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Ischiofemoral Impingement Syndrome: A Case Report and a Review of Literature

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Background:	Ischiofemoral impingement syndrome is characterized by a hip pain associated with abnormalities in quadriceps femoris muscle and ipsilaterally reduced distance between the lesser trochanter and the ischium. Thus far, the congenital variant of this entity has been reported exclusively in women.
Case Report:	We report a case of a 22-year old male with painful hips in whom on the basis of the imaging studies the constitutional variant of ischiofemoral impingement was diagnosed.
Conclusions:	Ischiofemoral conflict should be taken into consideration in the differential diagnosis of hip pain, particularly among women, but also in patients with valgus hip deformity and other abnormalities leading to reduction of the space between femoral and ischial bones independent of gender.
MeSH Keywords:	Hip Joint • Magnetic Resonance Imaging • Pelvic Bones
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Summary

Background

Ischiofemoral impingement is a recently identified condition characterized by hip pain with coexisting abnormalities of quadratus femoris muscle and narrowing of the space between the lesser trochanter of the femur and the ischial bone [1]. World literature contains only a few reports of this syndrome and until now, its congenital variant has been ascribed only to females [1,2]. We report a case of a 22-year-old male complaining of hip pain, diagnosed on imaging studies with ischiofemoral impingement secondary to the valgus hip.

Case Report

A 22-year-old male, who had been building his house for the past 4 years, reported to the Orthopedic Outpatient Clinic due to periodic bilateral hip pain radiating to the buttocks. Pain became more severe as construction work intensified, forcing the patient to interrupt work for several days. He reported a sense of skipping in the hip joints; however, without blocking. Orthopedic examination revealed full range of motion in the hip joints; maximal external rotation in the right hip joint produced pain.

AP and axial x-ray examination of the hips revealed normal acetabula of both hip joints with proper covering of femoral heads (Wiberg angle was 35 degrees bilaterally), symmetrical hip joint spaces and valgus hips (femoral neck-shaft angle was 155 degrees on the right side and 161 degrees on the left) (Figure 1). Hip MRI was performed for better assessment of soft tissues, revealing bilateral edema and discrete fatty atrophy of quadriceps femoris muscles (Figure 2A, 2B). The distance between lesser trochanter of the femur and ischial bone was 12 mm on the right and 14 mm on the left, while the distance between the lesser trochanter and ischiotibial muscle equaled 13 mm and 14 mm, respectively (Figure 2C). Bilateral ischiofemoral impingement was diagnosed on that basis. Since pain was of moderate intensity, plasty of lesser femoral trochanters seemed to be somewhat excessive treatment. Therefore, patient was offered a CT-guided therapeutic puncture with injection of an analgetic drug and steroids into the edematous muscles. Patient did not consent to such treatment.

Discussion

A conflict between lesser femoral trochanter and ischial bone was first described by Johnson in 1977 as a

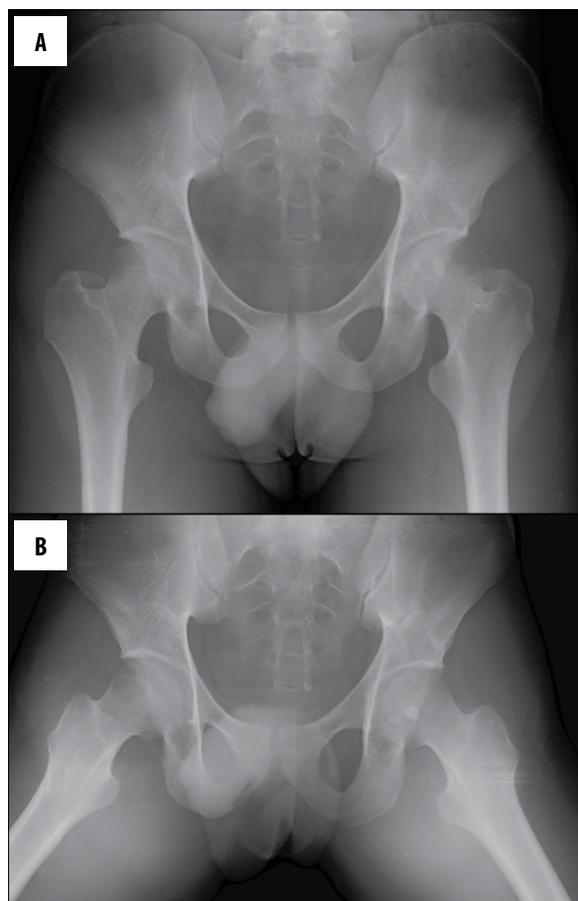


Figure 1. Plain radiographs of the hips in AP (A) and frog-leg lateral (B) projections. There is a valgus deformity of the hips. Apart from that, the hips are unremarkable.

postoperative complication [3]. He reported on two patients after hip arthroplasty and one patient after transtrochanteric osteotomy suffering from postoperative hip pain. In all of those patients x-ray pictures revealed narrowing of the space between the lesser trochanter of the femur. Treatment involved resection of the lesser trochanter and led to alleviation of symptoms. Recent reports suggested that similar syndrome might occur in patients without a history of hip surgery [1,4,5]. In response to an article describing change of signal in quadriceps femoris muscles as a rare cause of hip pain Kassarian suggested that in some patients symptoms might result from narrowing of the space between the femur and the ischial bone, leading to impingement and damage of muscles [4,5]. The problem was more precisely analyzed by Torriani et al., who had conducted a retrospective analysis of MRI studies of patients with changes of signal intensity in the quadriceps femoris muscle [1].

