

ENDOSCOPIC TREATMENT OF THE EXTERNAL SNAPPING HIP SYNDROME: SURGICAL TECHNIQUE AND REPORT OF TWO CASES

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SUMMARY – Snapping hip or coxa saltans is a condition characterized by an audible and/or palpable snapping during hip movement and can be associated with pain around the hip. There are various causes of this condition and can be divided into two types: extra-articular and intra-articular. The most common type is the external extra-articular, where the snapping is due to thickened posterior part of the iliotibial band or anterior part of the gluteus maximus muscle sliding over the greater trochanter during hip movement. Two patients with external snapping hip are presented, who were treated with our original endoscopic iliotibial band release and greater trochanteric bursectomy. There were no surgical complications and the patients did not experience snapping or pain in the hip during 24-month follow-up period. Results of various open techniques and one endoscopic technique in the treatment of external snapping hip are also reported.

Key words: *External snapping hip; External coxa saltans; Iliotibial band; Endoscopic release*

Introduction

Snapping hip, or coxa saltans, is an audible and/or palpable phenomenon that occurs usually with flexion and extension of the hip during exercise, or simply with normal activities of daily living. The causes of snapping hip can be divided into two types, extra-articular and intra-articular, with the extra-articular type being subdivided into medial (internal), lateral (external) and posterior^{1,2}. The tendinous origin of the long head of the biceps femoris muscle sliding over the ischial tuberosity causes the posterior type of snapping, and in the majority of cases of internal type of snapping hip, it is the motion of iliopsoas tendon over structures like the femoral head, anterior-inferior iliac spine, the lesser trochanter or the iliopectineal eminence that causes the snapping¹⁻⁴. The intra-articular

type of snapping is due to lesions in the joint itself, such as synovial chondromatosis, loose bodies, fracture fragments, and labral tears. The external type is most frequently encountered and is commonly caused by the iliotibial tract sliding over the greater trochanter. A thickening of the posterior part of the iliotibial tract or the anterior border of the gluteus maximus enhances the snapping³.

For rare cases of external type of snapping hip, which do not improve with the extended course of conservative treatment, surgery is required. There are various open procedures of iliotibial band release⁵⁻¹⁰. Recently, just one group of authors have reported the results of endoscopic technique to release the iliotibial band in patients with external snapping hip^{11,12}. In this article, we present two patients with the external snapping hip syndrome, treated with endoscopic iliotibial band release and greater trochanteric bursectomy after failure of extensive conservative treatment. We also report on the results of different open techniques and one endoscopic surgical procedure in the treatment of external snapping hip.

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Surgical Technique

The patient is placed in the lateral decubitus position after regional anesthesia has been provided. Posterior and anterior supports are used to stabilize the pelvis. The patient is prepped and draped in the usual sterile fashion. Then the greater trochanter is outlined and 2 portals are marked on the skin (superior trochanteric and inferior trochanteric) about 4 cm above and 10 cm below the tip of the greater trochanter. The

inferior trochanteric portal is created first and the arthroscopic cannula with the blunt obturator is introduced and directed to the superior trochanteric portal where a skin incision is made. A shaving blade is introduced through the superior trochanteric portal to clear the space superficial to the iliotibial band, creating virtual subcutaneous space. Then the arthroscopic cannula with the camera is moved to the superior portal and a hooked electrocautery probe is introduced at the inferior portal (Fig. 1). The greater trochanter is

