

# SNAPPING ILIOTIBIAL BAND

## REPORT OF TEN CASES AND REVIEW OF THE LITERATURE

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The authors performed a retrospective study on 10 young patients (11 hips) presenting with a tight iliotibial band resistant to nonsurgical treatment. The main symptoms were pain and snapping of the hip during running and strenuous brisk walking. Diagnosis was made by the exclusion of other pathology and the elicitation of the snap. Surgical treatment was performed in all these patients to aid physiotherapy. The main principle of management however remains stretching exercises. When surgery is required, the aim is to elongate the iliotibial band. In our series, we used Z-plasty of the band followed by repair of the fascia as described by Stainsby. Our postoperative rehabilitation was different from Stainsby's, however. We allowed early progressive full weight bearing in contrast to the two weeks bed rest adopted by Stainsby. Stretching exercises were started two weeks after surgery; this was active in the first four weeks. The results were good at a mean follow-up period of 12 months (range : 8 to 24 months). Scar sensitivity was a problem in three of these patients; this responded only partially to a desensitization program.

**Conclusion :** A reasonable result can be obtained following Z-plasty of a tight and symptomatic iliotibial band. Surgery is required only occasionally and there are associated complications, which must be discussed with the patients, these being recurrence of symptoms and wound problems.

**Keywords :** snapping hip; iliotibial band; surgery.

**Mots-clés :** hanche à ressaut, fascia lata, chirurgie.

### INTRODUCTION

Tightness of the iliotibial band has been implicated in many lower body disorders (13) including

lumbar hypomobility and pain, sacroiliac hypermobility (3, 8, 10, 12, 14) and iliotibial friction (7).

The latter can occur in runners and cyclists as a result of abrasion between the iliotibial band and the lateral femoral condyle. Localized tenderness, worse with the knee flexed 30°, is common. Rehabilitation is usually successful. Surgical excision of an ellipse of the iliotibial band is occasionally necessary (7). The iliotibial band friction syndrome should be differentiated from a snapping iliotibial band syndrome. The snapping iliotibial band syndrome is a condition in which the iliotibial band abruptly catches on the greater trochanter. The condition is more common in females with a wide pelvis and prominent trochanters. Running on banked surfaces can exacerbate snapping. The snapping may be reproduced with passive hip flexion from an adducted position. Stretching/strengthening modalities, such as ultrasound and occasionally surgical release may relieve the snapping (6, 7).

This condition must be differentiated from the less common snapping iliopsoas tendon. The latter occurs during the slipping of the psoas tendon across the pectinus fascia and the underlying lesser trochanter. The snapping that occurs following psoas tendon slipping is situated anteriorly in the groin.

In the current study we review the literature about the topic, report the results in ten patients who have had surgical treatment for this condition

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and in particular the role of physiotherapy before and, when operated on, after surgical release.

## MATERIAL AND METHODS

Ten patients (eleven hips) presented to the orthopedic department in Kings Mill Hospital, Mansfield with snapping hip(s). Six patients were female (seven hips) and four were male; the mean age of these patients was 17.3 years (range 15-22 years). The left hip was affected in eight and the right side in three. In only one case were both hips snapping.

Two patients had two previous operations on the same limb without benefit. In one patient, the tensor fascia lata was released around the knee and in another patient, realignment of the patellar tendon (Goldwaith procedure) was performed for maltracking of the extensor mechanism on the same side.

The main complaint in all 10 patients was pain with a sense of giving way of the hip during snapping. The snapping (both audible and palpable) occurred around the greater trochanter during running or walking. The mean duration of symptoms was 18 months (range : 6 to 32 months).

Snapping of the iliotibial band against the greater trochanter is elicited by the gradual passive movement of an adducted and internally rotated hip into flexion and external rotation; at some stage during this procedure the hip clicks suddenly with apprehension and pain. One hand has to be placed on the greater trochanter to feel for the click in order to avoid mistaking this with snapping of the iliopsoas where the click is in the femoral triangle area. This maneuver brings the greater trochanter in direct contact with the iliotibial band. When either the greater trochanter is abnormally large or the iliotibial band is tight in this region, there will be firm contact between the two. The snapping occurs when the iliotibial band disengages the greater trochanter. Six patients could elicit this on his (her) own when asked.

All these patients had normal general examinations and plain x-rays of the hips. Magnetic resonance imaging (MRI) of the involved hip was performed in 6 patients, and a computerized tomography scan of the hip was carried out in four.

These patients were also assessed by our physiotherapist, and a program of stretching exercises was indicated. Physiotherapy in the form of stretching of the hip abductors was provided for a mean period of 7 months

(range : 6 to 18 months) for all these patients, with limited benefit.

