NICE guidance

Electrosurgery (diathermy and coblation) for tonsillectomy

Interventional procedures guidance
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www.nice.org.uk/guidance/ipg150

This guidance replaces IPG9.

1 Guidance

This document replaces previous guidance on coblation tonsillectomy (NICE interventional procedures guidance 9) and interim guidance on diathermy for tonsillectomy that was issued jointly with the British Association of Otorhinolaryngologists – Head and Neck Surgeons.

1.1 Current evidence on the safety and efficacy of electrosurgery (diathermy and coblation) for tonsillectomy appears adequate to support the use of these techniques, provided that normal arrangements are in place for consent, audit and clinical governance.

1.2 Surgeons should avoid excessive use of diathermy during tonsillectomy. Surgeons using diathermy in tonsillectomy for dissection and/or haemostasis should be fully trained in its use and should understand the

potential complications.

1.3 Use of coblation for tonsillectomy can result in higher rates of haemorrhage than other techniques and clinicians wishing to use coblation should be specifically trained. The British Association of Otorhinolaryngologists – Head and Neck Surgeons has agreed to produce standards for training.

1.4 Surgeons should ensure that patients or their parents/carers understand the risk of haemorrhage after tonsillectomy using these techniques. In addition, use of the Institute's information for the public is recommended.

1.5 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 Traditional 'cold steel' tonsillectomy consists of two stages: removal of the tonsil followed by haemostasis. Bleeding is controlled by pressure, followed by ligatures. Ligatures may be supplemented by diathermy and the use of packs.

2.2 Outline of the procedure

2.2.1 Diathermy uses radiofrequency energy applied directly to the tissue, and

can be bipolar (current passes between the two tips of the forceps) or monopolar (current passes between the forceps tips and a plate attached to the patient's skin). The heat generated may be used in dissection to incise the mucosa and divide the strands of tissue that bind the tonsil to the pharyngeal wall. It may also be used for haemostasis, by coagulating the vessels that run in these strands and any other bleeding vessels.

2.2.2 Coblation involves passing a radiofrequency bipolar electrical current through a medium of normal saline, producing a plasma field of sodium ions that dissects the tissue by disrupting intercellular bonds leading to tissue vaporisation. Coblation heats surrounding tissue less than diathermy.

2.3 Efficacy

2.3.1 A systematic review of the published evidence on electrosurgery (diathermy and coblation) for tonsillectomy was commissioned by the Institute and completed in June 2005.

2.3.2 The mean operating time across the 18 studies that reported this outcome was shortest for diathermy (mean 16.6 minutes), followed by cold steel with ligatures and/or diathermy haemostasis (mean 18.2 minutes). The longest time taken was with coblation (mean 24.5 minutes). No test of statistical significance between lengths of operating times was undertaken in analysis.

2.3.3 Four studies looked at the time taken to return to a normal diet after tonsillectomy using diathermy versus cold steel for dissection. Three of the studies favoured cold steel (range 5–9 days for cold steel compared with 7–11 days for diathermy) while the fourth study favoured diathermy. Of two studies investigating the time taken to return to a normal diet after tonsillectomy using diathermy versus coblation, one study favoured diathermy (mean 6.7 days after diathermy compared with 7.4 days after coblation, $p = 0.4$) and the other favoured coblation (mean 2.4 days after coblation versus 7.6 days after diathermy, $p < 0.0001$). For more details refer to Sources of evidence.

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 (defined in most studies as primary haemorrhage), or after 24 hours (secondary haemorrhage). Postoperative haemorrhage may require the patient to be readmitted to hospital and possibly undergo further surgery.

Primary haemorrhage

2.4.2 Data from the systematic review and from the Wales Single-use Instrument Surveillance Programme (SISP; 3690 patients) indicated that the highest rates of primary haemorrhage requiring return to theatre were associated with cold steel dissection with ligature haemostasis (1.1% and 0.9%, respectively). By contrast, data from the National Prospective Tonsillectomy Audit (which covered England and Northern Ireland; 33,921 patients) indicated that the lowest rates of primary haemorrhage requiring return to theatre were associated with cold steel dissection with bipolar diathermy haemostasis; and with bipolar diathermy dissection and haemostasis (both 0.3%, 95% confidence interval [CI] 0.2–0.4%). The highest rates were associated with monopolar diathermy dissection and haemostasis (0.9%, 95% CI 0.3–2.3%), and with coblation (1.1%, 95% CI 0.7–1.7%).

