



SHORT ORIGINAL ARTICLE / *Musculoskeletal imaging*

## Acute inguinal pain associated with iliopectineal bursitis in four professional soccer players

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### KEYWORDS

Iliopectineal bursitis;  
Inguinal pain;  
Professional sportsman;  
Soccer player;  
Ultrasound-guided injection

**Abstract** Four professional soccer players were investigated for acute or subacute pain in the inguinal region. Clinical tests were negative for an inguinal hernia or adductor tendinitis. Resisted hip flexion caused pain. MRI in these four patients showed the onset of iliopectineal bursitis, with signal abnormalities predominantly at the periphery of the psoas tendon in contact with the iliopectineal eminence. Ultrasound-guided steroid injection allowed the two players injected to continue their sporting activity. The two other players were treated by 3 and 7 days rest and oral anti-inflammatory treatment.

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The iliopectineal bursa is the body's largest bursa (6 × 3 cm) and is present in 98% of adults [1–3,8]. It is situated between the iliopsoas muscle and the anterior surface of the hip capsule.

Bursitis is rarely primary, often being secondary to hip disease [1,4,8]. Synovial fluid breaks through under pressure or penetrates via a congenital communication from the articular cavity into the bursa. The iliopectineal bursa, which is normally virtual is only seen in images when it is pathological. We report four observations of primary iliopectineal bursitis (or bursitis of the iliopsoas) in professional sportsmen. The aim is to describe the MRI signs of this pathology in professional sportsmen and the therapeutic action taken in these four patients.

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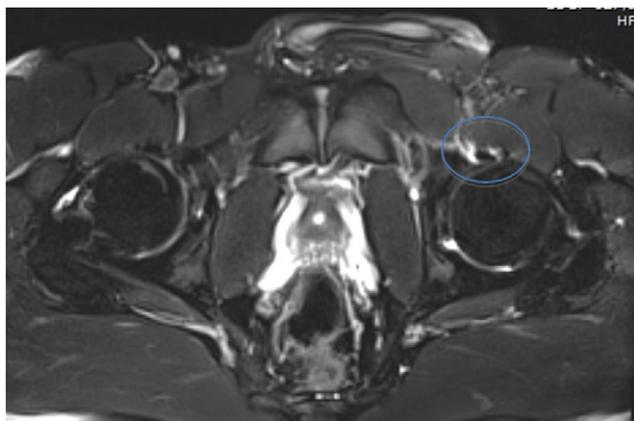
## Observation 1

The first observation was of a predominantly right-footed professional footballer, an attacking midfielder (Figs. 1 and 2). He suddenly complained of pain in the left deep inguinal region, poorly defined with little appearing in the clinical examination. Deep palpation and extreme passive mobilisation triggered pain. MRI showed a clear ring of hyperintensity around the left iliopsoas tendon predominantly near the iliopectineal eminence. Moreover, this player had discrete signs of impingement in both hips.

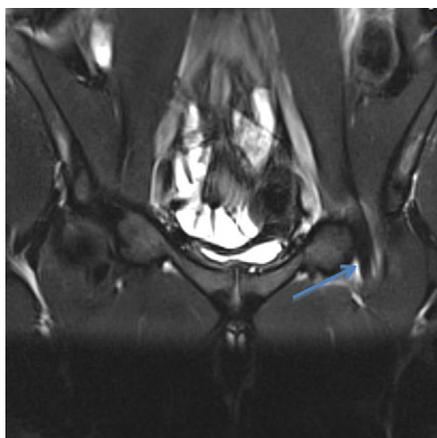
Following ultrasound-guided peritendon injection of a cortisone derivative, together with physiotherapy, the same level of sporting activity could be continued.

## Observation 2

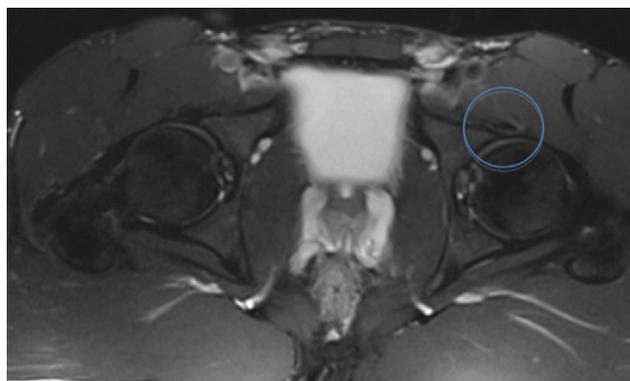
The second patient was also a predominantly right-footed, professional attacking midfielder (Fig. 3). Progressive painful discomfort gradually developed over several days and became rapidly aggravated during a match, obliging him to leave the field at half-time. The picture was of left pubo-inguinal pain with pain provoked on palpation of the inguinal fold and also of the pubic entheses of the left rectus abdominis. No trauma came to light during questioning. Ultrasound



**Figure 1.** Axial proton density fat sat sequence. Left iliopectineal bursitis.



**Figure 2.** Coronal T2-weighted fat sat sequence. Same patient.



**Figure 3.** Axial proton density fat sat sequence. Minimal left bursitis. No signal abnormality in the muscle mass explored.

examination was normal, in particular for the entheses of the adductors and the left rectus abdominis. Ultrasound showed nothing unusual, with no evidence of hip joint effusion. The psoas tendon was normal but deep palpation of it caused pain.

