NICE National Institute for Health and Care Excellence

NICE guidance

Stent placement for vena caval obstruction

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 IPG79.

1 Recommendations

1.1 Current evidence on the safety and efficacy of stent placement for vena caval obstruction appears adequate to support the use of this procedure, provided that the normal arrangements are in place for consent, audit and clinical governance.

2 The procedure

2.1 Indications

2.1.1 Vena caval obstruction is narrowing or occlusion of the caval veins (the inferior vena cava or the superior vena cava), which return blood from the body to the heart. It is most commonly caused by cancer, especially lung cancer. Patients with malignant vena caval obstruction are very ill and have a short life expectancy.

2.1.2 Standard treatments for malignant caval obstruction include radiotherapy and chemotherapy. These can cause severe adverse events and response to treatment may take several weeks. Stent placement can replace or supplement these treatments.

2.2 Outline of the procedure

2.2.1 Stent placement for vena caval obstruction is a minimally invasive procedure that involves inserting a catheter into a large vein, usually in the groin, and passing it into the narrowed area under radiological guidance. A stent, which may be self-expanding or balloon-dilated, is then positioned across the narrowed area to relieve the obstruction.

2.3 Efficacy

2.3.1 A systematic review on the treatment of superior vena caval obstruction in lung cancer identified 23 non-randomised studies (159 patients) examining the use of stents. The review reported 95% (151 out of 159) relief from obstruction and although recurrence occurred in 11% (17 out of 159) of patients during follow-up (up to 8 months), long-term patency was achieved in 92% (146 out of 159). This compared with a complete relief rate of 77% (377 out of 487) for patients treated with any combination of chemotherapy and/or radiotherapy. Median survival

ranged from 1.5 to 6.5 months in the 13 studies that reported survival outcomes. For more details, see the overview.

2.3.2 The evidence showed that the response to treatment was more rapid for patients receiving stents than for patients receiving radiotherapy or chemotherapy. One study with historical controls reported relief of obstruction immediately or within 48 hours in patients receiving stents, compared with no change before 2 weeks in patients receiving radiotherapy. For more details, see the overview.

2.3.3 The Specialist Advisors considered stenting to be highly effective. The only concern they raised was the possible inappropriate use of stents in some young patients with a mediastinal mass on chest X-ray that may disappear quickly with chemotherapy.

2.4 Safety

2.4.1 Few adverse events were reported. In the largest study reporting complications: 3% (2 out of 76 patients) had misplaced stents; 1% (1 out of 76) required anticoagulation; 1% (1 out of 76) experienced transient chest pain; and 1% (1 out of 76) required blood transfusion. Adverse events in another study included stent obstruction, 12% (6 out of 52), and stent migration, 2% (1 out of 52). For more details, see the overview.

2.4.2 The Specialist Advisors had few concerns about the safety of this procedure. They considered the main potential adverse events to be perforation or rupture of the vena cava, migration of the stent, and embolisation.

2.5 Other comments

2.5.1 Most evidence relates to superior vena caval obstruction in adults with carcinoma of the lung.

2.5.2 It was noted that there was less evidence in children, and that the procedure would normally be undertaken in specialist paediatric cardiology units.

3 Further information

Sources of evidence

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

Information for patients

NICE has produced information for the public on this procedure. 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 79 has been migrated to HealthTech guidance 50. The recommendations and accompanying content remain unchanged.

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Endorsing organisation

This guidance has been endorsed by Healthcare Improvement Scotland.