Transanal Minimally Invasive Anal Canal Polyp Resection

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Abstract: Endoscopic mucosal resection (EMR) and endoscopic submucosal dissection (ESD) are operative endoscopies that have been performed since a long time. Recently, an evolution of laparoscopy called transanal minimally invasive surgery began to be popularized, and it can be adopted in the face of difficult cases for EMR/ESD. In this video, a 36-year-old woman was submitted to transanal minimally invasive surgery resection, after unsuccessful ESD, for a 2-cm polyp located anteriorly in the anal canal, just beyond the pectineal line. Preoperative workup showed a uT1m versus T1sm N0 M0 lesion. The procedure was performed with a new reusable transanal platform and a monou curved coagulating hook and grasping forceps. The operative time was 90 minutes. No perioperative complications were registered, and the patient was discharged on postoperative day 1. The pathologic report showed a villotubular adenoma with high-grade dysplasia and distant-free margins. After 1 year, the patient was going well, without any recurrent disease. Transanal minimally invasive surgery resection is a good alternative to conventional endoscopic therapies, allowing a meticulous dissection under the magnified operative field’s exposure, and a mucosal-submucosal flap closure under satisfactory surgeon’s ergonomics.

Key Words: transanal, endoscopy, laparoscopy, polyp resection

Endolumenal lesions located in the rectal ampulla and anal canal are currently diagnosed by colonoscopy through a biopsy, with or without complete polypectomy. After pathologic analysis, the staging is completed by endoscopic ultrasound and pelvic magnetic resonance. Operative endoscopy allows the polyp removal by endoscopic mucosal resection (EMR) or by endoscopic submucosal dissection (ESD). In 2015, the European Society of Gastrointestinal Endoscopy (ESGE) stated that the majority of colonic and rectal superficial lesions can be effectively removed in a curative way by standard polypectomy and/or by EMR (strong recommendation, moderate quality evidence). ESD can be considered for the removal of colonic and rectal lesions with high suspicion of limited submucosal invasion on the basis of the 2 main criteria of depressed morphology and irregular or nongranular surface pattern, particularly if the lesions are larger than 20 mm, or ESD can be considered for colorectal lesions that otherwise cannot be optimally and radically removed by snare-based techniques (strong recommendation, moderate quality evidence).1

Recently, an evolution of transanal laparoscopy called transanal minimally invasive surgery (TAMIS) has been introduced,2 and it can be adopted for the rectal ampulla and anal canal lesions, especially while facing difficult or complicated cases.

In this video (Supplemental Digital Content 1, http://links.lww.com/SLE/A170) the authors report a 36-year-old woman submitted to TAMIS resection, after unsuccessful ESD, for a 2-cm polyp located anteriorly in the anal canal, just beyond the pectineal line. Preoperative workup showed a uT1m versus T1sm N0 M0 lesion.

VIDEO CASE

The patient, under general anesthesia, was placed in the prone position with a split legs kneeling position. A Lone Starr retractor (CooperSurgical Inc., Trumbull, CT) was placed in the perineal region, and a reusable transanal platform according to DAPRI named D-Port (Karl Storz-Endoscope, Tuttlingen, Germany) (Fig. 1) with monou curved...
reusable instruments (Karl Storz-Endoscope) (Figs. 2A–D) was positioned. The D-Port was introduced into the anal canal and moved through in by the surgeon’s assistant hand.

The procedure started with the exploration of the anal canal and rectal ampulla. The polyp appeared to be located in the anal canal, just beyond the pectineal line, from the 4 to 7 o’clock position. The mucosal layer was first scored around the lesion, using the monocurved coagulating hook. Thereafter, the mucosal and submucosal layers were incised, and the polyp dissection was performed staying close to the muscular layer (Fig. 3A). Both the monocurved coagulating hook and the monocurved grasping forceps were used (Fig. 3B). The dissection was performed from bottom-to-top, going as well on the lateral right and left sides. Finally, the mucosal-submucosal flap was closed by 2 absorbable running sutures (Fig. 4A) using the monocurved needle holder and the monocurved grasping forceps (Fig. 4B). The first suture was started in the middle of the flap, and it was oriented to the lateral right side. The second suture was started from the lateral left side to join the previous suture in the middle of the flap.

