

# Endoscopic mastectomy and endoscopic wide local excision for breast cancer

## 1 Guidance

- 1.1 Current evidence on the safety and efficacy of endoscopic mastectomy and endoscopic wide local excision for breast cancer is inadequate in quantity. Therefore, these procedures should only be used in the context of research. The research should include adequacy of resection margins, survival, recurrence or reoperation rates, tumour size and location, patient breast size, quality of life, and cosmesis.
- 1.2 Research should be conducted only in units specialising in the management of breast cancer, by surgeons trained in both breast cancer surgery and endoscopy.
- 1.3 NICE may review the procedure on publication of further evidence.

## 2 The procedure

### 2.1 Indications and current treatments

- 2.1.1 Breast cancer is the most common cancer in women in the UK. It can be categorised into four stages, from stage 1 (an isolated tumour less than 2 cm in diameter) to stage 4 (advanced cancer), and three grades, from grade 1 (slow-growing cancer) to grade 3 (fast-growing cancer). It may be classified further, depending on protein markers present.
- 2.1.2 Treatment depends on the breast cancer type, stage and grade. Surgery is often the first option for early breast cancer and may involve removing the whole breast (mastectomy) or part of the breast ('conservative' or 'breast conserving' surgery). Adjuvant radiotherapy, chemotherapy or endocrine therapy may be offered to reduce the risk of local tumour recurrence.

### 2.2 Outline of the procedure

- 2.2.1 Endoscopic mastectomy and endoscopic wide local excision for breast cancer are performed with the patient under general anaesthesia. These procedures can be performed through an axillary incision (usually), a periareolar incision, or using both types of incision. Under endoscopic guidance, carbon dioxide insufflation is used to create a working space and the breast tissue is dissected. Haemostasis is achieved by ligation and electrical coagulation. For endoscopic mastectomy, the breast tissue, including the tumour, is separated from the muscle and subcutaneous tissues, and removed. For endoscopic wide excision, the breast part containing the tumour is removed, with adequate healthy breast tissue margins. Drains are inserted and the incisions closed. Immediate reconstructive surgery may be performed if appropriate.
- 2.2.2 As with other types of breast cancer surgery, adjuvant radiotherapy, chemotherapy or endocrine therapy may also be offered.

Sections 2.3 and 2.4 describe efficacy and safety outcomes from the published literature that the Committee considered as part of the evidence about this procedure. For more detailed information on the evidence, see the overview, available at [www.nice.org.uk/IP707overview](http://www.nice.org.uk/IP707overview)

### 2.3 Efficacy

- 2.3.1 A non-randomised controlled trial compared outcomes in 21 patients treated by endoscopic mastectomy and 25 patients treated by subcutaneous mastectomy without an endoscope, for early stage breast cancer (stage 1 or 2). The

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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.

trial reported that all patients were alive at a median 19-month follow-up (range 5.8–35.2 months). A case series of 551 patients treated by endoscopic mastectomy reported distant-metastasis-free survival to be 100% in those with ductal carcinoma in situ (a very early form of breast cancer) (n = 47), 96% in those with T1 tumours (less than 2 cm diameter) (n = 190), and 91% in those with T2 tumours (2–5 cm diameter) (n = 314) at 66-month follow-up.

- 2.3.2 The case series of 551 patients reported local recurrence in 4% (23/551) of patients after a mean follow-up of 38.4 months.
- 2.3.3 A case series of 20 breast cancer patients reported that, at 6-month mammography, 1 patient had microcalcification in her remaining breast, requiring total endoscopic mastectomy for multifocal carcinoma.
- 2.3.4 In the non-randomised controlled trial of 46 patients, histological examination revealed positive resection margins requiring radiation therapy 4 weeks after surgery in 5% (1/21) and 8% (2/25) of patients. Two case series of 20 and 6 patients reported positive histological margins in 1 patient each, the first requiring endoscopic total mastectomy (10 days after the first operation) and the second requiring additional adjuvant radiotherapy.
- 2.3.5 The case series of 551 patients reported overall patient satisfaction results from a postal questionnaire. Of the 481 respondents, 76% (366/481) reported 'good' results, 14% (66/481) reported 'fair' results and 10% (49/481) reported 'poor' results (not further defined) at 6-month follow-up.
- 2.3.6 The Specialist Advisers considered key efficacy outcomes to include long-term survival, adequacy of tumour clearance, tumour recurrence, cosmesis, patient satisfaction, postoperative pain control, time to return to work and length of hospital stay.

## 2.4 Safety

- 2.4.1 Case series of 33 and 551 patients reported nipple necrosis in 9% (3/33), skin necrosis in 4% (22/551) and fat and/or muscle flap necrosis in 3% (17/551) of patients (time of occurrence not stated).

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This guidance represents the view of NICE, 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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- 2.4.2 A case series of 82 patients with malignant tumours reported second-degree burns in 4 patients (one burn occurred during skin flap formation near the nipple and three burns occurred during additional resection for positive surgical margins found on fast-frozen sections). In a case series of 7 patients, skin burns caused by the electrocautery were reported in 2 patients; 1 patient required skin debridement.
- 2.4.3 The case series of 82 patients reported subcutaneous haemorrhage in 7 patients and haematoma in 2 patients (reoperation not required).
- 2.4.4 The Specialist Advisers considered theoretical adverse events to include major neurovascular injury, pneumothorax, non-viable skin flaps and longer operating time than traditional open surgery.

## 2.5 Other comments

- 2.5.1 The Committee noted that these procedures have also been used for benign breast lesions.
- 2.5.2 The Committee noted that most of the evidence relates to East Asian patient populations with generally small breast sizes. The technique may be different in women with larger breasts.

## 3 Further information

- 3.1.1 NICE has published cancer service guidance, interventional procedures guidance, technology appraisals guidance and clinical guidelines on breast cancer. For more information see [www.nice.org.uk/Guidance/Topic](http://www.nice.org.uk/Guidance/Topic)

### Information for patients

NICE has produced information on this procedure for patients and carers ('Understanding NICE guidance'). It explains the nature of the procedure and the guidance issued by NICE, and has been written with patient consent in mind. See [www.nice.org.uk/IPG296publicinfo](http://www.nice.org.uk/IPG296publicinfo)