NICE National Institute for Health and Care Excellence

NICE guidance

Percutaneous endoscopic laser cervical discectomy

HealthTech guidance
Published: 24 June 2009

www.nice.org.uk/guidance/htg194

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.

Contents

This guidance replaces IPG303.

1 Recommendations

1.1 Current evidence on the safety and efficacy of percutaneous endoscopic laser cervical discectomy is inadequate in quantity and quality. Therefore, this procedure should only be used with special arrangements for clinical governance, consent, and audit or research.

1.2 Clinicians wishing to undertake percutaneous endoscopic laser cervical discectomy should take the following actions.

- Inform the clinical governance leads in their Trusts.
- Ensure that patients and their carers understand the uncertainty about the procedure's safety and efficacy and provide them with clear written information. In addition, the use of NICE's information for the public is recommended.
- Audit and review clinical outcomes of all patients having percutaneous endoscopic laser cervical discectomy (see section 3.1).

1.3 Clinicians undertaking this procedure should have specific training in the use of lasers and in endoscopy of the spinal canal.

1.4 NICE may review the procedure on publication of further evidence.

2 The procedure

2.1 Indications and current treatments

2.1.1 Symptomatic cervical disc prolapse occurs when part of the intervertebral disc protrudes into the spinal canal and impinges on a nerve root or the spinal cord. The protruding disc may compress one or more nerve roots, which may cause neck and shoulder pain, radicular arm pain, weakness and numbness. Many mild episodes settle spontaneously but, in severe cases, serious neurological sequelae may occur.

2.1.2 Conservative treatments include analgesics and non-steroidal anti-inflammatory medication and physical therapy. Epidural steroid injections can also be used. Surgery to remove disc material is considered if there is evidence of nerve or spinal cord compression causing neurological loss or persistent symptoms that are unresponsive to conservative treatment. Surgical treatment options include open surgical decompression by discectomy with or without grafting or disc replacement.

2.2 Outline of the procedure

2.2.1 The procedure is carried out with the patient under general anaesthesia and with endoscopic guidance. A small retractor port is inserted into the anterior neck to expose the disc. All or part of the disc material is removed using a combination of laser to ablate disc material and to shrink and contract the disc further (laser thermodiskoplasty), and curettes, microforceps and a discotome to decompress the nerve root or spinal cord.

2.3 Efficacy

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 detailed information on the evidence, see the overview.

2.3.1 A case series of 111 patients treated by percutaneous endoscopic laser cervical discectomy reported that 47% (52 out of 111) of patients were classified as having an 'excellent' outcome, 33% (37 out of 111) had a 'good' outcome, 8% (9 out of 111) had a 'fair' outcome and 12% (13 out of 111) had a 'poor' outcome (measured by the McNab criteria four-point scale, which ranges from poor [no or insufficient improvement to enable an increase in activities] to excellent [no pain or restriction of activity]; mean follow-up 49 months).

2.3.2 The Specialist Advisers listed the key efficacy outcomes as pain measured by visual analogue scores for arm and neck pain, disability as measured by the Neck Disability Index, or Oswestry Disability Index and health status as measured by the SF36.

2.4 Safety

2.4.1 The case series of 111 patients treated by percutaneous endoscopic laser cervical discectomy reported that 3% (3 out of 111) of patients needed additional surgery because of incomplete decompression and 'symptom aggravation' (mean follow-up 49 months).

2.4.2 A case series of 41 patients treated by percutaneous endoscopic laser cervical discectomy reported that vessel compromise because of guide wire positioning occurred in 5% (2 out of 41) of patients; this was related to a jugular vein and a carotid artery (follow-up not stated). Discitis developed in 2% (1 out of 41) of patients, leading to disc space collapse, and was treated by vertebral bone fusion (follow-up not stated).

2.4.3 The Specialist Advisers considered the most important theoretical risk to be heat damage to nerve roots or to the spinal cord, potentially leading to quadriplegia. One Specialist Adviser stated that neurological damage had occurred in a patient as a result of using laser in the lumbar region of the spine.

2.5 Other comments

2.5.1 The Committee noted that the extent to which laser ablation was used instead of, or in addition to, mechanical methods of removing prolapsed disc material was unclear in much of the published evidence.

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 audit support (which is for use at local discretion).

3.2 NICE has published HealthTech guidance on prosthetic intervertebral disc replacement in the cervical spine.

Update information

Minor changes since publication

January 2026: Interventional procedures guidance 303 has been migrated to HealthTech guidance 194. The recommendations and accompanying content remain unchanged.

ISBN: 978-1-4731-7911-0

Endorsing organisation

This guidance has been endorsed by Healthcare Improvement Scotland.