

CLINICAL CASE - TEST YOURSELF Musculoskeletal Imaging

Recurrent hip subluxation: is it really?

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PART A

A 43-year-old female patient was referred to our department with a presumptive diagnosis of recurrent hip joint subluxation. Physical examination revealed a palpable and audible snap on the lateral aspect of the left hip accompanied by significant pain. She was on a rehabilitation programme due to syringomyelia complicating

spinal surgeries for removal of pilocytic astrocytoma at the level of T6-7 in 2011 and in 2019 after local recurrence. She had muscle weakness necessitating assistance during standing upright and walking. Plain radiographs (**Fig. 1**) and magnetic resonance imaging (MRI) (**Figs. 2 and 3**) of the pelvis and left hip were obtained.



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Fig. 1. Anteroposterior pelvis radiograph of the patient.

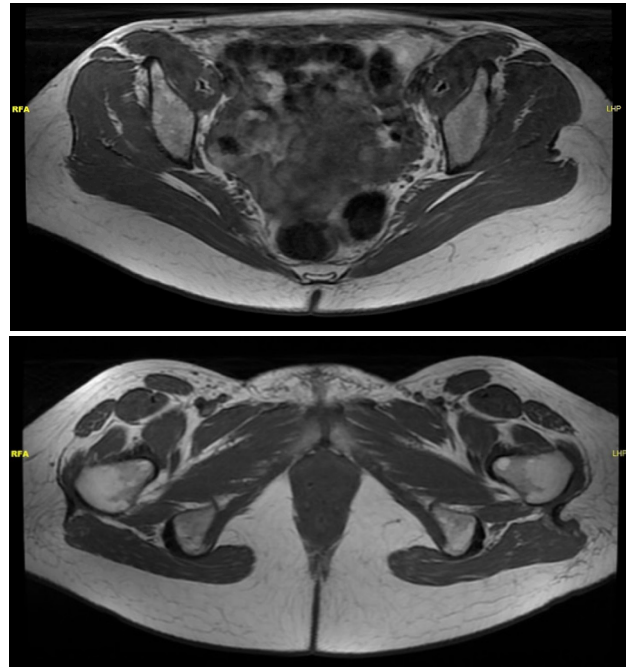


Fig. 2a. Axial T1-weighted images from mid-gluteal (a) and inferior gluteal (b) levels.



Fig. 3. Coronal T1-weighted (a) and STIR (b) images. Axial T1-weighted (c) and fat-saturated T2-weighted (d) images from inferior gluteal level

PART B

Diagnosis: External snapping hip syndrome

In our case, anteroposterior radiograph of the pelvis revealed an ill-defined left iliotibial band shadow (open arrows) in comparison to the thin line of well-defined right sided iliotibial band (arrows) (**Fig. 1**). No obvious bony pathology was noted (**Fig. 1**). Axial T1-weighted MR image at mid-gluteal level showed focal thickening of the left gluteus maximus myotendinous junction with an indentation (arrow) at the muscle belly at this site where lateral border of proximal tensor fascia lata also blends with superficial fibres of iliotibial band (**Fig. 2a**). Axial T1-weighted second image (**Fig. 2b**), caudal to Fig 2a, and coronal T1-weighted and STIR images (**Fig. 3a-b**) revealed a thick iliotibial band - gluteus maximus tendon junction just lateral to greater trochanter of the left femur. Axial T1-weighted and fat-saturated T2-weighted images (**Fig. 3c-d**) depicted the soft tissue oedema surrounding the thickened iliotibial band - gluteus maximus tendon junction as well as small amount of fluid around the tendon as a sign of peritendinitis. The contralateral gluteal muscles and the iliotibial band were normal in shape and thickness. This morphology had been defined as a 'sickle-shaped' myotendinous junction in a previous case report highlighting its rarity [1].

Snapping hip syndrome (SHS), also known as coxa saltans, is a well-described clinical condition characterized by palpable snapping sensation or audible snapping/popping sound around the hip joint during exercise or ordinary daily activities. It could be either a painless benign condition without any clinical implications or a condition presenting with a range of symptoms from mild discomfort to significant pain requiring surgical management. The prevalence of SHS, though not well-defined due to asymptomatic cases, is estimated to be somewhere between 5%-10% with a slight female predominance [2, 3]. SHS is commonly seen in dancers, soccer players, runners, and weightlifters due to repetitive hip flexion-extension movements and is often bilateral [4]. SHS may also result from a physical trauma or a surgery as well as

congenital anomalies such as coxa vara and developmental hip dysplasia [3]. SHS was initially categorised into two distinct groups based on its aetiology, as extra-articular or intra-articular. Extra-articular snapping hip has been further divided into external and internal types, with the former being the most common [5, 6]. External SHS is generally related to back and forth gliding of the iliotibial band or the gluteus maximus tendon over the greater trochanter of the femur during hip flexion and extension. Other less common causes include the proximal hamstring tendon, the fascia lata, and the psoas tendon snapping against the ischial tuberosity, the greater trochanter, and the medial fibres of the iliacus muscle, respectively, or a combination of any of these mechanisms [7, 8].

