

# Laparoscopic gastrectomy for cancer

## 1 Guidance

- 1.1 Current evidence on the safety and efficacy of laparoscopic gastrectomy for cancer appears adequate to support the use of this procedure, provided that normal arrangements are in place for clinical governance, consent and audit.
- 1.2 This procedure is technically demanding. Surgeons undertaking it should have specific training and special expertise in laparoscopic surgical techniques, and should perform their initial procedures with an experienced mentor.
- 1.3 Patient selection and management should be carried out in the context of a multidisciplinary team with established experience in the treatment of gastric cancer.

## 2 The procedure

### 2.1 Indications and current treatments

- 2.1.1 Over 95% of gastric cancers originate from the cells of the stomach lining (adenocarcinoma). This guidance applies only to adenocarcinoma. Symptoms may include heartburn, dysphagia and weight loss. Nausea and vomiting may also occur and gastric bleeding may lead to anaemia.
- 2.1.2 For patients whose gastric cancer is diagnosed at a stage that is amenable to surgical treatment, the options include open or laparoscopic gastrectomy.

### 2.2 Outline of the procedure

- 2.2.1 Under general anaesthesia, a laparoscope and trocars are inserted through small incisions in the abdominal wall. A larger incision may also be made so that a hand can be introduced into the peritoneal cavity for hand-assisted laparoscopic gastrectomy or laparoscopically assisted digital gastrectomy (LADG). Surgery may take the form of total or partial gastrectomy (either proximal or

distal), depending on the site of the tumour. Removal of draining lymph nodes is an integral part of the procedure.

Sections 2.3 and 2.4 describe efficacy and safety outcomes which were available in the published literature and which the Committee considered as part of the evidence about this procedure. For more details, refer to the Sources of evidence.

## 2.3 Efficacy

- 2.3.1 A multicentre case series of 1294 patients with early gastric cancer treated with laparoscopic gastrectomy reported 5-year disease-free survival of 99.8% for stage IA disease, 98.7% for stage IB disease, and 85.7% for stage II disease. In a second case series of 100 patients with advanced disease, 5-year overall and disease-free survival rates were 59% and 57%, respectively.
- 2.3.2 In a non-randomised controlled trial of 102 patients, the mortality rate due to cancer recurrence among the 44 patients treated with LADG was 5% (2/44) at mean follow-up of 14 months. In a second non-randomised controlled trial of 52 patients, 4% (1/24) of the 24 patients treated with either partial or total laparoscopic gastrectomy had died of metastatic cancer at 1-year follow-up.
- 2.3.3 In the non-randomised controlled trial of 102 patients, including 44 patients treated with laparoscopic gastrectomy, and two case series of 1294 and 100 patients treated with laparoscopic gastrectomy, conversion from laparoscopic to open surgery was reported in 2% (1/44), 1% (14/1294) and 3% (3/100), respectively. Reasons for conversion included anatomical constraints, bleeding and mechanical problems.

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Interventional procedures guidance makes recommendations on the safety and efficacy of a procedure. The guidance does not cover whether or not the NHS should fund a procedure. Decisions about funding are taken by local NHS bodies (primary care trusts and hospital trusts) after considering the clinical effectiveness of the procedure and whether it represents value for money for the NHS.

Interventional procedures guidance is for healthcare professionals and people using the NHS in England, Wales, Scotland and Northern Ireland. This guidance is endorsed by NHS QIS for implementation by NHSScotland.

2.3.4 In a meta-analysis of 1611 patients with early gastric cancer, including 837 treated with laparoscopic procedures, significantly fewer lymph nodes were removed by LADG than by open distal gastrectomy (weighted mean difference -4.35 nodes, 95% confidence interval -5.73 to -2.98 nodes,  $p < 0.001$ ).

2.3.5 The Specialist Advisers considered key efficacy outcomes to include 30-day mortality, cancer-free survival rates, adequate surgical margins, and number of lymph nodes removed.

