

Foker technique for long-gap oesophageal atresia

Interventional procedures guidance

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[nice.org.uk/guidance/ipg153](https://www.nice.org.uk/guidance/ipg153)

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. However, 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.

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.

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.

1 Guidance

- 1.1 Current evidence on the safety and efficacy of the Foker technique for long-gap oesophageal atresia is limited but appears adequate to support the use of the procedure in the context of this rare and serious condition, provided that normal arrangements are in place for consent, audit and clinical governance.

- 1.2 Clinicians wishing to undertake the Foker technique should ensure that parents understand the implications of the condition and know that secondary interventions may be necessary. In addition, use of the Institute's [information for the public](#) is recommended.
- 1.3 This procedure should be undertaken only in specialist paediatric surgical units by surgeons specifically trained in this technique.
- 1.4 Clinicians should audit and review their results. Publication of further information about the Foker technique and its outcomes may be useful.

2 The procedure

2.1 *Indications*

- 2.1.1 Oesophageal atresia is a congenital condition in which there is a break in the continuity of the oesophagus between the mouth and stomach. In some patients, both the proximal and the distal ends of the oesophagus end in blind pouches; more commonly, one or both ends of the oesophagus are attached to the trachea, forming tracheo-oesophageal fistulae. Saliva and milk enter the lungs after pooling in the upper oesophagus or passing through a tracheo-oesophageal fistula, resulting in episodes of choking, coughing and cyanosis. If untreated, oesophageal atresia leads to death from aspiration pneumonia or malnutrition.
- 2.1.2 The vast majority of patients are treated by surgical division of the fistula and primary anastomosis of the oesophagus, to allow normal swallowing.
- 2.1.3 The definition of long-gap atresia varies, but generally it means the gap is greater than 3–3.5 cm. With long-gap atresia, any direct anastomosis is placed under significant tension. Therefore, any fistula is divided, and a gastrostomy is sited to enable enteral feeding. Repair is delayed for up to 3 months to allow the upper and lower pouches to elongate and hypertrophy, with the intention that anastomosis will then be possible. If it is not possible, alternative surgical approaches include pulling the stomach partially up into the thorax, or using a length of colon to join the oesophageal ends.

2.2 *Outline of the procedure*

2.2.1 Using a transthoracic extrapleural approach, the fistula or fistulae are divided and oversewn. The oesophageal pouches are exposed and traction sutures are placed in the ends, brought out through the skin and fixed with silastic buttons. Traction is applied to the sutures, which stimulates elongation of the oesophagus by 1–2 mm per day. Once the ends of the oesophagus have come together, or are in close proximity, a primary anastomosis is performed. After the repair, the patient may be kept sedated and ventilated for a number of days to allow the anastomosis to heal. Oesophageal balloon dilatation may be performed if required.

2.3 *Efficacy*

2.3.1 Reported clinical outcomes varied considerably between studies, and were often qualitative only. One case series reported 70 infants with oesophageal atresia treated by primary repair: 10 of the patients had long-gap atresia and four of these were treated with the Foker technique. All four patients were eating excellently or satisfactorily at a mean follow-up of 8.8 years. After treatment, all 10 of the infants with long-gap atresia had gastro-oesophageal reflux requiring fundoplication. A second case series described 23 cases in which the babies were treated with external traction (atresia length ranged from 3.7 to 10 cm). A primary anastomosis was achieved in all cases.

2.3.2 Another case series reported that 67% (2/3) of patients achieved full oral feeding at up to 4 months after treatment with the Foker technique. Another found that 50% (1/2) of patients were eating solids normally at 1 year, and 50% (1/2) still required a gastric tube for feeding. The rate of successful anastomosis varied between studies from 100% (4/4 and 2/2) to 33% (1/3). For more details, refer to the Sources of evidence.

2.4 *Safety*

2.4.1 Disruption of sutures during the traction stage of the procedure occurred in 25% (3/12) of patients with long-gap atresia across all the studies identified, usually requiring the anastomosis to be performed under greater tension than intended. No deaths were reported that were directly related to repair of the oesophageal atresia.

2.4.2 The Specialist Advisors noted adverse events including stricture formation and gastro-oesophageal reflux. They also noted other possible adverse events including anastomotic leak, suture disruption during the period of traction, fistulae, gastric emptying problems and difficulties in swallowing.

2.5 *Other comments*

2.5.1 Long-gap oesophageal atresia is often associated with multiple abnormalities, and mortality after the Foker technique is often related to these conditions rather than to the operation.

Andrew Dillon
Chief Executive
January 2006

3 Further information

Sources of evidence

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

'Interventional procedure overview of the Foker technique for long-gap oesophageal atresia', 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.

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.

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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.