

Laparoscopic surgery for the treatment of colorectal cancer (Review of Technology Appraisal Guidance No. 17)

A Personal Statement on the Technology.

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The three main concerns regarding laparoscopic colorectal resection for cancer were inadequate resection of the tumour, port site recurrence and cost. Studies from around the world have shown that the risk of port site recurrence is no greater than wound recurrence in open surgery and that it is possible to achieve as radical a resection with laparoscopic surgery as with open. Laparoscopic colorectal resection is more expensive in terms of theatre costs but these costs are likely to decrease as the technology is used more widely and may well be offset by reduced postoperative costs and earlier discharge from hospital.

From a personal perspective I have maintained an active interest in laparoscopic surgery since the introduction of laparoscopic cholecystectomy to the UK in 1990. Before starting laparoscopic colorectal resection I gained wide experience in a number of laparoscopic procedures. Early demonstrations of laparoscopic colorectal resection were not compelling with poor tissue handling and inadequate resection of disease. These early demonstrations are probably the main reason for the delay in the widespread adoption of laparoscopic colorectal surgery in the UK. Laparoscopic surgical techniques have been developed and refined so that colorectal cancer can be removed in as radical a way as achieved in open surgery without handling the tumour. The CLASSIC Trial demonstrates that laparoscopic resection is as effective as open resection – but it is important to understand that this trial was conducted when many UK surgeons entering patients into the trial were at an early stage of their laparoscopic surgery learning curve.

I have observed a number of advantages from using the laparoscopic approach to colorectal surgery.

- 1. Image magnification.** The use of a camera to focus on the operational field leads to significant magnification when transmitted to the screen. This enables more precise dissection of the tissues with even small blood vessels and nerves being easily identified.
- 2. Reduced blood loss.** Blood absorbs light which then makes laparoscopic surgery difficult if not impossible. Meticulous haemostasis is essential for this form of surgery, bleeding from small vessels may also be reduced by the intra-abdominal pressure created by the essential pneumoperitoneum.
- 3. Reduced need for intravenous fluid replacement.** Most laparoscopic resections can be performed with less than 2 litres of intravenous fluid replacement. This is probably due to reduced evaporation from the bowel

surface and a reduction in third space losses, which is inevitable in open surgery.

- 4. Surgical training.** By transmitting the image to a screen with magnification it is easier to demonstrate the finer techniques of the operation which would be invisible to observers at open surgery. When training a surgeon it is also much easier to direct him or her to the correct tissue plane required for the dissection.
- 5. Enhanced postoperative recovery.** Virtually all aspects of postoperative recovery are improved with reduced pain, earlier return to normal bowel function, earlier discharge from hospital and faster return to normal activity.
- 6. Reduction in postoperative adhesion formation.** There is as yet no evidence in the surgical literature to demonstrate a reduction in adhesion formation when compared to open surgery. I and many others performing this type of surgery have noted a complete absence of adhesions when there has been a need to reoperate to perform other intra-abdominal procedures. Adhesions are a major cause of morbidity and readmission to hospital after abdominal surgery, laparoscopic resection may be a way of reducing this burden on the health service.

It is as yet too early to determine whether there will be benefits in term of cancer cure rates and long term survival, but in the absence of evidence to demonstrate harm from the laparoscopic approach to treat colorectal cancer it is important that we continue to use the technology with the careful audit of outcome. Training in laparoscopic colorectal surgery is becoming more readily available with the establishment of numerous courses and the Preceptorship Program and it will not be long before laparoscopic colorectal resection is available in the majority of hospitals in the UK. The technology has become well established in other countries and it is therefore vital that we continue to develop our skills so that we may strive to improve the surgical care of patients with colorectal cancer.