

Computed tomography- guided thermocoagulation of osteoid osteoma

HealthTech guidance
Published: 24 March 2004

www.nice.org.uk/guidance/htg27

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](#).

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This guidance replaces IPG53.

1 Recommendations

- 1.1 Current evidence on the safety and efficacy of computed tomography (CT)-guided thermocoagulation of osteoid osteoma appears adequate to support its use, provided that the normal arrangements are in place for consent, audit and clinical governance.

2 The procedure

2.1 Indications

- 2.1.1 Osteoid osteomas are benign, bone-forming tumours that occur most frequently in the legs, especially in the femur and tibia.
- 2.1.2 Almost all patients have pain as a result of the tumour. Other symptoms include growth disturbances, bony deformity, scoliosis and, if located within a joint, swelling, synovitis, restricted movement and contracture. This condition may regress spontaneously, but the resolution of symptoms is unpredictable and may take months or years.
- 2.1.3 Standard treatment initially focuses on pain management using non-steroidal anti-inflammatory drugs. Patients who continue to have pain or who experience other tumour-related complications are offered surgical excision. Surgery requires a hospital stay of several days and the patient cannot undertake weight-bearing activity for a substantial period of time. Aggressive resection carries the risk of postoperative fracture, infection and haematoma.
- 2.1.4 In recent years, several minimally invasive techniques using imaging, such as percutaneous resection and radiofrequency ablation, have been introduced in patients with osteoid osteoma in order to achieve removal or destruction of the tumour without the subsequent morbidity of standard surgical treatment.

2.2 Outline of the procedure

- 2.2.1 In this procedure, the lesion is located using computed tomography (CT). Under general anaesthetic, an entry hole is created through the bone using a fine drill. A radiofrequency electrode probe is introduced into the centre of the osteoma and heated. The electrode is then removed and a CT scan is done later to assess the outcome of the procedure.

2.3 Efficacy

2.3.1 Resolution of pain was the main outcome reported in the studies. In a case series of 97 consecutive patients with a mean follow up of 41 months, 76% (74 of 97) of patients reported a good response after one treatment session and 92% (89 of 97) reported a good response after one or two sessions. In the smaller studies, resolution of symptoms was reported by 82% to 95% of patients at final follow up. For more details, refer to the [overview](#).

2.3.2 The Specialist Advisors considered that this was an established procedure with no concerns or uncertainties about its efficacy. One Advisor stated that the procedure was better than open surgery as there is less risk of recurrence.

2.4 Safety

2.4.1 Few complications were observed in the studies. Five out of 239 patients (2%) experienced complications, including three who experienced superficial burns. For more details, refer to the [overview](#).

2.4.2 The Specialist Advisors noted transient pain as the most common complication of the procedure. Infection was also listed, but described as a rare adverse event. It was noted that if the tumour is in a difficult area, adjacent structures may be at risk from inappropriate positioning of the electrode, but Advisors commented that the procedure is still safer than surgery in similar situations.

2.5 Other comments

2.5.1 Particular care is required in selecting and treating patients with osteoid osteoma in the spine because of the proximity of nerve roots and the potential risk of neurological complications.

3 Further information

Sources of evidence

The evidence considered by the committee is in the [overview for this guidance](#).

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.

Update information

Minor changes since publication

January 2026: Interventional procedures guidance 53 has been migrated to HealthTech guidance 27. The recommendations and accompanying content remain unchanged.

ISBN: 978-1-4731-8741-2

Endorsing organisation

This guidance has been endorsed by Healthcare Improvement Scotland.