port assisted transanal local excision. He is followed up with the oncology clinic as an outpatient without any other treatment.

Discussion

Neuroendocrine carcinomas that are rare tumors of the rectum has poor prognosis. Even for this kind of aggressive cancers local excision could be one of the treatment options if the tumor size is smaller than 1 cm with no evidence of vascular invasion and without involvement of the submucosa.⁴ In this case, a neuroendocrine tumor with a positive surgical margin was diagnosed after a polypectomy. We performed a SILS™ port assisted transanal local excision to the remnant lesion. No malignancy was found in the specimen which was resected with the SILS™ assisted trans-anal local excision technique. The patient has been put on the periodical surveillance without receiving any adjuvant

oncologic treatment.

Single port laparoscopic techniques have been adapted to nearly every type of conventional laparoscopic operations.⁵⁻⁷ Although many modifications or adaptations from other surgical techniques were developed, applications of single port operations are still limited. The efficacy and necessity of the single port techniques are under investigation currently. General concepts of single port surgery are similar with TEM operation. TEM procedure and its special device were first described by Dr. Buess.¹ A surgeon needs the TEM apparatus and all these special instruments of the TEM device for performing a transanal local excision. The original TEM device does not exist in every center. However, there are many different types of single port in the market and the instruments of conventional laparoscopy may also be used with these single ports. We successfully used a SILS Port™ for performing a trans-anal local excision. SILS Port™ provided the platform which is needed to insert trocars for placing laparoscopic instruments while keeping the air in the rectal lumen during transanal local excision procedure. Recently, new reports describing trans-anal excision techniques with single port have been published.⁸⁻¹⁰ In our country, Demirbas and coll. were the first performing single port assisted transanal rectal surgery.¹³ They also used a manual air pump for the balloon dissector which is used in laparoscopic hernia repair. The novelties of our case is application of single port transanal excision to treat a neuroendocrine carcinoma and using of a manual air insufflator rather than an automatic one. Although an automatic insufflator can be used during this procedure, application of manual air insufflator could make the necessary equipment for transanal local excision cheaper and easier to obtain than conventional laparoscopic and TEM instruments. One thing that should be kept in mind, a hand insufflator may fail to maintain the intraluminal air at a proper level for a long time. A CO₂-insufflator with low pressure and airflow may be more effective and comfortable during surgery.

Single port assisted trans-anal local excision could have the similar advantages comparing with TEM procedure such as less surgery related morbidity, better postoperative anorectal functions and convalescence than open or laparoscopic resections.^{3,13} Elder patients, patients having serious life treating with comorbidities and patients not

suitable candidates for a major rectal surgery and early rectal cancer patients who concerns about having a permanent stoma after surgery could benefit from single port assisted trans-anal local excision.⁸ Safety and feasibility of single port assisted trans-anal surgery also have been shown for rectal cancer.¹⁴

The optical system of the TEM apparatus could be advantageous than the laparoscopic scope. However, the soft structure of the single port devices could let easy manipulation of the instruments during surgery. Obtainment of any single port device and laparoscopic instruments could be easier than the TEM equipment.

Single ports that are designed specifically for trans-anal use have been marketed recently. However, it still needs to be modified to reach proximally located lesions. There is still no more data than various case series with low patient number about this new approach. All these comments should be evaluated with the comparative prospective studies with higher patient numbers. Trans-anal local excision for rectal lesions could be performed via single port safely with standard laparoscopic equipment. Application of a SILS Port™ with a manual air insufflator could help to generalize this procedure for proper patients.

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