

# Open resection for colorectal cancer

Sharad Karandikar

Sian Abbott

## Abstract

Open colorectal resection remains the most common form of treatment for colorectal cancer despite the merits of laparoscopic surgery. This article aims to describe the principles involved in elective open colorectal cancer surgery, including patient preparation, operative steps for right hemicolectomy, anterior resection and abdominoperineal resection, anastomotic techniques and common complications and their management.

**Keywords** Abdominoperineal resection of the rectum (APER); anterior resection (AR); colorectal cancer (CRC); extra levator abdominoperineal excision (ELAPE); right hemicolectomy (RH); total mesorectal excision (TME)

## Introduction

Colorectal cancer (CRC) is the third most common cancer in the UK. The National Bowel Cancer Audit reported 29,026 new cases of colorectal cancer for England and Wales between 1st August 2010 and 31st July 2011. Sixty per cent of these had a major resection, 57.7% of which were performed as open surgery.<sup>1</sup> Newman et al. reported that, despite a special interest in laparoscopic colorectal surgery, of the two colorectal units in the study, fewer than half (96/205; 47%) of the patients in the consecutive unselected series who were undergoing major colorectal resection had the procedure completed laparoscopically.<sup>2</sup>

## Patient selection

Since October 2010, all colorectal multidisciplinary teams have had to offer suitable patients the choice of an open or laparoscopic CRC resection. The NICE guidelines recommend that the decision regarding an open or laparoscopic procedure should be made after informed discussion between the patient and the surgeon, with particular consideration of the suitability of the lesion for laparoscopic resection, the risks and benefits of the two procedures, and the experience of the surgeon in both procedures.<sup>3</sup> While the benefits of minimally invasive surgery are well known, some patients may not be suitable. Indications for considering an open resection include patient, surgeon and team factors.

- **Patient factors:** multiple previous abdominal operations, large abdominal wall hernia, known multiple adhesions, T4

**Sharad Karandikar** *MS FRCS(Ed) FRCS(Gen) FRCRSI(Hon)* is a Consultant General and Colorectal Surgeon at the Heart of England Foundation Trust, Birmingham, UK. Conflicts of interest: none declared.

**Sian Abbott** *MD FRCS* is a Specialist Registrar in General and Colorectal Surgery at the Heart of England Foundation Trust, Birmingham, UK. Conflicts of interest: none declared.

tumours that may require en-bloc resection of other organs (i.e. uterus or pelvic exenteration), those with recurrent colonic or rectal cancer, high BMI and increasingly visceral fat area, pregnancy, co-morbid conditions that will not tolerate prolonged pneumoperitoneum or steep head down position and patients that are converted from a laparoscopic procedure. The evidence for laparoscopic surgery in rectal cancer is improving however in practice low rectal tumours in a male pelvis are often considered for open procedure. In some specialist centres, laparoscopic approach is offered in emergency presentations of colorectal cancers but open surgery remains the default position for most general surgical units around the world.

- **Team factors:** training and experience of the surgeon, anaesthetist and theatre team.
- **Surgeon factors:** individual's training and experience.

Open surgery is the default setting for laparoscopic procedures with published conversion rates of around 10%.

This article will focus on elective open curative procedures.

## Preoperative assessment and management

All elective patients considered for CRC resection go through a process of preoperative assessment. Pre-existing conditions are optimized, and baseline investigations obtained. The treatment options are discussed, including the pros and cons of individual procedures and common complications associated with major colorectal operations (Table 1). There is increasing evidence to support the use of scoring systems such as p-possu, that take patient comorbidities, age and baseline blood tests into account, to help predict surgical outcome. The likelihood of postoperative morbidity and mortality can be predicted and used for preoperative counselling of patients, as part of informed consent.<sup>4</sup>

*Informed consent* is obtained prior to the day of surgery allowing time for questions and discussions. Counselling with a specialist stoma therapy nurse should occur if there is a possibility of the patient requiring a stoma, and the site is marked.

Most procedures are now carried out within an *enhanced recovery program (ERP)*.

There is no evidence that mechanical bowel preparation is required routinely for other colorectal resections, and evidence that it is poorly tolerated and commonly causes side effects including abdominal pain, electrolyte disturbance and dehydration.<sup>5</sup> However, *bowel preparation* is often used for rectal surgery.

