

Limitation in Flexion of Both Hips in Three Boys Cured by Section of Bilateral Accessory Tendons of Gluteus Maximus

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Abstract

Introduction: Anomalies of paediatric hip muscles are rare events, but they can cause significant problems in daily activities. Hence, their identification and treatment are essential.

Patients: Three boys presented with bilateral limitation of hip flexion interfering with sitting and attending school. Biology and radiology were normal. Exploration of the gluteus tendons revealed an accessory tendon of the gluteus maximus inserted into the inter-trochanteric line.

Results: Surgical release was curative in all cases. The child felt happy to sit and use the hips as normal.

Conclusion: Anatomic variation of gluteus maximus has to be kept in mind when flexion of the hip is limited in children in the absence of radiological abnormalities. Surgical release is curative.

Keywords: Accessory; Tendon; Gluteus; Maximus; Hip flexion

Introduction

Gluteus maximus muscle arises from the iliac crest and is inserted into the gluteal area of the posterior part of the femur and the fascia lata. It helps in hip extension and single leg stance phase. The gluteus maximus is the largest and most superficial of the three gluteal muscles. It is a narrow and thick fleshy mass with a quadrilateral shape, and is remarkably coarse in structure, being made up of fasciculi lying parallel with one another, and collected together into large bundles separated by fibrous septa [1]. The gluteus maximus has two insertions; those forming the lower and larger portion of the muscle, together with the superficial fibers of the lower portion, end in a thick tendinous lamina, which passes across the greater trochanter, and inserts into the iliotibial band of the fascia lata; the deeper fibers of the lower portion of the muscle are inserted into the gluteal tuberosity between the vastuslateralis and adductor magnus [1].

Disorders of the gluteus maximus are rare. Congenital or acquired contracture of the Gluteusmaximus muscle is reported to lead to serious functional impairment. Snapping due to a tight gluteus maximus tendon often requires Z plasty [2,3].

The aim of the presentation of the current case series is to report and highlight on an anatomical variation of gluteus maximus insertion which gives rise to a serious disability in children.

Clinical Report

In the year 2013, three boys (six hips) presented to Hawler teaching hospital with history of inability to properly sit on the floor since infancy. The condition was bilateral. Mean age was 8 years (from 5 to 12). Two of these patients were brothers.



Figure1: MRI scan of the hip showing an abnormal band on T2 images, passing across the posterior part of the hip to the greater trochanter

The parents complained that the gait of the children was abnormal and that they could not sit properly on the floor. They also walked with externally rotated lower limbs. Despite all this, these children were otherwise healthy and were able to play sports with some limitations. The condition was painless.

Eyeballing was used for measurement. Examination revealed limitation of hip flexion, with a mean range of 70° flexion (50-90°) (Figure 1). Hip flexion increased around ten degrees when combined

with abduction and external rotation of the hip. Conversely, adduction and internal rotation of the hip reduced the arc of hip flexion by 10 degrees. There was no swelling or tenderness, no limb leg inequality, or other problems.

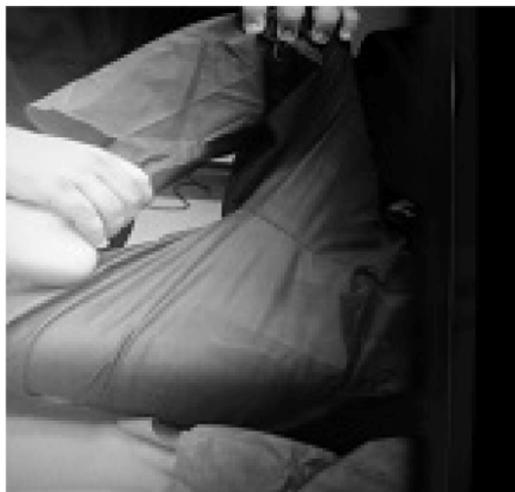


Figure 2: Lack of flexion of the hip



Figure 3a: The gluteus maximus is exposed, there seemed to be a band 1.4cm by 4 cm, separate from the main gluteus maximus insertion

Plain radiographs and magnetic resonance imaging of the hips were abnormal (Figure 1). Blood investigations, including complete blood picture, were also normal.

A clinical suspicion of a mechanical problem affecting hip flexion was made (Figure 2). Surgical exposure was made using Moore approach. In all three patients, an extra-tendon was identified, arising from the postero-inferior part of the gluteus maximus, directed infero-laterally and attached to the inter-trochanteric line. Figure 3, shows the gluteus maximus after exposure, there seemed to be a band 1.4cm by 4 cm, separate from the main gluteus maximus insertion, the band had a definite separate sheath from the remaining of gluteus maximus. This

tendon was released. On table, there was a dramatic improvement of hip flexion, almost back to normal.

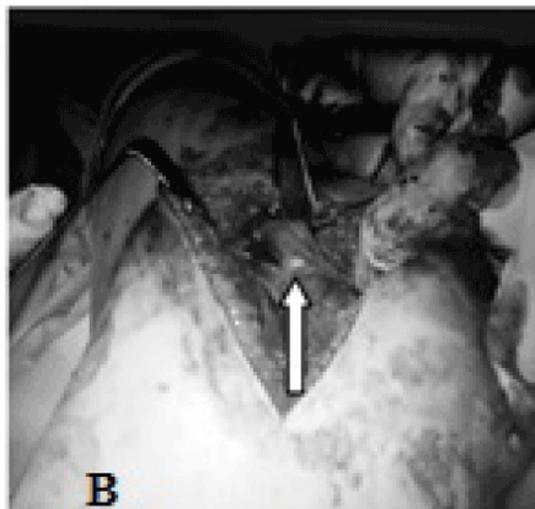


Figure 3b: the band had become more apparent with a definite separate sheath from the remaining of gluteus maximus

After a mean follow-up of 12 months (from 6 to 16), assessment included checking the gait, ability to sit or squat on floor, and possible complications of surgery. At that time, these children had dramatic improvement, were able to sit, run and had regained normal sport's activities.

Discussion

Children, who have walking difficulties, suffer with their mobility, however, children who have difficulty sitting on chair or the floor, suffer with their comfort and rest. There are very few conditions which may cause difficulty sitting, congenital spinal, pelvic, and femoral skeletal deformities may give rise to difficulty in sitting. It is not heard of in the past until the current report, that anomalies of the glutei, give rise to problems with sitting [1-5].

There is not full agreement regarding the distal insertions of the gluteus maximus muscle [1,4]. The current paper reports an anatomical variation not reported before to the best of our knowledge [5]. The tendon noticed in the cases reported originated from the belly of the gluteus maximus and inserted into the inter-trochanteric line of the posterior part of the femur.

There have been reports of double glutei, but not an extra-gluteal tendon attached is the intertrochanteric line causing disability because of lack of flexion. This abnormal insertion led to limitation of the flexion of the hip especially when combined with adduction and internal rotation of the hip. Abduction of the hip seemed to relax the gluteus maximus and allow more flexion. This is in contrary to gluteus maximus contracture where the hips are difficult to adduct and is kept abducted [4]. Two of our patients with bilateral extra gluteal tendon, were brother, this may indicate, that the condition may be familial and affect male gender

There are limitations with the current paper, the number of patients is small and apart from clinical findings, preoperative investigations to

confirm the diagnosis are of limited benefit. However, the awareness of the current anomaly could lead to a cure following surgical exposure and excision of band.

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