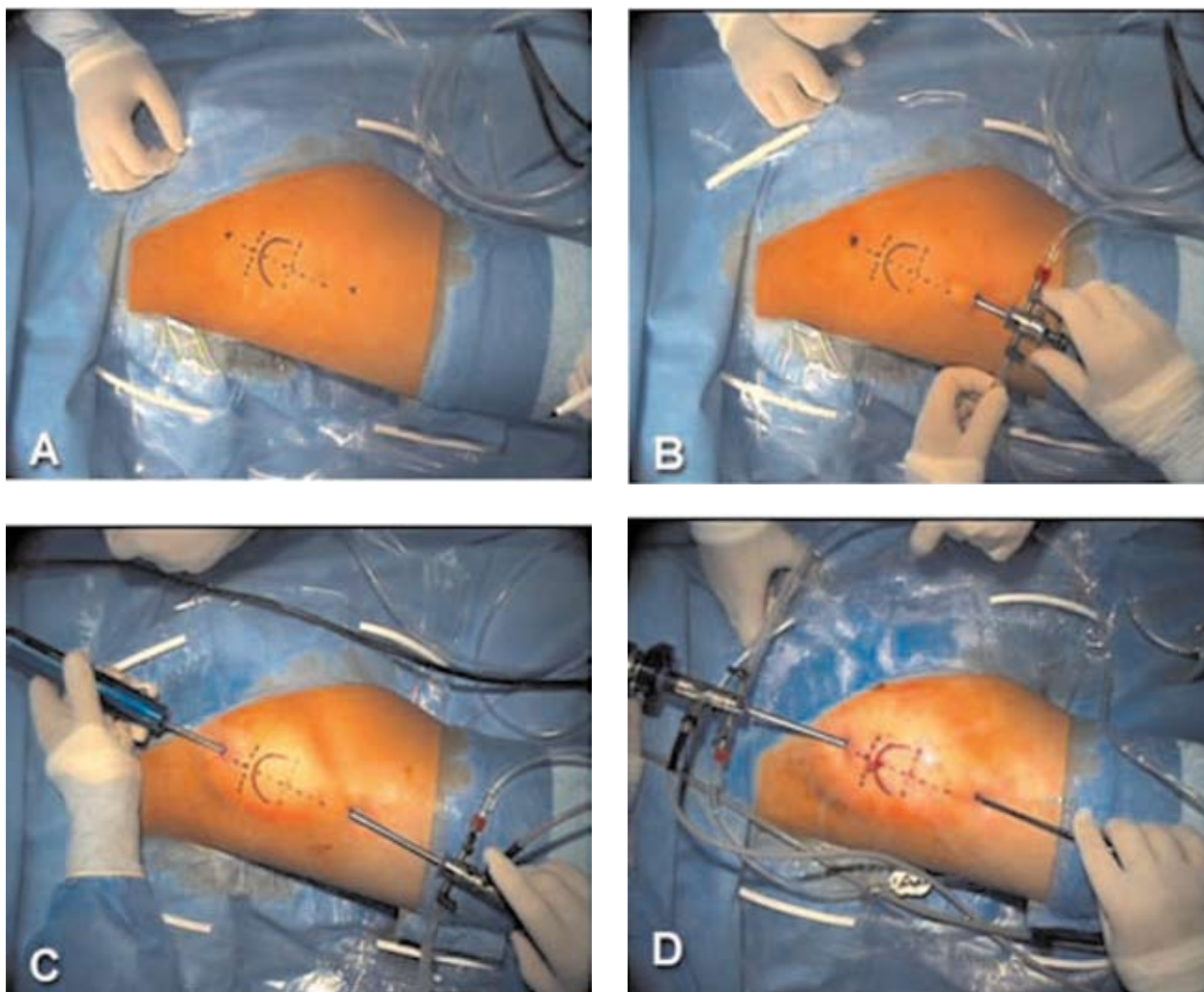


Fig. 1. (A) Clinical photograph showing the positions of the greater trochanter and the superior and inferior trochanteric portal (left hip); (B) the inferior trochanteric portal is created first and the arthroscopic cannula with the blunt obturator is introduced and directed to the superior trochanteric portal where a skin incision is made; (C) a shaving blade is introduced through the superior trochanteric portal to clear the space superficial to the iliotibial band; (D) the arthroscopic cannula with a camera is moved to the superior portal and a hooked electrocautery probe is introduced at the inferior portal.

