

Single mini-incision hip replacement

1 Guidance

- 1.1 Current evidence on the safety and efficacy of single mini-incision hip replacement appears adequate to support the use of this procedure, provided that the normal arrangements are in place for consent, audit and clinical governance.
- 1.2 The benefits of a single mini-incision may include less tissue trauma, less blood loss and less pain, but the procedure should only be used in appropriately selected patients by clinicians with adequate training in this technique. The British Hip Society has been asked to produce standards for training.
- 1.3 Clinicians should submit data on all patients treated using this procedure to the National Joint Registry (www.njrcentre.org.uk).

2 The procedure

2.1 Indications

- 2.1.1 The most common indication for a total hip replacement is degenerative arthritis (osteoarthritis) of the hip joint. Other indications include rheumatoid arthritis, injury, bone tumours and avascular necrosis of the femoral head.
- 2.1.2 Conservative treatments for arthritis include weight loss, analgesic or anti-inflammatory medication, and physiotherapy. If conservative treatments fail, a hip replacement may be indicated. Hip replacements may be performed using several approaches, including anterolateral, lateral, posterolateral and transtrochanteric. The procedure involves making a large incision (usually 20–30 cm). Minimally invasive techniques have now been developed that use specially designed instruments to insert standard prostheses through one or two smaller incisions.

2.2 Outline of the procedure

- 2.2.1 Single mini-incision hip replacement may be performed under general or regional anaesthesia. The same approaches are used as in traditional hip replacement surgery, but the incision is much shorter (usually 10 cm or less in length). Specially designed retractors and instruments are used to expose the hip joint, to prepare the socket and to insert the prosthesis. Fluoroscopic guidance may be used to aid positioning of the implant, and computer-assisted navigation tools have also been developed. Some dissection of muscle is necessary, but to a lesser extent than in the traditional approach. The same prostheses are used as in traditional hip replacement. Cement may be used to bond the components to bone, or the prostheses may be made of a porous material that allows bone to grow into them (uncemented prostheses).

2.3 Efficacy

- 2.3.1 In two randomised controlled trials that included a total of 279 patients there was no difference in the mean length of hospital stay. There was significantly less intraoperative blood loss with single mini-incision total hip replacement than with standard total hip replacement in both trials (314 ml versus 366 ml, $p = 0.03$; and 127 ml versus 170 ml, $p < 0.003$). One of these trials reported no significant differences in postoperative pain scores or early walking ability between the two groups of patients. The other trial reported no significant difference between the two groups of patients in the proportion of patients with a limp or using a support after a 2-year follow-up, but did not report on pain scores.

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This guidance is written in the following context

This guidance represents the view of the Institute which was arrived at after careful consideration of the available evidence. Health professionals are expected to take it fully into account when exercising their clinical judgement. This guidance does not, however, override the individual responsibility of health professionals to make appropriate decisions in the circumstances of the individual patient, in consultation with the patient and/or guardian or carer. Interventional procedures guidance is for health professionals and people using the NHS in England, Wales and Scotland.

This guidance is endorsed by NHS QIS for implementation by NHSScotland.

2.3.2 Five non-randomised comparative studies reported mean blood loss, which was significantly lower for single mini-incision total hip replacement compared with the standard procedure in three of the five studies. Four studies reported the mean length of hospital stay, which ranged from 4 to 6 days for both minimally invasive and standard total hip replacement. One study of 135 patients reported that 14% (7/50) of hips in the minimally invasive group had poor fixation grade or were in varus alignment, compared with 4% (3/85) of hips in the standard group ($p = 0.02$). One study of 84 patients with a mean follow-up of 5 years reported that there had been no revisions in either group of patients. For more details, refer to the sources of evidence.

2.3.3 The Specialist Advisors noted that there was uncertainty about whether the minimally invasive procedure leads to a shorter hospital stay than the standard procedure.

2.4 Safety

2.4.1 A randomised controlled study of 60 patients that compared minimally invasive total hip replacement with standard total hip replacement reported no difference in complication rates.

2.4.2 In two large case series, dislocation was the most common complication, affecting approximately 1% of hips (10/1037 and 12/1000). In one of these series, septic complications affected 0.5% (5/1037) of hips, loosening of the implant was reported in 0.3% (3/1037), femoral palsy in 0.2% (2/1037) and fracture in 0.1% (1/1037). In the second series, sciatic neuropraxia was reported in 0.2% (2/1000) of patients. Deep infection requiring removal of components and revision for instability were each reported in 0.1% (1/1000) of patients. For more details, refer to the sources of evidence.

2.4.3 The Specialist Advisors listed potential adverse effects of the procedure as including malalignment of components, dislocation, fracture, nerve palsy, infection, poor wound healing and inequality of leg length.

3 Further information

3.1 The Institute has issued guidance on minimally invasive two-incision surgery for total hip replacement (www.nice.org.uk/IPG112).

Andrew Dillon
Chief Executive
January 2006

Information for the public

NICE has produced information describing its guidance on this procedure for patients, carers and those with a wider interest in healthcare. It explains the nature of the procedure and the decision made, and has been written with patient consent in mind. This information is available from www.nice.org.uk/IPG152publicinfo

Sources of evidence

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

'Interventional procedure overview of mini-incision surgery for total hip replacement', April 2005.

Available from: www.nice.org.uk/ip_297overview

Ordering information

Copies of this guidance can be obtained from the NHS Response Line by telephoning 0870 1555 455 and quoting reference number N0963. *Information for the public* can be obtained by quoting reference number N0964.

The distribution list for this guidance is available at www.nice.org.uk/IPG152distributionlist

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