Clinical history and physical examination often help diagnosing external snapping hip. On physical exam, palpable snapping sensation or audible snapping/popping sound on the lateral side of the hip joint is highly suggestive of this phenomenon. Provocative manoeuvres, especially those indicated by the patient him/herself, can make these findings more prominent [3]. Patients with SHS are not very often imaged because the diagnosis in most cases is straightforward. However, the findings are sometimes mistakenly attributed to hip subluxation, as with our case [2]. Therefore, diagnostic imaging, along with clinical context, may prove helpful in establishing the correct diagnosis. Although often unremarkable, a plain radiograph is often the first imaging modality to rule out anatomical variations or other hip disorders such as developmental dysplasia. Real-time dynamic ultrasound has emerged as the imaging modality of choice to diagnose external SHS since it allows direct visualization of the aforementioned soft tissues as well as accompanying pathologies such as bursitis and tendinitis. MR imaging which could offer more insight in both the internal and external types, can act as a problem-solving tool [9].

First-line treatment for external SHS involves ad-



Fig. 1. Anteroposterior pelvis radiograph of the patient revealing smooth, thin soft tissue opacity representing the normal iliotibial tract (arrows) on the right side whereas subtle iliotibial band shadow (open arrows) on the left side.

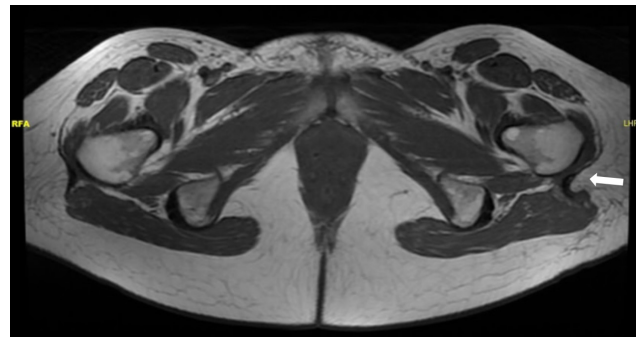
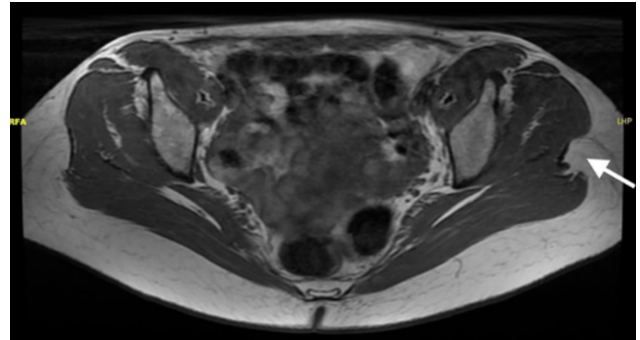


Fig. 2. Axial T1-weighted images from mid-gluteal (a) and inferior gluteal (b) levels depicting the thickening of iliotibial band - gluteus maximus tendon junction with an indentation (arrow) at the muscle belly and the “sickle-shaped” gluteus maximus myotendinous junction on the left side (arrow), respectively.



Fig. 3. Coronal T1-weighted (a) and STIR (b) images demonstrating thick left-sided iliotibial band (black arrow). Axial T1-weighted (c) and fat-saturated T2-weighted (d) images from inferior gluteal level display the thickened iliotibial band - gluteus maximus myotendinous junction and subjacent soft tissue oedema (white arrow).

Note: All the content herein has been fully de-identified to protect the patient’s privacy.

addressing the underlying pathology and supportive care, including weight loss, activity modification, targeted physical therapy, and, if necessary, pain relief medication. In cases refractory to conservative management, US-guided corticosteroid injection or shock wave therapy may be considered to reduce the pain so that the patient can continue with physiotherapy. Surgical intervention is reserved as an option for refractory cases [10].

Snapping hip syndrome can present with debilitating symptoms and thus have an impact on the quality

of life. Familiarity with this entity is of utmost importance for correct clinical and radiological assessment, and resultantly appropriate patient management. As noted earlier, clinical history and physical examination are vital in placing the imaging findings in context. Radiologists should be aware of this rare cause of external snapping hip syndrome in order to guide the clinicians to the correct diagnosis. **R**

Conflict of Interest:

We declare that we have no conflicts of interest.



KEY WORDS

Snapping hip; Gluteus maximus; Myotendinous junction; Magnetic resonance imaging

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READY-MADE
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