MRI revealed minimal tendinobursitis of the left psoas with a very narrow ring of hyperintensity around the left tendon, just anterior to the femoral head, with no liquid effusion into the bursa. There was no signal abnormality from the entheses previously mentioned.

Treatment by ultrasound-guided injection into the iliopectineal bursa allowed sporting activity to be continued. The diagnostic test with xylocaine was positive.

## Observation 3

This was a 28-year-old, right-footed attacking footballer (Fig. 4). He was referred for an imaging examination the day after a match. Two days before the weekend match he had non-disabling left inguinal discomfort. The day after the match, in which he played for the full time, he complained



**Figure 4.** Coronal proton density fat sat sequence. Slight effusion in the left iliopectineal bursa. Note the signs of pubic osteoenthesopathy.

of spontaneous left inguinal pain, which increased with pressure, with a doubt concerning trauma to the sartorius muscle. MRI was performed. The examination showed moderate but obvious inflammatory thickening of the left iliopsoas bursa, then along the left psoas peritendon almost as far as the insertion on the lesser trochanter. The left hip showed no MRI abnormalities.

The patient did not want to have an ultrasound-guided injection. He was prescribed three days rest with oral anti-inflammatories and specific physiotherapy.

## Observation 4

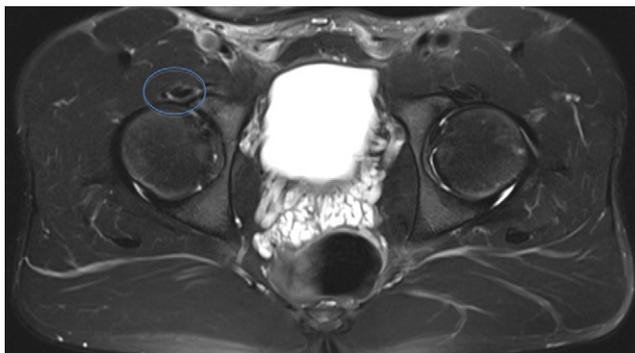
Over a period of one week, this young (23-year-old) right-footed attacker progressively presented with right inguinal pain, which led to an ultrasound examination; this did not reveal any muscle or tendon pathology (Fig. 5). MRI showed hyperintensity of the right iliopsoas bursa and around the tendon responsible for the symptoms. There was no underlying hip pathology, moreover, nor did the examination reveal any muscle injury. Oral anti-inflammatory treatment together with physiotherapy was rapidly effective and injection did not appear to be necessary. The player simply missed three training sessions and was absent from the field for 7 days.

## Discussion

Iliopsoas bursitis has been widely described in the literature, particularly associated with anterior impingement with total hip prostheses [1,4–7], with degenerative hip changes or in the context of septic arthritis [8]. These are examples of secondary bursitis. To our knowledge, bursitis for these reasons has not been described in professional sportsmen or athletes where myotendinous lesions of the iliopsoas predominate [9].

It is a condition caused by excessive demand on and inflammation of the bursa, which may be the result of impingement between the psoas tendon and the pubic bone. It is probably multifactorial, depending amongst other things on the morphology of the pelvic girdle and musculature.

Clinical diagnosis of primary iliopsoas bursitis in the sportsman is difficult. It has sometimes been suggested in our small population without any certainty of the diagnosis being correct. The predominant clinical picture is of



**Figure 5.** Axial proton density fat sat. Right iliopsoas bursitis. No evidence of underlying hip disease.

discomfort or moderate pain in the inguinal region. There are few features on clinical examination, with no inguinal hernia and normal muscle test results. Clinical tests are not specific. Only MR can provide imaging diagnosis at an early stage, because it is a deep region and the peritendinous inflammatory changes are difficult to pick out with ultrasound. Here we are describing iliopsoas bursitis at an early stage, without real effusion but simply an inflammatory signal around the psoas tendon, which is sometimes very discreet. Symptomatic bursitis was diagnosed due to the radiological and clinical features agreeing and because there was no other MRI abnormality likely to explain the symptoms. It was confirmed in two of the patients by an ultrasound-guided test and therapeutic injection as described by Adler et al. [10]. On the other hand, ultrasound can itself provide the diagnosis in developed bursitis when there is significant effusion. It also extends the clinician's hand when it arouses pain as the probe passes over.

Ultrasound is an essential first-line diagnostic test where impingement is suspected between the psoas tendon and a prosthetic cup following hip arthroplasty. In this case it can make visible a possible cup projection in contact with the psoas tendon and/or the painful bursa [11]. This examination was only performed as a first-line of investigation in two of the four sportsmen. The result was normal, but palpation of the iliopsoas region was painful, suggesting this condition, which was then confirmed by MRI.

