Outcomes following trochleoplasty for patellar instability with trochlear dysplasia: a systematic review

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CRD summary
This review concluded that trochleoplasty was a safe and effective procedure for correcting patellar (kneecap) instability in patients with trochlear dysplasia, but the evidence-base had a number of methodological limitations. The authors' acknowledgement the reliability of the evidence should be viewed with caution appears to be justifiable.

Authors' objectives
To evaluate the clinical and radiological outcomes following trochleoplasty for patellar instability due to trochlear dysplasia.

Searching
PubMed, AMED, British Nursing Index, CINAHL, The Cochrane Library, EMBASE, PEDro, PsycINFO, and ZETOC were searched from inception to August 2007 for English language studies published as full text articles. Search terms were reported. Reference lists of retrieved papers were reviewed. Three relevant journals were handsearched for additional studies.

Study selection
Studies that evaluated the clinical and/or radiological outcomes of patients following a trochleoplasty, with or without secondary surgery, were eligible for inclusion. Studies with insufficient data on patient history, indications for the surgery, surgical intervention, or clinical or radiological outcomes were excluded. Also excluded were single-subject case reports or review papers.

In included studies, patellar instability was the primary indicator for trochleoplasty. Most of the included patients were female.

Two reviewers independently screened identified titles and abstracts and selected studies. Disagreements were resolved by consensus.

Assessment of study quality
Two reviewers assessed quality of the included studies using the Critical Appraisal Skills Programme tool for observational studies. Disagreements were resolved by discussion.

Data extraction
Clinical outcome data were extracted into tables. For radiological outcomes, mean preoperative data (and range), mean postoperative data (and range) and mean difference (and p-values, where provided) were extracted directly.

The authors did not state how many reviewers performed the data extraction.

Methods of synthesis
The data were combined in a narrative synthesis.

Results of the review
Six case series met the inclusion criteria of the review (n=99 patients, range 4 to 38). Only one study addressed a clearly focused question. None of the studies accounted for confounders. All of the studies had suitable follow-up (mean follow-up ranged from 18 to 100 months). There was over 85% patient retention at the final follow-up.

For clinical outcomes, restoration of full range knee motion was reported in two out of three studies; the remaining
study achieved a mean range of motion at 132°. Most of the patients reported substantial improvements in pain (three studies); patient satisfaction with outcomes of their surgery was high (four studies). Post-operative complications were restricted to knee arthrofibrosis (two studies), impingement and discomfort from fixation material (two studies), persistent retropatellar pain (one study), and patellofemoral and tibiofemoral osteoarthritis (one study).

Results for other clinical and radiological outcomes were reported.

**Authors' conclusions**
Trochleoplasty was shown to be a safe and effective procedure to correct patellar instability in trochlear dysplasia patients, but the evidence had a number of methodological limitations, so the findings should be viewed some reservations.

**CRD commentary**
This review addressed a well-defined question for participants and interventions, but outcomes and study design were not clearly defined. The search included relevant databases and specific journals, but the restriction to English language and no attempts to retrieve unpublished studies mean that the possibility of language and/or publication bias could not be ruled out. The review process was conducted with effort to minimise reviewer error and bias.

Standard quality assessment criteria were applied to the different study design domains; the results indicated that quality of the included studies was less than optimal. All the included studies were case series, so the potential for selection bias could not be ruled out.

The authors' acknowledgement that the reliability of the evidence should be viewed with caution appears to be justifiable.

**Implications of the review for practice and research**

**Practice:** The authors did not state any implications for practice.

**Research:** The authors stated that further well-designed studies employing clearly defined outcome measures are warranted.

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This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.