

# Tonsillectomy using laser

## 1 Guidance

- 1.1 Current evidence on the safety and efficacy of tonsillectomy using laser appears adequate to support the use of this technique provided that normal arrangements are in place for consent, audit and clinical governance.
- 1.2 Use of laser for tonsillectomy may result in higher rates of haemorrhage than some other techniques, and clinicians wishing to use lasers should be specifically trained in their use. The British Association of Otorhinolaryngologists – Head and Neck Surgeons has agreed to produce standards for training.
- 1.3 Surgeons should ensure that patients or their parents/carers understand the risk of haemorrhage after tonsillectomy using laser. In addition, use of the Institute's information for patients ('Understanding NICE guidance') is recommended (available from [www.nice.org.uk/IPG186publicinfo](http://www.nice.org.uk/IPG186publicinfo)).
- 1.4 Surgeons should audit and review the rates of haemorrhage complicating tonsillectomy in their own practices and in the context of the techniques they use. Publication of further information about the influence of different techniques and other factors (such as age) on the incidence of haemorrhage after tonsillectomy would be useful in guiding future practice.

## 2 The procedure

### 2.1 Indications

- 2.1.1 Indications for tonsillectomy include recurrent acute or chronic tonsillitis, peritonsillar abscess and pharyngeal obstruction/obstructive sleep apnoea. Life-threatening complications of these conditions are rare, and the main aim of surgery is to relieve symptoms.

- 2.1.2 Surgical removal of the tonsils (tonsillectomy) is one of the most common surgical procedures in the UK. Traditional 'cold-steel' tonsillectomy is performed under general anaesthesia with traditional surgical instruments and ligatures to coagulate the blood vessels (haemostasis). Techniques using thermal energy that can be used in tonsillectomy for both dissection and haemostasis include diathermy (monopolar or bipolar), coblation and lasers.

### 2.2 Outline of the procedure

- 2.2.1 A laser is used to dissect the tissue and to coagulate blood vessels. This can involve resecting the tonsillar tissue completely (laser tonsillectomy) or reducing (laser-assisted serial tonsillectomy or laser-assisted tonsil reduction) or vaporising (laser vaporisation tonsillectomy) the tissue.

### 2.3 Efficacy

- 2.3.1 Five comparative studies assessed pain after laser dissection tonsillectomy. In four of these studies, patients treated with laser tonsillectomy reported less pain at the first postoperative assessment (usually within 24 hours) compared with those who had cold-steel dissection. At subsequent assessments, however, patients treated with laser tonsillectomy had comparatively higher pain scores until at least 2 weeks after surgery.
- 2.3.2 Three studies reported on healing after laser tonsillectomy. All three studies reported that wound healing was slower after laser tonsillectomy than after cold-steel dissection.
- 2.3.3 Two studies assessed outcomes following laser-assisted serial tonsillectomy. Outcomes in both studies were poorly reported. For more details, refer to the 'Sources of evidence' section.

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### This guidance is written in the following context

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.

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 Most of the Specialist Advisers expressed no concerns about the efficacy of tonsillectomy using laser but noted that postoperative pain was often greater than with other methods. They also noted that few clinicians in the UK use lasers for tonsillectomy.

## 2.4 Safety

2.4.1 Bleeding is an important complication of tonsillectomy. It can occur intraoperatively, during the first 24 hours after the operation (usually defined as primary haemorrhage) or after 24 hours (secondary haemorrhage). Postoperative haemorrhage may require re-admission to hospital and possibly further surgery.

2.4.2 In general it was noted that intraoperative blood loss was less with the use of laser compared with cold-steel dissection. Two out of seven studies reported cases of primary haemorrhage following laser tonsillectomy. In one randomised controlled trial, 11% of patients (9/79) had a primary haemorrhage following laser tonsillectomy, compared with 6% of patients (4/72) in the cold-steel dissection group (the difference was not statistically significant).

2.4.3 Secondary haemorrhage rates varied among the studies (range 0–19%). In a randomised controlled trial of 38 patients undergoing laser tonsillectomy on one side and cold-steel dissection on the other, 6 patients had delayed bleeding in the tonsil site resected by laser, 2 requiring re-admission. There were no incidences of secondary haemorrhage on the cold-steel-dissection side. The highest rate of secondary haemorrhage was reported in a case series, where 19% of patients (10/54) had delayed bleeding. One patient also suffered a laser burn to the tongue.

2.4.4 These data are consistent with the National Prospective Tonsillectomy Audit, which found that the lowest rates of secondary haemorrhage (requiring or not requiring further operation) were associated with cold-steel dissection with suture haemostasis, with higher rates reported with the use of other thermal techniques.

2.4.5 In two studies (86 and 66 patients), no peri-operative or anaesthesia-related complications, or early or delayed bleeding, were reported following laser-assisted serial tonsillectomy. For more details, refer to the 'Sources of evidence' section.

2.4.6 The Specialist Advisers considered that there was a slight increase in the risk of postoperative haemorrhage with laser tonsillectomy compared with cold-steel dissection. They also noted the risk of laser damage to the patient's face and heat damage to the upper airway.

## 2.5 Other comments

2.5.1 It was noted that a number of different types of laser can be used.

2.5.2 It was also noted that the National Prospective Tonsillectomy Audit recommended that all surgeons undertaking tonsillectomy should be trained in the use of cold-steel dissection and ligature haemostasis, as well as electrosurgical techniques.

## 3 Further information

3.1.1 The Institute has issued guidance on electrosurgery (diathermy and coblation) for tonsillectomy ([www.nice.org.uk/IPG150](http://www.nice.org.uk/IPG150)) and tonsillectomy using ultrasonic scalpel ([www.nice.org.uk/IPG178](http://www.nice.org.uk/IPG178)).

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Chief Executive  
July 2006

### 'Understanding NICE guidance'

NICE has produced information describing its guidance on this procedure for patients and carers ('Understanding NICE guidance'). It explains the nature of the procedure and the decision made, and has been written with patient consent in mind. This information is available from [www.nice.org.uk/IPG186publicinfo](http://www.nice.org.uk/IPG186publicinfo)

### Sources of evidence

The evidence considered by the Interventional Procedures Advisory Committee is described in the following document. 'Interventional procedure overview of tonsillectomy using laser', December 2005.

Available from: [www.nice.org.uk/IP057overview](http://www.nice.org.uk/IP057overview)

### Ordering information

Copies of this guidance can be obtained from the NHS Response Line by telephoning 0870 1555 455 and quoting reference number N1086. 'Understanding NICE guidance' can be obtained by quoting reference number N1087.

The distribution list for this guidance is available at [www.nice.org.uk/IPG186distributionlist](http://www.nice.org.uk/IPG186distributionlist)

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