NICE guidance

# Thoracoscopic excision of mediastinal parathyroid tumours

Interventional procedures guidance
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## Your responsibility

This guidance represents the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, healthcare professionals are expected to take this guidance fully into account, and specifically any special arrangements relating to the introduction of new interventional procedures. The guidance does not override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer.

All problems (adverse events) related to a medicine or medical device used for treatment or in a procedure should be reported to the Medicines and Healthcare products Regulatory Agency using the Yellow Card Scheme.

Commissioners and/or providers have a responsibility to implement the guidance, in their local context, in light of their duties to have due regard to the need to eliminate unlawful

discrimination, advance equality of opportunity, and foster good relations. Nothing in this guidance should be interpreted in a way that would be inconsistent with compliance with those duties. Providers should ensure that governance structures are in place to review, authorise and monitor the introduction of new devices and procedures.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.

# 1 Guidance

1.1 There is limited evidence to support the efficacy of thoracoscopic excision of mediastinal parathyroid tumours. The evidence on safety is also very limited in quantity, and in view of potential complications of the procedure it should only be used with special arrangements for clinical governance, consent, audit and research.

1.2 Clinicians wishing to undertake thoracoscopic excision of mediastinal parathyroid tumours should take the following actions.

- Inform the clinical governance leads in their Trusts.
- Ensure that patients understand the potential complications of the procedure and provide them with clear written information. In addition, use of NICE's information for the public is recommended.
- Audit and review clinical outcomes of all patients having thoracoscopic excision of mediastinal parathyroid tumours (see section 3.1). It is recommended that clinicians undertaking this procedure should collaborate in the collection and review of data.

1.3 Patient selection for thoracoscopic excision of mediastinal parathyroid tumours should be carried out in specialist units and in the context of a multidisciplinary team that includes a thoracic surgeon experienced in thoracoscopic techniques. Preoperative imaging should always be undertaken to confirm the location of the mediastinal tumour.

# 2 The procedure

## 2.1 Indications

2.1.1 There are usually four parathyroid glands situated in the neck, but in about 10% of people one or more of the glands are located in the mediastinum. Parathyroid tumours (most commonly benign adenomas) can develop in any of these glands.

2.1.2 Parathyroid adenomas are a cause of primary hyperparathyroidism, characterised by the excessive production of parathyroid hormone, which results in high blood calcium levels. Symptoms and signs include tiredness, depression, confusion, constipation, polydipsia, polyuria, the development of kidney stones, bone pain and fractures.

2.1.3 The management of hyperparathyroidism may include dietary modification and the use of parathyroid hormone inhibitors. Surgical treatment may be required for some patients.

2.1.4 Parathyroid tumours situated in the neck can be removed surgically, usually through a cervical incision; however, tumours located in the mediastinum require a thoracotomy. Mediastinal parathyroid adenomas may also be treated by angiographic ablation or by computed tomography (CT)-guided ethanol ablation. Thoracoscopic excision of mediastinal parathyroid adenoma aims to reduce the morbidity and potential complications that may be associated with open procedures.

## 2.2 Outline of the procedure

2.2.1 The location of the tumour is determined by imaging (for example CT, ultrasound or scintigraphy). Under general anaesthesia, a number of ports are placed in the intercostal spaces for the thoracoscope and instruments. One lung may be deflated to aid visualisation. The ectopic parathyroid gland is identified and dissected while keeping its capsule intact. The vascular pedicle is clipped and the gland is removed through one of the ports. A chest drain may be inserted. The ports are closed and the lung is inflated if necessary.

## 2.3 Efficacy

2.3.1 In three case series and five case reports, successful excision without conversion to open surgery was achieved in 100% (7 out of 7, 4 out of 4, 4 out of 4, 3 out of 3, 2 out of 2, 1 out of 1, 1 out of 1, 1 out of 1) of patients.

2.3.2 In one case series of four patients, the case report of two patients, and all three case reports of one patient, serum calcium levels were normalised in all patients shortly after thoracoscopic excision of mediastinal parathyroid adenoma. In the first single case report, a normalised serum calcium level (2.5 mmol/l) was maintained at 3-year follow-up. For more details, see the overview.

2.3.3 The Specialist Advisers listed key efficacy outcomes as improvement in serum calcium and parathyroid hormone levels, histological confirmation of parathyroidectomy and low rate of conversion to open surgery.

## 2.4 Safety

2.4.1 One case report described a small apical pneumothorax following the procedure, which had resolved at 2-week follow-up.

2.4.2 A case series of three patients reported transient hoarseness in one patient, which was presumed to have resulted from damage to the left recurrent laryngeal nerve. For more details, see the overview.

2.4.3 The Specialist Advisers stated that anecdotal and theoretical complications include bleeding, infection, chest wall pain, arrhythmias and catastrophic damage to the mediastinal contents, including the great veins and major arteries.

## 2.5 Other comments

2.5.1 It was noted that suspicion of parathyroid malignancy may influence the choice of surgical technique used.

# 3 Further information

3.1 This guidance requires that clinicians undertaking the procedure make special arrangements for audit. NICE has identified relevant audit criteria and developed an audit tool (which is for use at local discretion).

3.2 NICE has produced technology appraisal guidance on cinacalcet for the treatment of secondary hyperparathyroidism in patients with end-stage renal disease on maintenance dialysis therapy.

## Sources of evidence

The evidence considered by the Interventional Procedures Advisory Committee is described in the overview.

## Information for patients

NICE has produced information for the public on this procedure. It explains the nature of the procedure and the decision made, and has been written with patient consent in mind.

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# Endorsing organisation

This guidance has been endorsed by Healthcare Improvement Scotland.