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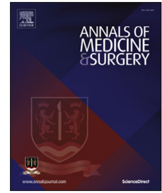

Extralevator abdominoperineal excision (Elape): A retrospective cohort study

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HIGHLIGHTS

- Extralevator abdominoperineal excision (ELAPE) is a relatively new surgical technique for low rectal cancers. It is a more radical approach than conventional abdominoperineal excision (APE) with potentially better oncological outcome.
- Technical difficulty associated with operating deep in the pelvis through abdominal approach during conventional APE is overcome by extended perineal dissection in the prone Jack-knife position in ELAPE, therefore removing the anal canal, levators and low mesorectum altogether.
- One advantage is en block removal of levator muscles creating more cylindrical specimen with better clearance thus reducing CRM involvement. The prone position gives the surgeon better visualization, hence reducing the chances of entering the wrong surgical plane and causing perforation.
- Early reports suggest that ELAPE can improve patients' prognosis without a significant increase in morbidity with superior oncologic outcome as compared to standard techniques.

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ABSTRACT

Introduction: Extralevator abdominoperineal excision (ELAPE) is relatively new surgical technique for low rectal cancers. It is a more radical approach than conventional abdominoperineal excision (APE) with potentially better oncological outcome. The aim of this study was to analyse short term results of ELAPE compared with conventional abdominoperineal excision.
Methods: Data were collected prospectively for 72 patients who underwent abdominoperineal excision (APE) for low rectal carcinomas from 2010 to 2014. Of these 24 patients underwent ELAPE with biological prosthetic mesh used to close the perineal defect.
Results: The median age of patients was 68 (37–87). Positive circumferential resection margin (1/24 vs. 8/48) and Intra operative perorations (0/24 vs. 6/48) compared favourably with ELAPE.
Conclusions: Short term results from this study support that ELAPE has better oncological outcome.
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1. Introduction

Extralevator abdominoperineal excision (ELAPE) is a relatively new surgical technique for low rectal cancers. Different studies have shown improved short term oncological outcomes compared to conventional abdominoperineal excision (APE) [1]. For low rectal cancers anterior resection (AR) is the preferred procedure. However, where sphincter preservation is not possible, abdominoperineal excision is performed. Overall prognosis of patients with APE is poor compared to those with anterior resection and local recurrence rates are also higher [2–4]. Positive circumferential resection margin and intraoperative perforation of tumour during APE are well known poor prognostic factors [5–7]. Total mesorectal excision (TME), chemo radiation and recently more radical surgical techniques like Extralevator abdominoperineal excision (ELAPE) have been introduced to address these issues and to improve oncological outcome in low rectal cancers [4]. ELAPE involves total mesorectal excision up to coccyx and pelvic peritoneal dissection anterior to Denonvillier's fascia (Figs. 1–4). The abdomen is closed after leaving a posterior presacral swab and a pelvic tube drain. Then in prone jack knife position gluteus

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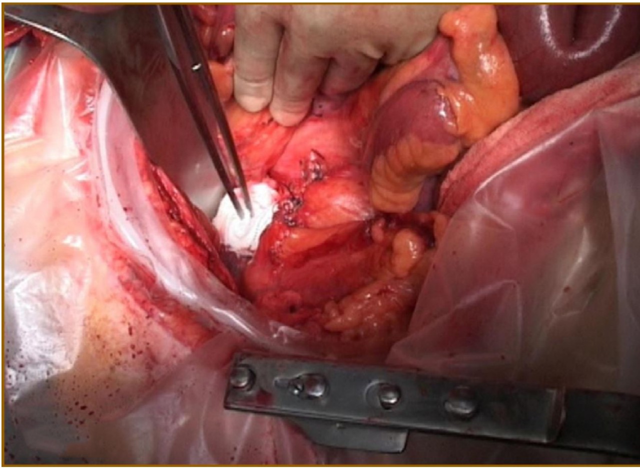

Fig. 1. Abdominal dissection: TME to coccyx and pelvic peritoneal dissection anterior to Denonvillier's fascia.

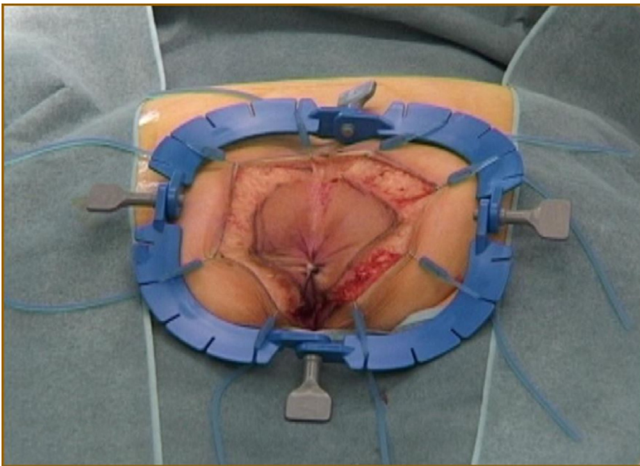

Fig. 2. Tear drop incision.