RESULTS

The operative time was 90 minutes, and the perioperative bleeding 20 mL. No perioperative complications were registered. The patient was discharged on postoperative day 1. The pathologic report showed a 2×1.3×0.5 cm villoglandular adenoma with high-grade dysplasia and distant-free margins. After 1 year, the patient was going well, without any recurrent disease.

DISCUSSION

Endolumenal rectal resection is feasible and reproducible by operative endoscopies, such as EMR and ESD. TAMIS has been introduced in the medical community quite recently and, par consequence, the common habitude, while treating patients presenting endolumenal rectal lesions, is to address the potential removal to the operative endoscopies instead of to TAMIS.

The main differences between operative endoscopies and TAMIS are that with endoscopy a submucosal fluid injection is usually realized before the dissection. Thereafter, the distance...
between the endoscopic lens and the instrument’s tip is \( \leq 1 \) or 2 cm, with consequent frequent lavages of the endolumenal mucosal-submucosal flap is usually left open, especially in the case of large polyp resection, rarely closed by endoscopic clips and unfrequently closed by endoscopic suture.\(^5\) Finally, the learning curve to achieve an operative endoscopy remains quite high, because of various difficulties reported such as perforation and bleeding.\(^5\)–\(^8\)

In contrast, TAMIS is performed by surgeons who have gained experience in single-port laparoscopy and colorectal surgery.\(^9\) The dissection is performed staying with the laparoscope at a distance from the rectal lesion, which is usually 5 to 6 cm. This distance allows, at the same time, the evacuation of the smoke created during the dissection by the coagulating hook. Moreover, the operative field’s view during TAMIS is much more increased than during the operative endoscopies, because a pneumoinsufflation is used. Hence, the dissection and the final suture are performed under a magnified operative space. The mucosal-submucosal flap is closed by endolumenal running sutures during TAMIS, thanks to the learning curve achieved by conventional laparoscopy, and also to the use of rigid instruments with this technique. At the end, TAMIS requires a low learning curve, if the surgeons have already gained experience in laparoscopy and appropriate orientation in transanal laparoscopy.

Our operative time was in the time range reported by the operative endoscopies\(^10\)–\(^12\) but, with these latest techniques, an overlapping time of up to 6 hours can be achieved, because of the technical difficulties such as intraoperative perforation and bleeding.

As our lesion was located close to the pectineal line and our patient’s physical examination permitted us to check the daily surgical area presentation, the patient was discharged on the first postoperative day, as reported after ESD/EMR.\(^11\) For lesions located in the upper rectum, we follow a protocol of discharging the patients later than 2 to 3 days, after we have maintained good suture healing at the proctoscopic control. In the first week, a daily phone call to the patient was adopted, and no early complications were registered besides a referred regular intestinal transit. Thereafter, the patient was followed-up at 10 days, and at 1, 3, 6, and 12 months. At the last office visit, she was doing well.

Technically different from most of the TAMIS platforms, the transanal platform adopted in the case reported was reusable; hence there was no added cost. Moreover, the use of the monocurved instruments allowed the surgeon to work under satisfied ergonomy, without conflict between the surgeon’s hands and the camera assistant hand, respecting the main general rule of laparoscopy, which is the optical system acting as the bisector of the 2 operating instruments.

CONCLUSIONS
TAMIS anal canal polyp resection is a good alternative to conventional endoscopic therapies, allowing a meticulous dissection under the magnified operative field’s exposure, and a mucosal-submucosal flap closure under satisfactory surgeon’s ergonomics.

REFERENCES