*Prophylactic measures to prevent deep vein thrombosis (DVT)* are mandatory. Without prophylaxis the incidence of postoperative DVT and pulmonary embolus (PE) is thought to be 40% and 5%, respectively, amongst CRC patients. Measures include calf compression stockings, intermittent pneumatic calf compression devices and low molecular weight heparin (LMWH) subcutaneous injections.<sup>6</sup>

*Intravenous prophylactic antibiotics* are given at induction of anaesthesia to reduce postoperative surgical site infections (SSI). Elective CRC operations are classified as clean-contaminated procedures, associated with wound infection rates of <10%.

*Postoperative pain relief* is an important factor in ERP and preventing complications. A long midline laparotomy wound is painful and can inhibit movement and adequate chest expansion predisposing to atelectasis and chest infections. Epidurals and

**Prevention and management of complications associated with colorectal surgery**

Complication	Prevention	Management
Wound infection	Prophylactic antibiotics at induction, minimal intraoperative contamination, maintain intraoperative normothermia	Antibiotics, removal of sutures and drainage of collections
Wound dehiscence	Stop smoking, pre-optimize nutrition, avoid infection, good suture technique, haemostasis	Fluid resuscitation and return to theatre – resuture or open laparostomy
Chest infection	Preoperative optimization, Good post-operative analgesia, chest physiotherapy, early mobilization	Antibiotics, chest physiotherapy
DVT/PE	TED stockings, intraoperative calf compression device, early mobilization, extended dose LMWH	Anticoagulation
Urinary tract infection	Strict aseptic urinary catheter insertion, Early removal of urinary catheter	MSSU, empirical antibiotics until sensitivities available
Secondary haemorrhage	Meticulous intraoperative haemostasis	Treat coagulopathy, re-operation and wash out

DVT, deep vein thrombosis; LMWH, low molecular weight heparin; MSSU, midstream urine sample; PE, pulmonary embolism.

**Table 1**

patient-controlled anaesthesia (PCA) are frequently utilized to manage pain and promote early mobilization. However, they are not without problems and complications. Epidural anaesthesia causes sympathetic blockade that can lead to hypotension requiring intravenous fluid boluses and reduced mobility. They have a failure rate of 20–40% and require specialized nursing care. Intrathecal analgesia using a single injection of an opiate can last up to 24 hours and is associated with improved mobility and less intensive monitoring.<sup>7</sup> PCA morphine has been shown to be superior to intramuscular (IM) opiates but are associated with post-operative nausea and vomiting (PONV), sedation and constipation, all factors that are associated with prolonged hospital stays. Transversus abdominus plane (TAP) blocks have been shown to give effective analgesia following midline laparotomy, reducing morphine requirements, PONV and sedation scores.<sup>8</sup>

**Patient position**

**Supine:** the patient lies flat on their back, arms by their side.

**Lloyd-Davies (modified lithotomy):** the hips and knees are flexed at 45° and the hips abducted enough to allow access to the perineum. The calves and feet should lie above or level with the knees to allow venous drainage (Figure 1).

**Prone jack-knife (Kraske position):** the patient lies prone on their abdomen and the table scissored in the middle so that the patient’s hips are raised and feet and head lowered (Figure 2).

**Complications of patient positioning**

**Nerve damage:** extreme flexion of the hip joints can cause neural damage by stretch (sciatic and obturator nerves) or by direct pressure (compression of the femoral nerve as it passes under the inguinal ligament). Distally, the common peroneal nerve and saphenous nerve are particularly at risk of compression injury as they wind round the neck of the fibula and medial tibial condyle,

respectively. In the prone jack-knife position the brachial plexus, ulnar nerve at the cubital tunnel, and axillary neurovascular bundle are at risk.

**DVT and compartment syndrome:** in the lithotomy position, calf compression is almost inevitable and this predisposes to venous thromboembolism and compartment syndrome. The most consistent factor in the development of compartment syndromes is the duration of the procedure. Patients requiring the lithotomy position for a period of >4 hours may be considered for continuous invasive compartment pressure measurement.

**Pressure sore:** abnormal amounts of pressure on relatively small areas can predispose to tissue ischaemia, breakdown and a pressure sore. Dissipation of pressure with careful positioning, padding and early mobilization can help reduce this.



**Figure 1** The Lloyd-Davies position. The amount of hip flexion can be adjusted to allow access to the perineum. Copyright of the Heart of England Foundation Trust. Reproduced with kind permission.

Download English Version:

<https://daneshyari.com/en/article/3838491>

Download Persian Version:

<https://daneshyari.com/article/3838491>

[Daneshyari.com](https://daneshyari.com)