Narrowing of the space between the lesser trochanter of the femur and the ischial bone ramus (by those authors referred to as ischiofemoral space, IFS) as well as the lesser trochanter and insertions of ischiotibial muscles (quadratus femoris space, QFS) were noted in all of those patients. Dimensions of IFS and QFS in patients presenting with change of muscle signal compared to the control group were 1 ± 5 mm vs. 23 ± 8 mm and 7 ± 3 mm vs. 12 ± 4 mm, respectively.

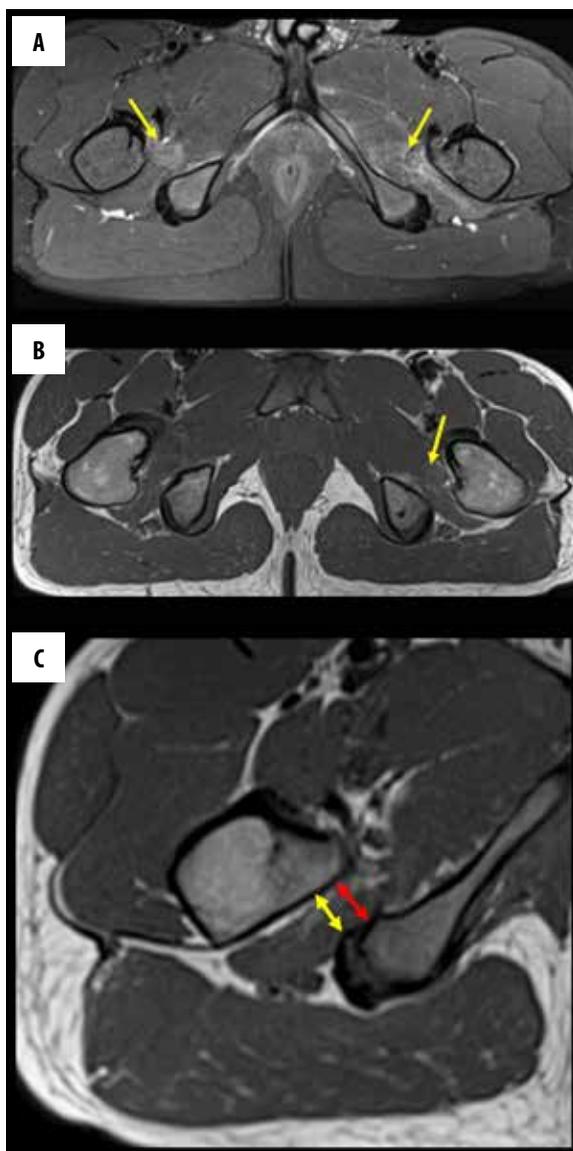


Figure 2. MRI of the hips. PD-weighted images with fat suppression in the axial plane (A) show bilateral edema of the quadriceps femoris muscles (arrows), the abnormality is more prominent on the left. On T1-weighted axial images (B), there is a subtle fatty atrophy of the quadriceps femoris muscles (arrow). (C) A T1-weighted image in the axial plane showing the technique of IFS measurement (red) and QFS (yellow), as described by Torriani et al. [1]. Both IFS and QFS are markedly reduced.

Until now all described patients with constitutional ischiofemoral impingement have been females [1,2]. Occurrence of these changes in women is explained by different anatomy of the pelvis – its transverse diameter is larger than in men and their ischial tuberosities are set wider apart [1]. Therefore, it is thought that women with prominent lesser trochanters may be predisposed to ischiofemoral conflict [1]. In our patient, narrowing of IFS and QFS was secondary to a congenital defect of proximal femurs, i.e. valgus deformity of the hips, bringing lesser trochanters and ischial bones closer together (Figures 1, 2). Other possible causes of ischiofemoral conflict include posttraumatic changes or

osteochondroma originating from the lesser trochanter [2,6]. MRI examination enables precise assessment of changes in morphology (IFS and OFS dimensions), as well as the degree of muscular dysfunction (Figure 2).

Differential diagnosis of ischiofemoral impingement should include acute tear of the quadriceps femoris muscle as well as its degeneration seen in athletes, as described by the sports medicine literature [7–9]. In this group of patients the onset of symptoms is usually acute and the distance between the femoral and ischial bone is not reduced.

Ischiofemoral impingement is rarely diagnosed, there is no generally accepted treatment. Plasty of the lesser trochanter

performed in some patients may seem excessive for subjects with mild symptoms [3,6]. Development of minimally invasive therapy for this group of patients remains an open issue.

Conclusions

Ischiofemoral conflict should be taken into consideration in the differential diagnosis of hip pain, particularly among women, but also in patients with valgus hip deformity and other abnormalities leading to reduction of the space between femoral and ischial bones independent of gender. It may be suspected that increasing awareness of radiological signs may result in more frequent diagnosis and broadening of our knowledge regarding this pathology.

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