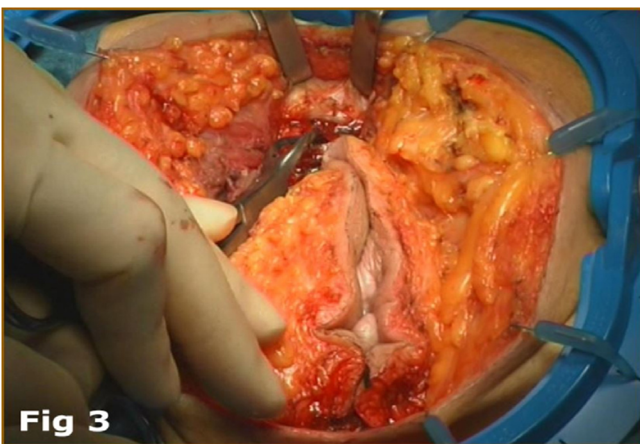

Fig. 3. Dissection of ischeoanal fossa: Division of gluteus maximus and levators laterally and excision of coccyx.

maximus and levators are divided laterally. Endopelvic fascia is divided and pelvic dissection is continued anterior to Denonvillier's fascia delivering a cylindrical specimen. The pelvic floor is then reconstructed with biological mesh.

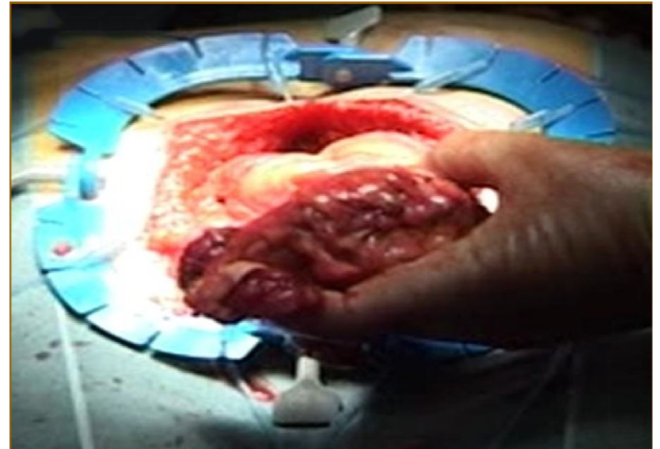

Fig. 4. Delivery of rectum, cylindrical specimen.

The aim of this study was to analyse short-term results of ELAPE compared with conventional abdominoperineal excision in a district general hospital.

2. Methods

Hairmyres Hospital NHS Lanarkshire is a district General Hospital with a colorectal unit comprising four consultants. ELAPE technique has been practiced by two surgeons since 2010. Data was collected prospectively from all patients who underwent curative resection of low rectal carcinomas, whether APE or ELAPE, between 2010 and 2014. This gave a study population of 72 patients. Out of these 72 patients, 24 underwent ELAPE with biological prosthetic mesh used to close the perineal defect.

Indications for ELAPE were the same as for APE including tumour with direct invasion of the anal sphincter and distal rectal lesions in which it was impossible to achieve a safe distal margin with a sphincter sparing technique. Within the unit there was a gradual paradigm shift toward adopting ELAPE during the period of the study, while both procedures were being performed without any distinct selection strategy. All participants in the study gave their fully informed written consent.

Patients were followed-up for an average of 12 months post operatively. Variables recorded from patient notes are outlined in Table 1. In addition factors including: positive circumferential resection margin (positive CRM) in pathology reports, documented intra-operative perforations in operation notes, perineal wound dehiscence and evidence of local reoccurrence proven by CT and/or biopsies taken at endoscopy were also recorded (Table 2). No patients involved in the study were lost to follow-up. Operating surgeons were not involved in data collection or analysis and data collected was blinded to the surgeon performing each operation. Odds ratio, confidence interval and associated p values were calculated using MedCalc software and results reported in line with the STROBE criteria [8].

3. Results

Patient characteristics including: age, ASA status and tumour stage were comparable between the two groups (Table 1). Positive circumferential resection margin (1/24 vs. 8/48) compared favourably with ELAPE (95% CI 0.081–1.22, P value: 0.094). Intra operative perforations were also much lower in ELAPE group (0/8 vs. 6/48), with P value 0.054, although 95% confidence interval

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