NICE National Institute for Health and Care Excellence

NICE guidance

# Coil embolisation of ruptured intracranial aneurysms

HealthTech 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.

# Contents

This guidance replaces IPG106.

# 1 Recommendations

1.1 Current evidence on the safety and efficacy of coil embolisation of ruptured intracranial aneurysms appears adequate to support use of the procedure, provided that normal arrangements are in place for consent, audit and clinical governance.

1.2 The procedure should only be performed in specialist units with expertise in the endovascular treatment of intracranial aneurysms. Clear arrangements should be in place for the involvement of different clinical disciplines in treatment and follow-up.

1.3 Patients with subarachnoid haemorrhage should have rapid access to appropriate specialist care.

# 2 The procedure

## 2.1 Indications

2.1.1 Intracranial aneurysms are small balloon-like dilated portions of blood vessels that may occasionally rupture, causing haemorrhage, stroke or death. Usually, the cause is unknown but people with genetic causes of weak blood vessels are more likely to develop aneurysms. Rupture of intracranial aneurysms causes subarachnoid haemorrhage and has a poor prognosis. About 30% of people die within 24 hours and a further 25–30% die within 4 weeks.

2.1.2 The alternative treatment for ruptured intracranial aneurysm involves open surgery to clip the aneurysm inside the skull.

## 2.2 Outline of the procedure

2.2.1 The coil technique involves approaching the aneurysm from inside the diseased blood vessel, thereby avoiding the need to open the skull. A thin tube containing the coil on a guidewire is inserted into a large artery, usually in the groin, and passed up into the skull under radiological guidance. The coil is placed inside the aneurysm and detached from the guidewire. Once in position, it causes clotting and stops blood from entering the aneurysm. Multiple coils may be inserted into the aneurysm through the same tube until the aneurysm is filled with coils.

## 2.3 Efficacy

2.3.1 Use of the procedure was supported by a high-quality randomised controlled trial. In the trial, 'dependency' reflected a moderate to severe disability as defined by the modified Rankin score. The trial showed a 7% absolute risk reduction in dependency or death for patients treated with coils compared with patients treated by surgical clipping. For more details, see the overview.

2.3.2 The Specialist Advisors stated that, in the short term, the procedure is more effective clinically than surgical clipping. However, the long-term durability of coil embolisation has not been established.

## 2.4 Safety

2.4.1 Complications associated with the procedure included perforation of the aneurysm, intracranial haematoma and re-bleeding. In a case series of 403 patients, aneurysm perforation was observed in 11 patients (3%) and cerebral clot embolisation in 10 patients (2%). Coil migration occurred in two patients (0.5%). For more details, see the overview.

2.4.2 The Specialist Advisors considered this procedure to be safer than surgical clipping. They stated that procedural mortality and stroke were the main adverse events. They also stated that there is a small risk of re-bleeding, and that this should be monitored over the long term.

## 2.5 Other comments

2.5.1 Currently, evidence on the procedure's long-term results is limited to a mean follow-up of 3.7 years.

# 3 Further information

## Sources of evidence

The evidence considered by the committee is in the overview.

## Information for patients

NICE has produced information on this procedure for patients and carers ('Understanding NICE guidance'). 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 106 has been migrated to HealthTech guidance 64. The recommendations and accompanying content remain unchanged.

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# Endorsing organisation

This guidance has been endorsed by Healthcare Improvement Scotland.