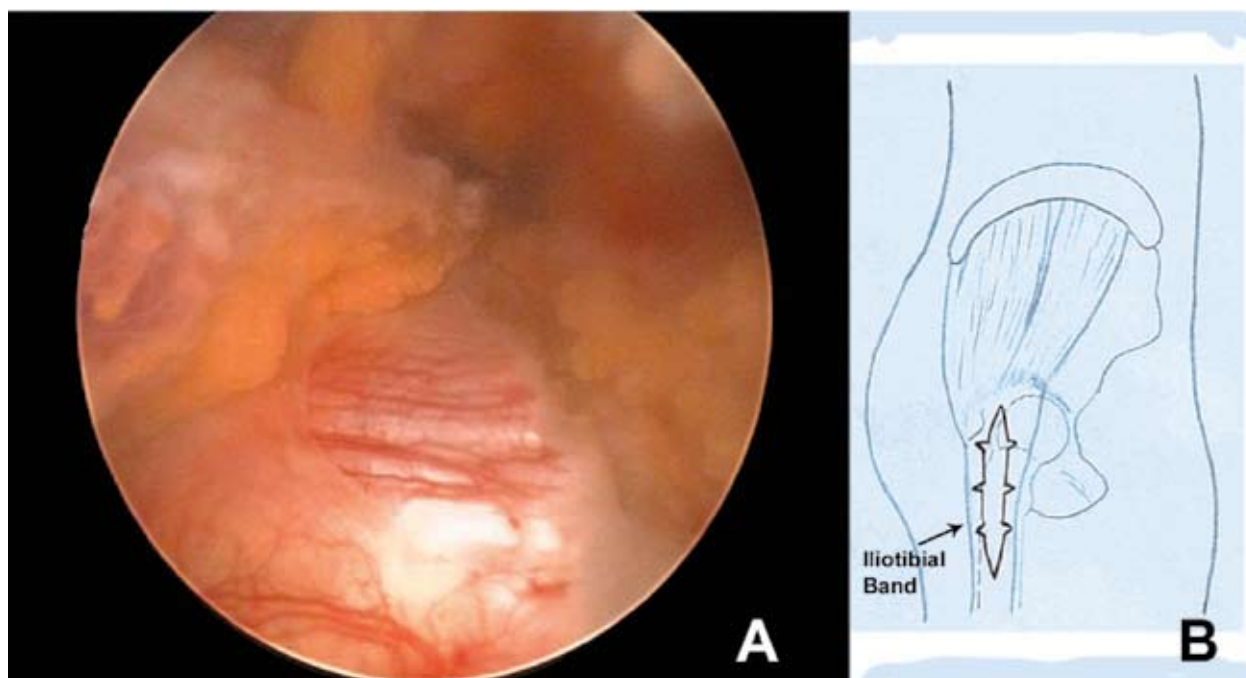


Fig. 2. (A) The arthroscopic image showing the greater trochanter after iliotibial band release and trochanteric bursectomy; (B) the final defect in the iliotibial band made by a 10-cm longitudinal and three 3-cm perpendicular cuts.

marked with a needle. One longitudinal 10-cm cut and three 3-cm perpendicular cuts are made in the iliotibial band (Fig. 2). After the release of the iliotibial band, the trochanteric bursa is identified and resected using a shaving blade. Snapping was tested at different times during the operation as a guide to adequate release of the iliotibial band. A drain was introduced through the inferior portal and the portals were closed with nylon sutures. The patients were released from the hospital the day after the surgery. Postoperatively, the patients were allowed to bear weight as tolerated with the use of crutches only for comfort for about 1-2 weeks.

Case Reports

The first patient was a 14-year-old female who presented to our orthopedic hospital with a 12-month history of snapping and lateral pain of the right hip. She had been training volleyball and handball for 4 years before the onset of pain and snapping in her right hip. The second patient was a 15-year-old male who presented to our orthopedic hospital with a

12-month history of snapping and lateral pain of the left hip. He had been training soccer for 6 years before the onset of pain and snapping in his left hip. Both patients denied any traumatic event or a history of falls and did not experience any hip problem in the past. They had tried conservative treatment, including activity modification, anti-inflammatory medication and physical therapy, without attaining lasting relief of their symptoms.

Physical examination in both patients revealed tenderness on palpation of the trochanteric region. They had full range of motion in their hips. The presence of snapping was assessed by asking the patients to reproduce it voluntarily and by passive flexion and extension of the adducted hip with the patient in the lateral decubitus position. The snapping could be blocked in both patients by applying pressure to the greater trochanter. They had positive Ober test, which verified iliotibial band tightness. Roentgenograms and magnetic resonance imaging were negative for any hip abnormality.

They both underwent endoscopic iliotibial band release with greater trochanteric bursectomy. Our

average surgical time was 52 minutes (62 and 42 minutes). Their postoperative course was uneventful and they returned to full sporting activities within 6 weeks. In the 24-month follow-up period, they had no hip snapping or pain.

Discussion

Symptomatic cases of external snapping hip are most commonly associated with repetitive activities, but trauma could also be a causative factor^{3,13}. External snapping hip is most commonly caused by thickening of the posterior part of the iliotibial tract or the anterior border of the gluteus maximus sliding over the great trochanter³. Tightness of the iliotibial band may also be an exacerbating feature of external snapping hip, and has classically been described in the downside leg of runners training on a sloped surface, such as roadside¹⁴.

Patients with external snapping hip syndrome will describe a sense that the hip is subluxing or dislocating, or they can feel the snapping during hip flexion and extension or internal and external rotation. This sensation is a dynamic process that the patients can

usually demonstrate better than it can be produced by passive examination¹³. Asymptomatic snapping occurs in many people and it should be considered benign and normal^{3,13}. Sliding of the iliotibial band over the greater trochanter can cause inflammation of the underlying bursa and then the snapping becomes painful and limiting to the patient^{3,5}.

