

# NATIONAL INSTITUTE FOR HEALTH AND CLINICAL EXCELLENCE

## INTERVENTIONAL PROCEDURES PROGRAMME

### Interventional procedure overview of distal iliotibial band lengthening for refractory greater trochanteric pain syndrome

#### Treating greater trochanteric pain syndrome by lengthening the iliotibial band

The greater trochanter is the bony bump on the outer side of the hip. This area may become painful following hip surgery or as a result of inflammation of the fluid-filled sac (bursa) that allows smooth motion between bones and tendons or muscles. Such inflammation (bursitis) is often caused by minor repetitive trauma or a direct injury.

This procedure aims to relieve the pressure on the bursa by lengthening the fibrous band that runs along the outside of the thigh from the hip to the knee (iliotibial band).

#### Introduction

The National Institute for Health and Clinical Excellence (NICE) has prepared this overview to help members of the Interventional Procedures Advisory Committee (IPAC) make recommendations about the safety and efficacy of an interventional procedure. It is based on a rapid review of the medical literature and specialist opinion. It should not be regarded as a definitive assessment of the procedure.

#### Date prepared

This overview was prepared in September 2010.

#### Procedure name

- Distal iliotibial band lengthening for refractory greater trochanteric pain syndrome

#### Specialty societies

- British Hip Society
- British Orthopaedic Association.

## Description

### ***Indications and current treatment***

Greater trochanteric pain syndrome is a disorder that affects the (lateral) side of the hip or hips. The bursa is a small fluid-filled sac that separates the greater trochanter of the femur and the overlying fascia lata to allow smooth movement. Greater trochanteric pain may be associated with overuse injury and with inflammation of the trochanteric bursa (also known as trochanteric bursitis), infection, direct injury, tendon damage, differences in leg length or hip surgery such as a total hip replacement.

Greater trochanteric pain syndrome is usually managed conservatively with rest, physiotherapy, anti-inflammatory medication and corticosteroid injections. Surgical approaches such as supratrochanteric fasciotomy or bursectomy can be used if conservative treatments fail to relieve the symptoms. Proximal iliotibial band lengthening has also been used to manage this condition.

The aim of distal iliotibial band lengthening for refractory greater trochanteric pain syndrome is to relieve the pressure between the greater trochanter and the fascia lata by lengthening the iliotibial band (a thickened and reinforced part of the fascia lata which runs longitudinally throughout its length). Because the area directly over the trochanter is not disturbed, this procedure aims to reduce the local scarring which may complicate proximal iliotibial lengthening procedures. It is proposed that this may reduce the risk of recurrence.

### ***What the procedure involves***

The procedure is done with the patient under local or general anaesthesia and can be done as a day case. A longitudinal incision is made on the outer side of the leg above the knee. Through a short lateral incision above the knee a 'Z' lengthening of the iliotibial band of about 1.5–2cm is performed. The fascia is sutured into the new elongated position.

## Literature review

### ***Rapid review of literature***

The medical literature was searched to identify studies and reviews relevant to distal iliotibial band lengthening for refractory greater trochanteric pain syndrome (trochanteric bursitis). Searches were conducted of the following databases, covering the period from their commencement to 4 March 2010 and updated 28 September 2010: MEDLINE, PREMEDLINE, EMBASE, Cochrane Library and other databases. Trial registries and the Internet were also searched. No language restriction was applied to the searches (see appendix C for details of search strategy). Relevant published studies identified during consultation or resolution that are published after this date may also be considered for inclusion.

The following selection criteria (table 1) were applied to the abstracts identified by the literature search. Where selection criteria could not be determined from the abstracts the full paper was retrieved.

**Table 1 Inclusion criteria for identification of relevant studies**

Characteristic	Criteria
Publication type	Clinical studies were included. Emphasis was placed on identifying good quality studies. Abstracts were excluded where no clinical outcomes were reported, or where the paper was a review, editorial, or a laboratory or animal study. Conference abstracts were also excluded because of the difficulty of appraising study methodology, unless they reported specific adverse events that were not available in the published literature.
Patient	Patients with refractory greater trochanteric pain syndrome.
Intervention/test	Distal iliotibial band lengthening.
Outcome	Articles were retrieved if the abstract contained information relevant to the safety and/or efficacy.
Language	Non-English-language articles were excluded unless they were thought to add substantively to the English-language evidence base.