MRI can offer precise diagnosis of the lesion, the examination providing information on any associated pathology and allowing the differential diagnoses of an articular or abarticular origin to be excluded. Associated hip impingement was diagnosed in one of the players in our small series, a condition which is not rare in sportsmen. It can itself explain inguinal pain due to the cartilage disease that it causes, but particularly due to the associated labral lesions [12]. Clinical examination tries to reproduce the pain through the anterior impingement test [13,14] and often allows diagnosis before the imaging examination. The clinical presentation of an acute muscle lesion of the psoas or of the deep muscles of the hip, particularly the obturators, can be identical [15,16]. MRI exploration of the region corrects the diagnosis. Making a differential diagnosis between an early bursitis and a small myotendinous lesion of the psoas muscle may be subtle in MRI. If there is actual injury to the myotendinous junction, there may be inflammation of the bursa, but in this case there is also associated oedema within the terminal muscle fibres, which must be sought without fail to avoid offering a potentially damaging injection.

The players who were not given an injection were treated appropriately by physiotherapy after a first phase of analgesic, decontracting and anti-inflammatory treatment.

The treatment was continued by a progressive static then dynamic workout for the hip flexors and knee extensors.

Running outside and the post-injury retraining phase began once working out in the gym was no longer painful – after only a few days in these two sportsmen.

## Conclusion

There are few descriptions of primary iliopsoas bursitis in sportsmen. Ultrasonography is the first-line examination

and diagnosis is easy where there is effusion. MRI is the most effective imaging procedure for making a diagnosis in this population when there is only slight inflammatory thickening of the bursa. An ultrasound-guided injection provides both a test (anaesthetic) and treatment (a cortisone derivative) and allowed an immediate return to competitive activity in the two players treated in this way.

We believe that this is a quite frequent condition in soccer players since our four cases occurred within a 24-month period in a league 1 team.

## Disclosure of interest

The authors declare that they have no conflicts of interest concerning this article.

## References

- [1] Bard H, Morvan G. Les bursopathies de la racine du membre inférieur. In: *Actualités sur les tendinopathies et les bursopathies des membres inférieurs*. Paris: Masson; 2001 [27–36].
- [2] Bard H. Bursites et bursopathies. *Encyc Med Chir Appareil Locomoteur* 1993;15-160-A10.
- [3] Wunderbaldinger, Bremer C, Schellenberger E, Cejna M, Tureschek, Kainberger F. Imaging features of ilio-psoas bursitis. *Eur Radiol* 2002;12(2):409–15.
- [4] Parier J, Brasseur JL, Montalvan B. Le muscle iliopsoas: anatomie et pathologies. *Medecins du Sport* 2006:75.
- [5] Lequesne M, Dang N, Montagne P, et al. Conflit entre prothèse totale de hanche et psoas. *Rev Rhum* 1991;58:559–64.
- [6] Kolmert L, Peterson BM, Herrlink K, Ekelund L. Ileopectineal bursitis following total hip replacement. *Acta Orthop* 1984;55:63–5.
- [7] Mathieu P, Lequesne M, Bonnat D, et al. Le conflit psoas-matériel de prothèse totale de hanche (PTH). In: *Imagerie de la hanche Getroa opus XXVI*. Montpellier: Sauramps médical; 1999 [265–75].
- [8] Ginesty E, Dromer C. Les bursopathies du psoas iliaque. A propos de douze observations. *Rev Rhum* 1998;65:197–202.
- [9] Bouvard M, Lanusse P, Lippa A, Ospital JL, Durrafour H. Lésions de la jonction myo-tendineuse du psoas-iliaque. In Rodineau J, Saillant G, Masson (ed.), *XIX<sup>o</sup> Journée Traumatologie du Sport*, 233–39.
- [10] Adler RS, Buly R, Ambrose R, Sculco T. Diagnostic therapeutic use of sonography-guided iliopsoas peritendinous injections. *AJR* 2005;185:940–3.
- [11] Guillin R, Bianchi S. Évaluation par échographie des conflits entre les matériels orthopédiques et les parties molles des membres. *Gel Contact* 2001;20:35–9.
- [12] Narvanii A, Tsiridiis E, Kendall S, Chaudhuri S, Thomas P. A preliminary report on prevalence of acetabularlabrumtears in sports patientswith groin pain. *Knee Surg Sports Traumatol Arthrosc* 2003;11:403–8.
- [13] Hunt D, Clohisy J, Prather H. Acetabulartears of the hip in women. *Phys Med Rehabil Clin N Am* 2007;18(3):497–520 [ix-x].
- [14] Burnett RS, Della Rocca GJ, Prather H, Curry M, Maloney WJ, Clohisy JC. Clinical presentation of patients withtears of the acetabularlabrum. *J Bone Joint Surg Am* 2006;88:1448–57.
- [15] Brunot S, Dubeau S, Montero C, Thebault J, Bouin H. Lésion isolée des muscles obturateurs chez le footballeur professionnel. A propos de trois cas. *J Traumatol Sport* 2010;27: 139–41.
- [16] Roger B, Jomah N, Almusa E. Lésions traumatiques des muscles profonds de la hanche en IRM. *MO n<sup>o</sup> 206*. Août 2011.