The response to the stretching exercises was slow; our patients opted for surgery when snapping interfered with running and sports activities. Surgical treatment was required in less than one third of cases with a snapping iliotibial band treated in our unit.

The surgery was intended to elongate the tight iliotibial band in the region of the greater trochanter. This was carried out through a transverse incision centered on the tip of the greater trochanter. The iliotibial band was then explored and elongated using Z-plasty; none of our patients had an abnormally large greater trochanter requiring trimming. After Z-plasty, the defect in the band was securely repaired. In the case with bilateral snapping hips, both sides were operated on during the same session.

Postoperatively, after pain control, these patients were encouraged to walk normally and weight bear as pain allowed. Walking was started under the supervision of the physiotherapist the day after surgery. At rest, hip adduction was discouraged for the first 10 days after surgery to aid in the healing of the elongated iliotibial band without tension and to avoid pain.

Five patients required walking aids for two to three days in the postoperative period. Within the first three days of the operation, seven patients were discharged home; the rest were discharged home on the fourth day after the operation. None of our patients used crutches on discharge for walking. They all were able to fully weight bear on the operated side(s). Progressive gentle postoperative active stretching of the iliotibial band was encouraged after removal of the skin sutures (two weeks) to avoid retightening of the iliotibial band.

## RESULTS

The mean follow-up interval was 12 months (range : 8 to 24 months). Pain and snapping disappeared following surgery. All the patients had full range of hip movement and a negative provocation test for fascia lata tightness. All our patients were able to go back to their sedentary activities two weeks after the operation and all of them were able to resume their previous sports activities at the last follow-up.

Three patients experienced scar sensitivity to touch. This responded to a scar desensitization program carried out for a period of two to six

months. This program consisted of gentle massage, ultrasound and short wave heat therapy to loosen up the scar.

### DISCUSSION

Iliotibial snapping hip can be a troublesome condition in runners and other athletes (7). Iliotibial snapping in the region of the greater trochanter should not be mistaken for friction of the iliotibial band that occurs around the lateral femoral condyle (2, 7). The maneuver we carried out to elicit snapping iliotibial band in our cases is more specific than Ober's test. The latter is not suitable for the diagnosis of snapping hip owing to dynamic friction between the iliotibial band and the greater trochanter; rather it is meant to identify a contracted iliotibial band (9, 10). Ober's test was originally designed to assess for hip abductor contracture. Instead the following clinical test was performed. This test is performed with the patient lying on his side (unaffected side down) with the lower limb flexed at the hip. While stabilizing the pelvis, the examiner passively abducts and extends the uppermost lower limb with the knee either flexed or extended. With the hip joint in extension and neutral rotation, the uppermost lower limb is allowed to passively drop towards the plinth. If iliotibial band shortening is present, the uppermost lower limb will remain abducted above the horizontal (9, 10).

The radiological tests are carried out to exclude other pathology like a labral tear or the presence of a loose body in the hip joint and the presence of a psoas bursa, as these conditions can also give rise to snapping and locking. Both MRI and CT scan were normal as expected in our patients. Snapping iliotibial band is a dynamic problem and is not picked up with a static MRI scan.

The typical treatment for a snapping iliotibial band is physiotherapy with emphasis on stretching. This is done by two methods. In the first method, iliotibial stretches may be carried out in knee standing (standing on the unaffected limb with the knee of the affected limb resting on a chair); using hip extension and adduction of the affected limb with knee flexion maintained (11).

In the second method, with the patient standing close to a wall supporting himself with the arm on

the affected side extended against the wall, both legs are then crossed. The affected hip then leans towards the wall and the trunk moves away from the wall by laterally flexing the trunk until a stretch is felt on the outside of the hip and thigh (4). Our patients preferred the second method.

In our series surgical elongation when required was accompanied by stretching exercises to prevent recurrence. Various results following Z-plasty surgical release of a tight iliotibial band have been reported in the literature. In Larsen and Johanson's series, snapping hips in 24 patients were followed for four (one to eleven) years after operation. At follow-up, snapping persisted in nine hips, in three cases accompanied by pain (5). In Brignall and Stainsby's series, eight hips in six patients were treated by this method and at follow-up all had a successful result, with relief of snapping (1). All our patients reported good results.

In light of our results and the present day rehabilitation protocols, we feel that what the literature recommends for postoperative immobilization is excessive. The theoretical objectives of this postoperative rehabilitation regimen were to allow the soft tissues to settle and to avoid rupture of the iliotibial band repair by immobilizing the hip(s) in abduction (1, 5, 6). In Stainsby's series, the period of hip immobilization was two weeks (1); based on our results we find this unnecessary.