Once the external snapping hip has been recognized clinically, no imaging is required. Dynamic sonography can best demonstrate the external snapping hip by showing the abnormal jerky movement of the iliotibial band or gluteus muscle and can correlate that with the painful snap¹⁵.

The first line of treatment in external snapping hip syndrome is conservative and it includes activity modification, iliotibial band stretching exercises, a course of anti-inflammatory medications, and selective corticosteroid injections into the trochanteric bursa^{3,7}. When conservative therapy does not alleviate the symptoms, various surgical techniques are used with variable success (Table 1)⁵⁻¹¹. Ilizaliturri *et al.* were the first to report on an endoscopic technique for iliotibial band release in external snapping hip syndrome¹¹. The iliotibial band was released by creating four flaps that

Table 1. Open and endoscopic techniques for iliotibial band release in external snapping hip syndrome

Author(s)	No. of hips	Technique	Rehabilitation	Follow-up (mean)	Success (%)
Zoltan <i>et al.</i> ⁷	7	Ellipsoid resection of tract over trochanter	Yes	55 mo	57 ^a
Larsen and Johansen ⁵	27	Resection of the posterior half of the tract at the gluteus maximus insertion	No	4 y	71
Brignall and Stainsby ¹⁰	8	Z-plasty incision and transposition of the tract	Yes	3 y	88
Faraj <i>et al.</i> ⁸	11	Z-plasty	Yes	12 mo	72
White <i>et al.</i> ⁹	16	Step cut iliotibial tract over great trochanter	No	32.5 mo	88 ^b
Provencher <i>et al.</i> ⁶	9	Z-plasty	Yes	22 mo	88
Ilizaliturri <i>et al.</i> ¹¹	11	Cross cut and flap resection (endoscopic)	No	25 mo	91

^a4 of 7 were asymptomatic, including 1 reoperation; ^bthese results include 2 patients who underwent reoperation and subsequently had resolution of their snapping symptoms

were resected, leaving a diamond-shaped defect. An open procedure where a similar defect was made in the iliotibial band was performed by Zoltan *et al.*⁷. Our endoscopic technique with one longitudinal and three perpendicular cuts resembles the open technique for iliotibial band release used by White *et al.*⁹, where they made one longitudinal 10-cm incision through the iliotibial band with associated 1.5-cm step cuts.

In our two patients, the procedure had no complications and there were no signs of snapping or pain in the hip postoperatively.

We can see that the results of endoscopic iliotibial band release are comparable to those of open procedures, although longer follow-up and larger series of patients are necessary to make some definitive conclusions. Endoscopic treatment of external snapping hip is a minimally invasive procedure with little discomfort for the patient. There is no need for extensive postoperative physical rehabilitation and patients can be discharged home on the first postoperative day. These promising results of endoscopic treatment of external snapping hip have to pass the test of time to be fully comparable to open procedures.

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Sažetak

ENDOSKOPSKO LIJEČENJE SINDROMA ŠKLJOCAVOG KUKA VANJSKOG TIPAA:
KIRURŠKA TEHNIKA I PRIKAZ DVAJU SLUČAJEVA

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Škljocavi kuk ili *coxa saltans* je stanje u kojem dolazi do čujnog i/ili palpabilnog škljocanja prilikom pokreta u kuku, tijekom čega se mogu javljati i bolovi. Prema uzrocima škljocavi kuk se dijeli na ekstra-artikularni i intra-artikularni. Najčešći tip je vanjski ekstra-artikularni, gdje do škljocanja dolazi zbog preskakanja zadebljanog stražnjeg dijela traktusa iliotibijalisa ili prednjeg dijela mišića gluteusa maksimusa preko velikog trohantera tijekom pokreta u kuku. U ovom radu prikazujemo dvoje bolesnika s vanjskim tipom škljocavog kuka koji su podvrgnuti endoskopskom opuštanju traktusa iliotibijalisa i uklanjanju burze nad velikim trohanterom našom vlastitom metodom. Oba zahvata su prošla bez komplikacija te bolesnici nisu imali bolove ili škljocanje u kuku u vremenu praćenja od dvije godine. Ujedno prikazujemo rezultate mnogobrojnih otvorenih tehnika i jedne endoskopske tehnike u liječenju škljocavog kuka.

Ključne riječi: *Škljocavi kuk; Coxa saltans; Traktus iliotibijalis; Endoskopsko opuštanje traktusa iliotibijalisa*