### ***List of studies included in the overview***

This overview is based on 23 patients from 2 case series<sup>1,2</sup>.

Other studies that were considered to be relevant to the procedure but were not included in the main extraction table (table 2) have been listed in appendix A.

**Table 2 Summary of key efficacy and safety findings on distal iliotibial band lengthening for refractory greater trochanteric pain syndrome**

Abbreviations used: BMI, body mass index; NSAID, non steroidal anti-inflammatory drug; VAS, visual analogue scale																	
Study details	Key efficacy findings			Key safety findings	Comments												
<p>Sayed-Noor AS (2009)<sup>1</sup></p> <p><b>Case series</b></p> <p>Sweden</p> <p>Recruitment period: 2004–2006</p> <p>Study population: patients with refractory greater trochanteric pain after total hip arthroplasty. All patients underwent at least 6 months conservative treatment with NSAIDs, physiotherapy and local corticosteroid injections without substantial improvement.</p> <p>n = 12</p> <p>Age: 68 years (mean) Sex: 100% (12/12) female</p> <p>Patient selection criteria: see above</p> <p>Technique: distal lengthening of iliotibial band by Z-plasty, using local anaesthesia, 10 cm incision above knee joint and no prophylactic antibiotics.</p> <p>Follow-up: <b>28 months (mean)</b></p> <p>Conflict of interest/source of funding: not reported</p>	<p>Number of patients analysed: <b>12</b></p> <table border="1"> <thead> <tr> <th>Outcome</th> <th>Pre-operative</th> <th>Follow-up</th> <th>p value</th> </tr> </thead> <tbody> <tr> <td>Mean EQ-5D score</td> <td>0.26 ± 0.25</td> <td>0.67 ± 0.28</td> <td>&lt; 0.005</td> </tr> <tr> <td>Mean health quality index</td> <td>34 ± 10</td> <td>60 ± 20</td> <td>&lt; 0.005</td> </tr> </tbody> </table> <p><u>Patient-reported improvement</u> At 4 months, 7 patients reported symptomatic improvement and 11 patients reported symptomatic improvement at final follow-up. One patient experienced no change after the procedure.</p> <p><u>Clinical examination at follow-up (n = 10)</u> No signs of decreased range of motion, decreased strength or instability of the ipsilateral hip or knee.</p>			Outcome	Pre-operative	Follow-up	p value	Mean EQ-5D score	0.26 ± 0.25	0.67 ± 0.28	< 0.005	Mean health quality index	34 ± 10	60 ± 20	< 0.005	<p>No postoperative complications</p>	<p><b>Follow-up issues:</b></p> <ul style="list-style-type: none"> <li>All patients responded to follow-up phone survey at 4 months and questionnaire at mean 28-month follow-up. 16.7% (2/12) did not attend follow-up clinical examination.</li> </ul> <p><b>Study design issues:</b></p> <ul style="list-style-type: none"> <li>Mean interval between total hip arthroplasty and lengthening procedure: 37 months.</li> <li>EQ-5D is a standardised measure of health outcome that measures mobility, self-care, usual activities, pain/discomfort and anxiety/depression. A higher score indicates better health outcomes.</li> <li>The health quality index is a patient scale from 0 to 100 (0 = worst health state and 100 = best health state) and is part of the EQ-5D.</li> </ul> <p><b>Study population issues:</b></p> <p>Initial total hip arthroplasty was for primary osteoarthritis in all patients. All procedures were done using the posterolateral approach.</p>
Outcome	Pre-operative	Follow-up	p value														
Mean EQ-5D score	0.26 ± 0.25	0.67 ± 0.28	< 0.005														
Mean health quality index	34 ± 10	60 ± 20	< 0.005														

