Transperineal extralevator abdominoperineal excision performed by double laparoscopic approach with no position change

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Introduction

Conventional abdominoperineal excision (APE) for low rectal cancer is associated with higher rates of circumferential resection margin (CRM) involvement (1), intraoperative tumour perforation (IOP) and local recurrence and leads to poorer survival when compared with anterior resection. In response to these concerns, Holm et al. (2) emphasized the importance of full removal of the pelvic floor. Extralevator abdominoperineal excision (ELAPE) or cylindrical APE aims to improve the oncological outcome through removal of increased tissue in the distal rectum and en bloc excision of the levator ani. This creates a cylindrical surgical specimen without a waist and is associated in early reports with reduced CRM involvement, IOP and local recurrence compared with conventional APE.

The technique of ELAPE has been described with the patient in the prone jackknife position and a myocutaneous flap is used to repair the plevic defect. The operation has the disadvantages of a long operation time, greater trauma, and requiring the assistance of a plastic surgeon. Laparoscopic colorectal resection is now widely established and its benefits and safety have been extensively reported (3). To simplify the operation, we have been performing ELAPE with transperineal ELAPE performed by double laparoscopic approach without a change of the position of the patient.

Patient selection and pre-operative preparation

Patients with tumours located within 5 cm of the anal verge were treated with ELAPE procedures. This decision was confirmed at a multidisciplinary team meeting after...
the surgeon had reviewed the patient, confirmed tumour location with MRI and discussed surgical options with the patient (ultra-low AR vs. ELAPE in those patients with a tumour at approximately 5 cm).

The patients had preoperative bowel preparation the day before surgery. Prophylactic antibiotics were administered before the incision.

Procedure (Figure 1)

A standardized surgical procedure was performed by two experienced rectal cancer surgeons, working simultaneously throughout the whole procedure (Figure 2).

Abdominal approach

The patients were placed in the Trendelenburg and right lateral tilt position.

Port distribution was as follows: a 10-mm umbilical port together with a 30-degree teleangle scope inside (2D EndoEYE 10 mm video laparoscope, Olympus KeyMed), a 10-mm port at the planned right iliac fossa, two 5-mm ports inserted in each flank, and the last 10-mm port at the planned left sided colostomy site (Covidien, Mansfield, MA, USA). A high tie of the inferior mesenteric vessels (Lapro-Clip, Covidien, Mansfield, MA, USA) and a complete mobilization of descending-sigmoid colon were performed. ELAPE was performed according to the description by Holm et al. (2) with the abdominal portion involving laparoscopic mobilization of the mesorectum as far down as the origin of the levator ani muscles. This level...
was defined laparoscopically by the neurovascular bundle laterally, the upper part of the vagina/seminal vesicles anteriorly and the coccyx posteriorly. The bowel was divided proximally, and a stoma was formed after closure of all trocar sites.

**Trans-perineal approach**

Perineal dissection consisted of dissection of the anus outside the external anal sphincter with preservation of the perianal skin and ischiorectal fat (*Figures 4, 5*). Used a 3-port technique made by glove, the pelvic cavity was inflated with CO₂ to a pressure of 7–8 mmHg (*Figure 6*). Dissection continued around the sphincter complex and followed the inferior surface of the levators to a point laterally where they originate from the pelvic sidewall (*Figures 7, 8*), connected each other on the left side to the level where the abdominal dissection was terminated (*Figure 9*). Then amputated the puborectalis and remove the specimen by the guide of abdominal team (*Figure 10*).

An abdominal drain was sited in pelvic and directly closed the perineal wound in layers.

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**Figure 3** High tie of the inferior mesenteric vessels.

**Figure 4** Incision line on the skin of patient undergoing abdominosacral amputation of the rectum.

**Figure 5** Wound protector open ischiorectal fat.

**Figure 6** Use a 3-port technique made by glove.

**Figure 7** The vision of “down to up”.

**Figure 8** Dissection around the sphincter complex and followed the surface of the levators.
Post-operative management

All patients had CRMs >1 mm; no IOP occurred. The median length of stay was 8 days. After surgery, the planned follow up for the patient was every 3 months for the first 2 years and then every 6 months for the following 3 years.

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None.

Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

Ethical Statement: The study is approved by the institutional ethical committee of China-Japan Union Hospital of Jilin University and obtained the informed consent from every patient.

References


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