In our series gentle active stretching exercises were started after removal of sutures and passive gentle stretching exercises can safely be performed six to ten weeks after surgery when the repair has healed. Early progressive weight bearing in our series was not associated with dehiscence of the wound or the repair. During rest, hip adduction and crossed legs need to be avoided in the first two weeks after surgery to avoid tension on the repair and to avoid pain and reflex spasm of tensor fasciae latae.

Being a subcutaneous bone, the greater trochanter puts the overlying skin under tension and the scar can become sensitive to touch as has happened in three of our cases. These patients can benefit from gentle wound massage, heat therapy and ultrasonic treatments.

## CONCLUSION

The mainstay of treatment of a snapping ilio-tibial band is stretching exercises of the band. Surgery is indicated only following a good course of stretching exercises. The outcome of surgery is rewarding when combined with stretching exercises. We feel that long postoperative bed rest as described in the literature is not necessary. Early weight bearing can be safely started the day after surgery.

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## SAMENVATTING

A. A. FARAJ, A. MOULTON, V. M. SIRIVASTAVA.  
*Snapping hip : 10 gevallen en literatuuroverzicht.*

De auteurs bestudeerden retrospectief een tiental jeugdige patiënten (11 heupen) met snapping hip : klikken van een opgespannen fascia lata over de grote trochanter. De hoofdklacht kwam neer op een pijnlijke heupklik bij lopen of snel stappen. De diagnose werd gesteld door het reproduceren van de klik, na uitsluiten van andere pathologieën. Normaal bestaat de behandeling uit rekoefeningen. Als deze laatste zonder resultaat blijven, zoals bij de 10 patiënten in kwestie, wordt de fascia lata operatief ontspannen. De auteurs pasten een z-plastiek toe waarna herstel van de fascia lata, volgens de techniek van Stainsby. Toch werd gekozen voor een ander postoperatief schema : vroegtijdig steunen werd toegelaten in tegenstelling met de twee weken bedrust voorgesteld door Stainsby. Na twee weken werden rekoefeningen gestart, maar dan wel uitsluitend actief tijdens de eerste maand. Na een gemiddelde follow-up van 12 maanden (uiterste waarden 8 en 24 maanden) bleken de resultaten goed. Drie patiënten klaagden weliswaar van littekenpijn, die slechts onvolledig beantwoordde aan fysiotherapie.

Besluit : een aanvaardbaar resultaat is mogelijk met behulp van genoemde techniek. Natuurlijk is heelkunde maar aangewezen wanneer conservatieve therapie mislukt. Ook dient men de patiënten te wijzen op de mogelijke verwickelingen, namelijk herval en littekenpijn.

## RÉSUMÉ

A. A. FARAJ, A. MOULTON, V. M. SIRIVASTAVA. *La hanche à ressaut : présentation d'une série de 10 cas et revue de la littérature.*

Les auteurs ont étudié rétrospectivement 10 patients jeunes (11 hanches) qui présentaient une hanche à ressaut par frottement du fascia lata sur le grand trochanter. Ils se plaignaient surtout de douleurs et d'un ressaut au niveau de la hanche lorsqu'ils couraient ou marchaient à vive allure. Le diagnostic a été posé par la reproduction du ressaut, après avoir écarté d'autres pathologies possibles. Le traitement repose essentiellement sur des exercices d'étirement. En cas d'échec, comme c'était le cas chez ces 10 patients, le traitement chirurgical vise à détendre le fascia lata. Les auteurs ont utilisé dans cette série une plastie en Z suivie de répara-

tion du fascia lata selon la technique de Stainsby. Le programme de rééducation post-opératoire était cependant différent : ils ont autorisé rapidement la reprise de l'appui complet, sans imposer les deux semaines de repos au lit adoptées par Stainsby. Des exercices d'étirement ont été commencés deux semaines après l'opération : celle-ci a reposé sur des exercices actifs pendant les 4 premières semaines. Les résultats ont été bons avec un recul moyen de 12 mois (extrêmes : 8 et 24 mois). Trois patients se sont plaints de douleurs cicatricielles

qui ont répondu incomplètement à un traitement physiothérapeutique.

En conclusion, une plastie en Z du fascia lata peut apporter un soulagement raisonnable chez des patients présentant une hanche à ressaut en rapport avec une tension excessive sur le fascia lata. Le traitement chirurgical n'est indiqué qu'en cas d'échec du traitement conservateur, et il expose à des complications qui doivent être exposées au patient, essentiellement une récurrence et des douleurs cicatricielles.