Abbreviations used: BMI, body mass index; NSAID, non steroidal anti-inflammatory drug; VAS, visual analogue scale													
Study details	Key efficacy findings		Key safety findings	Comments									
<p>Pretell J (2009)<sup>2</sup></p> <p><b>Case series</b></p> <p>Spain</p> <p>Recruitment period: 1999–2006</p> <p>Study population: patients with chronic trochanteric bursitis. All patients underwent at least 1 year of conservative treatment with NSAIDs, physiotherapy and glucocorticoid injections.</p> <p><b>n = 11 (13 hips)</b></p> <p>Age: 54.6 years (mean) Sex: 90.9% (10/11) female</p> <p>Patient selection criteria: see above</p> <p>Technique: distal fascia leg 'Z' lengthening using local anaesthesia and 10 cm incision above knee joint.</p> <p>Follow-up: <b>43 months (mean)</b></p> <p>Conflict of interest/source of funding: not reported</p>	<p>Number of patients analysed: <b>11</b></p> <table border="1"> <thead> <tr> <th>Outcome</th> <th>Pre-operative (n = 13 hips)</th> <th>Follow-up (n = 13 hips)</th> </tr> </thead> <tbody> <tr> <td>Harris Hip score (mean)</td> <td>61</td> <td>91</td> </tr> <tr> <td>VAS pain score (mean)</td> <td>83</td> <td>13</td> </tr> </tbody> </table> <p>Patient satisfaction (n = 13 hips) 92.3% (12/13) reported that they were 'satisfied' or 'very satisfied'. 1 reported an unsatisfactory outcome.</p> <p>Mean time for resolution of symptoms: 5 months.</p>		Outcome	Pre-operative (n = 13 hips)	Follow-up (n = 13 hips)	Harris Hip score (mean)	61	91	VAS pain score (mean)	83	13	<p>Seroma: 1 patient (successfully treated with surgical drainage)</p>	<p><b>Follow-up issues:</b></p> <ul style="list-style-type: none"> <li>No loss to follow-up.</li> </ul> <p><b>Study design issues:</b></p> <ul style="list-style-type: none"> <li>Mean time from start of symptoms to procedure: 22 months.</li> <li>Harris hip score measures functional ability, hip dynamics and range of movement on scale from 0–100 (higher scores better).</li> <li>VAS pain score assesses level of pain on scale of 0–100. Higher score indicates greater pain.</li> </ul> <p><b>Study population issues:</b></p> <ul style="list-style-type: none"> <li>Mean BMI: 26.3, no previous history of traumatic event.</li> <li>Radiographs of pelvis and hip showed that 4 patients had calcification without any previous surgery.</li> </ul>
Outcome	Pre-operative (n = 13 hips)	Follow-up (n = 13 hips)											
Harris Hip score (mean)	61	91											
VAS pain score (mean)	83	13											

## ***Efficacy***

A case series of 12 patients reported a significant increase in the mean EQ-5D score (a standardised assessment of mobility, self care, usual activities, pain and/or discomfort and anxiety and/or depression, in which a higher score indicates a better health outcome) from 0.26 pre-operatively to 0.67 at mean 28-month follow-up ( $p < 0.005$ )<sup>1</sup>.

A case series of 11 patients reported a mean Harris hip score (measures functional ability, hip dynamics and range of movement on a scale from 0 to 100, in which a higher score indicates a better health outcome) of 61 pre-operatively and 91 at mean 43-month follow-up. The same study reported an improvement in mean pain score (measured on a scale from 0 to 100, in which a higher score indicates worse pain) from 83 pre-operatively to 13 at follow-up<sup>2</sup>.

## ***Safety***

A case series of 11 patients reported 1 patient with a seroma (timing not reported) which was successfully treated with surgical drainage<sup>2</sup>.

## ***Validity and generalisability of the studies***

- There is only a small amount of evidence available from a case series and a case report.
- No studies comparing the natural course of symptoms with iliotibial band lengthening are available.

## ***Existing assessments of this procedure***

There were no published assessments from other organisations identified at the time of the literature search.

## ***Related NICE guidance***

There is currently no NICE guidance related to this procedure.

## **Specialist Advisers' opinions**

Specialist advice was sought from consultants who have been nominated or ratified by their Specialist Society or Royal College. The advice received is their individual opinion and does not represent the view of the society.

Mr Graham Gie and Professor Nicola Maffulli (British Orthopaedic Association).