2.4.3 Data from the National Prospective Tonsillectomy Audit final report on rates for all primary haemorrhage indicated that the lowest rates were associated with bipolar diathermy dissection and haemostasis, and with cold steel dissection combined with diathermy haemostasis. The highest rates were associated with coblation, and with monopolar diathermy dissection and haemostasis.

Secondary haemorrhage

2.4.4 Crude overall data from the studies included in the systematic review and data from the Wales SISP suggested that cold steel dissection with ligature haemostasis was associated with lower rates of secondary haemorrhage requiring return to theatre, while use of diathermy for dissection and haemostasis was associated with higher rates. In the

National Prospective Tonsillectomy Audit final report, the lowest rate of secondary haemorrhage requiring return to theatre was associated with cold steel dissection with ligature haemostasis (0.2%, 95% CI 0.1–0.4%). Higher rates were associated with cold steel dissection with diathermy haemostasis (0.3%, 95% CI 0.1–0.7% with monopolar diathermy; and 0.4%, 95% CI 0.3–0.5% with bipolar). The highest rates of secondary haemorrhage requiring return to theatre were associated with coblation (0.7%, 95% CI 0.4–1.3%), and with diathermy dissection and haemostasis (0.7%, 95% CI 0.2–1.9% with monopolar diathermy; and 0.8%, 95% CI 0.6–0.9% with bipolar).

2.4.5 A similar pattern was observed for all secondary haemorrhages (both those requiring and those not requiring further operation). The lowest rates were associated with cold steel dissection with ligature haemostasis, higher rates with cold steel dissection and diathermy haemostasis, and the highest rates with coblation and with diathermy for both dissection and haemostasis. For more details, refer to the Sources of evidence.

2.5 Other comments

2.5.1 It was noted that the recommendations of the National Prospective Tonsillectomy Audit were that all surgeons undertaking tonsillectomy should be trained in the use of cold steel dissection and ligature haemostasis, as well as the use of any electrosurgical techniques.

2.5.2 It was noted that it would be helpful for all diathermy equipment to record the total amount of energy used during each operation. The Medicines and Healthcare products Regulatory Agency is addressing this issue.

3 Further information

3.1 The National Prospective Tonsillectomy Audit was published in May 2005, and contains recommendations for tonsillectomy.

Andrew Dillon

Chief Executive
December 2005

Sources of evidence

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

'Systematic review of the safety and efficacy of electrosurgery for tonsillectomy', May 2005.

Information for patients

NICE has produced information on this procedure for patients and carers. It explains the nature of the procedure and the guidance issued by NICE, and has been written with patient consent in mind.

4 About this guidance

NICE interventional procedure guidance makes recommendations on the safety and efficacy of the procedure. It does not cover whether or not the NHS should fund a procedure. Funding decisions are taken by local NHS bodies after considering the clinical effectiveness of the procedure and whether it represents value for money for the NHS. It is for healthcare professionals and people using the NHS in England, Wales, Scotland and Northern Ireland, and is endorsed by Healthcare Improvement Scotland for implementation by NHSScotland.

This guidance was developed using the NICE interventional procedure guidance process.

It updates and replaces NICE interventional procedure guidance 9.

We have produced a summary of this guidance for patients and carers. Information about the evidence it is based on is also available.

Changes since publication

22 January 2012: minor maintenance.

Your responsibility

This guidance represents the views of NICE and 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.

Implementation of this guidance is the responsibility of local commissioners and/or providers. Commissioners and providers are reminded that it is their responsibility to implement the guidance, in their local context, in light of their duties to avoid unlawful discrimination and to have regard to promoting equality of opportunity. Nothing in this guidance should be interpreted in a way which would be inconsistent with compliance with those duties.

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Endorsing organisation

This guidance has been endorsed by Healthcare Improvement Scotland.