

Arthroscopic trochleoplasty for patellar instability

Interventional procedures 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.

1 Recommendations

- 1.1 Current evidence on the safety and efficacy of arthroscopic trochleoplasty for patellar instability is inadequate in quantity and quality. Therefore this procedure should only be used with special arrangements for clinical governance, consent and audit or research.
- 1.2 Clinicians wishing to undertake arthroscopic trochleoplasty for patellar instability should take the following actions:
 - Inform the clinical governance leads in their NHS trusts.
 - Ensure that patients understand the uncertainty about the procedure's safety and efficacy and provide them with clear written information. In addition, the use of NICE's information for the public is recommended.
 - Audit and review clinical outcomes of all patients having arthroscopic trochleoplasties (see section 7.1).
- 1.3 Patient selection should be done by surgeons with expertise in managing patellar instability.
- 1.4 The procedure should be undertaken by surgeons with experience in open trochleoplasty and in arthroscopic procedures on the knee.
- 1.5 NICE encourages further research into arthroscopic trochleoplasty for patellar instability, including publication of consecutive patient series. Patient selection should be described in detail. Reported outcomes should include functional and quality-of-life measures, as well as reoperation rates.

2 Indications and current treatments

- 2.1 Patellar instability occurs when the patella fails to engage securely in the trochlea at the start of flexion; it slips laterally and either dislocates completely or slips back medially to its correct position as flexion continues. In some patients this happens because the trochlear groove is too shallow or uneven (trochlear dysplasia).
- 2.2 Conservative treatment includes physiotherapy and exercises to strengthen the quadriceps. Surgical approaches include direct reconstruction of the dysplastic trochlea or correction of associated factors by procedures such as medial patellofemoral ligament reconstruction. Trochleoplasty aims to reshape the bony anatomy of the trochlea: it may involve deepening the groove or elevating the lateral wall of the trochlea (which should be higher than the medial wall). Trochleoplasty is usually done as an open procedure, which is associated with risks such as arthrofibrosis and, rarely, infection.

3 The procedure

- 3.1 Arthroscopic trochleoplasty aims to deepen the trochlea in the same way as open trochleoplasty but with less soft tissue trauma, which should reduce postoperative pain and allow more rapid recovery.
- 3.2 Arthroscopic trochleoplasty is done with the patient under general or regional anaesthesia. Using an arthroscopic approach, the articular cartilage of the trochlea is raised as a flap. A round burr shaver is then used to deepen the trochlear groove. The articular cartilage is then returned to the deepened groove and fixed in place. The procedure is often done in combination with medial patellofemoral ligament reconstruction.

4 Efficacy

This section describes efficacy 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](#). The only available literature on efficacy was 1 case series

of 31 patients with recurrent patellar dislocation and trochlear dysplasia type B to D.

- 4.1 A case series of 31 patients reported outcomes for 29 knees with a median follow-up of 29 months. The median Kujala score (scores range from 0 to 100 with higher scores indicating less severe symptoms) improved from 64 before the procedure to 95 at follow-up. The median Tegner score (scores range from 0 to 10 with higher scores indicating higher activity levels) improved from 4 before the procedure to 6 at follow-up. The median knee injury and osteoarthritis outcome scores for pain, symptoms, activities of daily living, sport and quality of life improved from 86, 82, 91, 40 and 25 before the procedure to 94, 86, 99, 85 and 75 respectively at follow-up (all p values <0.001).
- 4.2 The case series of 31 patients reported that patients were satisfied with the outcome of the operation for 93% (27 out of 29) of knees.
- 4.3 The case series of 31 patients reported that 17% (5 out of 29) of knees needed further surgery. Two patients developed symptomatic subluxations 28 months after the procedure and were both treated by medialisation of the tibial tubercle. Three patients had pronounced postoperative anterior knee pain at flexion and had tightness of the lateral retinaculum, indicating lateral hyper-pressure syndromes; all were subsequently treated by lateral releases.
- 4.4 The case series of 31 patients reported that there were no redislocations over a median follow-up of 29 months.
- 4.5 The specialist advisers listed additional efficacy outcomes as including International Knee Documentation Committee scores, and radiological outcomes such as patellar tilt and sulcus angle.

5 Safety

This section describes 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](#).

- 5.1 No infections, cartilage flake breakage or necrosis were reported in the case

series of 31 patients.

- 5.2 Suspected infection from the superolateral portal was reported, within 3 months of arthroscopic trochleoplasty, in 1 patient in a case series of 8 patients. This was resolved with oral antibiotic treatment.
- 5.3 The specialist advisers listed theoretical adverse events as pain, stiffness, persistent instability, chondrolysis, non-union, the inability to correctly visualise the amount of correction needed, and the inability to securely fix down the flaps to the deepened groove.

6 Committee comments

- 6.1 The Committee recognised that arthroscopic trochleoplasty is a specialised procedure applicable to only small numbers of patients. The recommendation for special arrangements is not intended to obstruct its use by specialists with the skills and experience stipulated in [section 1.4](#), who should audit their results with great care. It is important that outcomes are published to guide the review by NICE and future use of the procedure.

7 Further information

- 7.1 This guidance requires that clinicians undertaking the procedure make special arrangements for audit. NICE has identified relevant [audit criteria](#) and has developed an [audit tool](#) (which is for use at local discretion).

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.

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Endorsing organisation

This guidance has been endorsed by [Healthcare Improvement Scotland](#).