## 2.4 Safety

2.4.1 The meta-analysis of 1611 patients (837 patients treated with laparoscopic procedures) reported that there were fewer complications overall following LADG (11% [58/535]) than following open gastrectomy (18% [97/519]) (odds ratio [OR] 0.54;  $p < 0.001$ ). However, there was no significant difference between the groups with respect to rates of mortality, anastomotic leak, stricture or wound infection.

2.4.2 The multicentre case series reported perforation (not otherwise described) in <1% (1/1294) of patients. The non-randomised controlled trial of 102 patients (44 undergoing laparoscopic procedures) reported that there were more cases of pulmonary infection following open gastrectomy (10% [6/58]) than following LADG (2% [1/44]) for gastric cancer (non-significant:  $p = 0.110$ ).

2.4.3 The reported rate of postoperative bleeding ranged from 0.2% (1/586) to 2% (1/44) across the included studies.

2.4.4 In the meta-analysis there were significantly fewer cases of ileus following LADG than following open gastrectomy (OR 0.27;  $p < 0.02$ ). In the multicentre case series, ileus following laparoscopic gastric resection occurred in <1% (3/1294) of patients.

2.4.5 The Specialist Advisers stated that anecdotal adverse events include port insertion injury to intra-abdominal organs or vessels, bleeding, venous thromboembolism, complications of prolonged pneumoperitoneum, anastomotic/duodenal stump leak, chyle leaks, incomplete resection and anastomotic stricture. They also listed theoretical adverse events, including inadequate lymphadenectomy, cancer seeding,

Roux limb ischaemia, cardiac complications and port-site hernias.

## 2.5 Other comments

2.5.1 The Committee noted that most of the evidence on this procedure relates to practice in parts of Asia, where gastric cancer is substantially more common than in the UK, population screening leads to detection of many cancers at an early stage and laparoscopic gastrectomy is frequently used for early-stage gastric cancer.

2.5.2 The Committee noted concerns about the possibility that removing fewer lymph nodes in a laparoscopic procedure compared with an open procedure might result in increased tumour recurrence. However, the evidence on survival showed no difference. Further publication of long-term outcomes would be useful.

2.5.3 Clinicians wishing to undertake this procedure are encouraged to submit data to the Minimally Invasive Gastro-Oesophageal Cancer Surgery (MIGOCS) database supported by the Association of Upper Gastrointestinal Surgeons and the Association for Laparoscopic Surgeons (<http://rs1.e-dendrite.com/csp/migocs/frontpages/migocs.csp>).

## 3 Further information

3.1 The Institute has produced cancer service guidance on colorectal cancer ([www.nice.org.uk/CSGCC](http://www.nice.org.uk/CSGCC)) and technology appraisal guidance on imatinib for the treatment of unresectable and/or metastatic gastrointestinal stromal tumours ([www.nice.org.uk/TA086](http://www.nice.org.uk/TA086)).

## Information for patients

NICE has produced information describing its guidance on this procedure for patients and their carers ('Understanding NICE guidance'). It explains the nature of the procedure and the decision made, and has been written with patient consent in mind. See [www.nice.org.uk/IPG269publicinfo](http://www.nice.org.uk/IPG269publicinfo)

## Sources of evidence

The evidence considered by the Interventional Procedures Advisory Committee is described in the overview, available at [www.nice.org.uk/IP677overview](http://www.nice.org.uk/IP677overview)

## Ordering printed copies

Contact NICE publications (phone 0845 003 7783 or email [publications@nice.org.uk](mailto:publications@nice.org.uk)) and quote reference number N1630 for this guidance or N1631 for the 'Understanding NICE guidance'.

This guidance represents the view of the Institute, which was arrived at after careful consideration of the available evidence. Healthcare professionals are expected to take it fully into account when exercising their clinical judgement. This guidance does not, however, override the individual responsibility of healthcare professionals to make appropriate decisions in the circumstances of the individual patient, in consultation with the patient and/or guardian or carer.

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