- One Specialist Adviser has never performed this procedure and one performed it once 10 years ago. One Specialist Adviser states it is novel and of uncertain safety and efficacy and the other Specialist Adviser states that it is at best experimental.
- One of the Specialist Advisers considers it to be a low-risk procedure but unlikely to be efficacious.
- The comparators are Z-plasty lengthening of the iliotibial band directly over the greater trochanter, soft tissue endoscopy of the hip with debridement, repair of torn abductor tendons, extracorporeal shockwave therapy or conservative management with exercises.
- Key efficacy outcomes: relief of pain, patient satisfaction, isokinetic strength Harris hip score, SF-36 and Euroqol.
- Theoretical safety concerns: loss of strength in the lower limb.
- One Specialist Adviser states that this should not be approved without randomised controlled trial evidence and that a magnetic resonance imaging scan of the abductor tendons of the hip is required to confirm their integrity before the procedure is undertaken.
- One Specialist Adviser states that the procedure should be abolished.

## **Patient Commentators' opinions**

NICE's Patient and Public Involvement Programme did not find any trusts performing this procedure therefore no questionnaires were distributed.

## References

1. Sayed-Noor AS, Pedersen E, Wretenberg P et al. (2009) Distal lengthening of ilio-tibial band by Z-plasty for treating refractory greater trochanteric pain after total hip arthroplasty (Pedersen-Noor operation). *Archives of Orthopaedic and Trauma Surgery* 129: 597–602.
2. Pretell J, Ortega J, Garcia-Rayó R et al. (2009) Distal fascia lata lengthening: An alternative surgical technique for recalcitrant trochanteric bursitis. *International Orthopaedics* 33: 1223–7.

## **Appendix A: Additional papers on distal iliotibial band lengthening for refractory greater trochanteric pain syndrome**

There were no additional papers identified.

## **Appendix B: Related NICE guidance for distal iliotibial band lengthening for refractory greater trochanteric pain syndrome**

There is currently no NICE guidance related to this procedure.

## Appendix C: Literature search for distal iliotibial band lengthening for refractory greater trochanteric pain syndrome

Database	Date searched	Version/files
Cochrane Database of Systematic Reviews – CDSR (Cochrane Library)	28/09/2010	September 2010
Database of Abstracts of Reviews of Effects – DARE (CRD website)	28/09/2010	-
HTA database (CRD website)	28/09/2010	-
Cochrane Central Database of Controlled Trials – CENTRAL (Cochrane Library)	28/09/2010	September 2010
MEDLINE (Ovid)	28/09/2010	1950 to September Week 2 2010
MEDLINE In-Process (Ovid)	28/09/2010	September 27, 2010
EMBASE (Ovid)	28/09/2010	1980 to 2010 Week 38
CINAHL (NLH Search 2.0)	28/09/2010	-
BLIC (Dialog DataStar)	01/03/2010	-
Zetoc (for update searches only)	28/09/2010	-

Trial sources searched on 04/03/2010:

- National Institute for Health Research Clinical Research Network Coordinating Centre (NIHR CRN CC) Portfolio Database
- Current Controlled Trials *meta*Register of Controlled Trials – *mRCT*
- Clinicaltrials.gov

Websites searched on 22/02/2010 and 04/03/2010:

- National Institute for Health and Clinical Excellence (NICE)
- Food and Drug Administration (FDA) – MAUDE database
- Australian Safety and Efficacy Register of New Interventional Procedures – Surgical (ASERNIP – S)
- Australia and New Zealand Horizon Scanning Network (ANZHSN)
- Conference websites

IP overview: distal iliotibial band lengthening for refractory greater trochanteric pain syndrome

- General internet search

The following search strategy was used to identify papers in MEDLINE. A similar strategy was used to identify papers in other databases.

### **MEDLINE search strategy**

The MEDLINE search strategy was adapted for use in the other sources.

1	Hip/
2	Hip Joint/
3	or/1-2
4	Pain/
5	3 and 4
6	(hip* adj3 pain*).tw.
7	Bursitis/
8	(trochanteric adj3 bursitis).tw.
9	(trochanteric adj3 pain).tw.
10	(great* adj3 trochanteric adj3 pain adj3 syndrome).tw.
11	gtps.tw.
12	or/5-11
13	Fascia Lata/su [Surgery]
14	fascia lata.tw.
15	(iliotibial adj3 band).tw.
16	(ilio-tibial adj3 band).tw.
17	(z plasty or z-plasty).tw.
18	or/13-17
19	12 and 18
20	Animals/ not Humans/
21	19 not 20