NICE guidance

Shoulder resurfacing arthroplasty

Interventional procedures guidance
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www.nice.org.uk/guidance/ipg354

1 Guidance

1.1 Current evidence on the safety and efficacy of shoulder resurfacing arthroplasty is adequate to support the use of this procedure provided that normal arrangements are in place for clinical governance, consent and audit.

2 The procedure

2.1 Indications and current treatments

2.1.1 Patients with shoulder joint disease may have shoulder pain accompanied by functional limitation and a reduced quality of life. The humeral head may degenerate as a result of a range of conditions, most commonly osteoarthritis, rheumatoid arthritis or avascular necrosis. The whole or only part of the articular surface of the humeral head may be

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affected.

2.1.2 Depending on the underlying condition, conservative treatment may include physical therapy, pharmacological treatments (including pain relief and topical or oral non-steroidal anti-inflammatory drugs) and corticosteroid injections. Patients refractory to these treatments may need surgery: either shoulder arthroplasty using a stemmed humeral head prosthesis, or fusion of the joint.

2.2 Outline of the procedure

2.2.1 The aim of shoulder resurfacing arthroplasty is to replace only the damaged joint surfaces, with minimal bone resection.

2.2.2 The procedure is carried out with the patient in a semi-upright position and may be done using either general anaesthesia (sometimes accompanied by local anaesthesia), or local anaesthesia with or without sedation. Either a deltopectoral or anterosuperior approach may be used. The deltoid muscle is split to expose the surface of the humeral head, which is reamed to restore its shape. A hole is drilled for the central anchoring peg of the resurfacing prosthesis.

2.2.3 The peg of the prosthesis is inserted into the drilled hole and morcellised bone or cement is used to aid fixation of the articular prosthesis, which may cover the whole or part of the humeral head. A prosthesis may be used to cover the glenoid surface of the scapula if necessary. The shoulder joint is reduced and the wound is closed.

2.2.4 Various devices can be used for this procedure.

> Sections 2.3 and 2.4 describe efficacy and safety outcomes from the published literature that the Committee considered as part of the evidence about this procedure. For more detailed information on the evidence, see the overview.

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2.3 Efficacy

2.3.1 A case series of 69 patients (79 shoulders: 37 treated by resurfacing, 42 treated by resurfacing plus glenoid component) reported that mean shoulder function (measured using the Constant–Murley shoulder scale [100-point scale; higher scores better]) improved from 40% of predicted at baseline to 91% at 4.4-year follow-up in patients treated by articular resurfacing only, and from 34% at baseline to 94% at 7.6-year follow-up in patients treated by resurfacing plus a glenoid component.

2.3.2 A non-randomised controlled trial of 44 patients reported no difference in the mean change in shoulder function (using the Constant–Murley shoulder scale) from baseline to 12-month follow-up in patients treated by shoulder resurfacing arthroplasty compared with patients treated by total shoulder arthroplasty (8.1 points vs. 8.5 points; $p = 0.356$). A case series of 94 patients (103 shoulders) reported that mean shoulder function (using the Constant–Murley shoulder scale) improved from 24% of predicted at baseline to 75% of predicted at 6.8-year follow-up ($p < 0.001$).

2.3.3 Revision surgery for stemmed humeral prosthesis was reported in 6% (6/98) of shoulders at 6.8-year follow-up in the case series of 94 patients (103 shoulders). Revision because of persistent pain was reported in 1 of 75 shoulders at a mean follow-up of 6.5 years in the case series of 62 patients (75 shoulders). Case series of 70 patients (84 shoulders) and 69 patients (79 shoulders) reported that no patient treated by shoulder resurfacing arthroplasty needed a revision procedure at follow-up of 4.2 and 4.4 years respectively.

2.3.4 The case series of 69 patients (79 shoulders) reported that mean shoulder pain improved from 3.9 points at baseline to 12 points at 4.4-year follow-up in patients treated by shoulder resurfacing arthroplasty, and from 2.1 points to 14 points at 7.6-year follow-up in patients treated by resurfacing plus glenoid component. A case series of 70 patients (84 shoulders) reported that, of 62 patients followed up, the percentage with severe pain reduced from 93% at baseline to 6% at a mean follow-up of 4.2 years.

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2.3.5 A non-randomised controlled trial of 44 patients reported that, of the 22 patients treated by shoulder resurfacing arthroplasty, 2 needed conversion to total shoulder arthroplasty, 1 because of glenoidal erosion and 1 because of persistent pain, at 7 and 9 months respectively.

2.3.6 The case series of 62 patients (75 shoulders) reported that 96% of shoulders were rated as 'much better' or 'better' (not otherwise described; absolute figures not stated) at 6.5-year follow-up.

2.3.7 The Specialist Advisers listed key efficacy outcomes as relief of pain, range of motion, quality of life, and the rate of revision procedures.

2.4 Safety

2.4.1 Infection requiring removal of the prosthesis and fusion was reported in 1 patient at 6.8-year follow-up in the case series of 94 patients (103 shoulders).

2.4.2 Prosthesis instability requiring removal and fusion was reported in 1 patient at 6.8-year follow-up in the case series of 94 patients (103 shoulders).

2.4.3 Myositis ossificans causing almost complete ankylosis was reported in 1 patient in a case series of 94 patients (103 shoulders) at 6.8-year follow-up. The patient had an initial diagnosis of septic arthritis and extensive previous surgery.

2.4.4 The Specialist Advisers listed adverse events seen or reported in the literature to include loosening of the prosthesis, impingement and overstuffing during implant if the prosthesis had been incorrectly sized. They considered theoretical adverse events to include infection, nerve injury, deep vein thrombosis, fracture, failure needing revision, and stiffness.

3 Further information

3.1 For related NICE guidance see our website.

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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.

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

3 January 2012: minor maintenance.

Your responsibility

This guidance represents the views of NICE and was arrived at after careful consideration of the available evidence. Healthcare professionals are expected to take it fully into account when exercising their clinical judgement. This guidance does not, however, override the individual responsibility of healthcare professionals to make appropriate decisions in the circumstances of the individual patient, in consultation with the patient and/or guardian or carer.

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

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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.

Accreditation

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