

Medial synovial fold cyst in the hip leading to pectineofoveal impingement

Naoki Nakano and Vikas Khanduja*

Department of Trauma and Orthopaedics, Addenbrooke's Hospital, Cambridge University Hospitals NHS Foundation Trust, Hills Road, Cambridge CB2 0QQ, UK

*Correspondence to: V. Khanduja. E-mail: vk279@cam.ac.uk

Submitted 25 July 2016; Revised 20 September 2016; revised version accepted 23 October 2016

ABSTRACT

Pectineofoveal impingement is a relatively rare condition, which can cause hip or groin pain along with mechanical symptoms of clicking in the young adult. We present the case of a 13-year-old girl who was referred to us with left hip pain, which had been affecting her for over six months along with mechanical symptoms of clicking. Following appropriate clinical examination and investigations the patient underwent arthroscopic surgery of her hip. At arthroscopy, a cyst was identified on the medial synovial fold, which was abutting against the zona orbicularis leading to pectineofoveal impingement. The cyst was decompressed and the synovial fold excised arthroscopically. Following arthroscopic intervention, the patient did extremely well and remains asymptomatic at the last follow-up (7 months following the procedure). The case highlights the importance of the medial synovial fold pathology as an important cause for pain and mechanical symptoms in the young adult hip.

INTRODUCTION

Hip impingement commonly refers to femoroacetabular impingement (FAI), which is a well-described cause of hip pain and loss of function in the young, non-arthritic patient.^{1–3} However, as the understanding of pathology in and around the hip has increased, other hip impingement syndromes have been described and these also constitute to important causes of pain and mechanical symptoms in and around the hip in the young adult. These syndromes include ischiofemoral impingement, subspine impingement, iliopsoas impingement, deep gluteal syndrome and pectineofoveal impingement.⁴

Due to their unfamiliarity, it can often be difficult to make a definitive diagnosis and differentiation amongst these rare pathologies.

Of these, pectineofoveal impingement has received little attention in the literature thus far. The presence of a thickened medial synovial fold abutting against the zona orbicularis is usually responsible for this form of impingement. We present a rare mechanism for the causation of pectineofoveal impingement in a young girl occurring secondary to the formation of a medial synovial fold cyst.

To the best of our knowledge, this mechanism for pectineofoveal impingement has not been reported previously.

CASE PRESENTATION

A 13-year-old girl was referred to our tertiary young adult hip service by a local general practitioner for evaluation of a painful left hip, which had been affecting her for over 6 months. She complained of a deep-seated pain in her left groin particularly after any strenuous or sporting activity, and along with the pain she also complained of mechanical symptoms of clicking in her hip joint. She had no definite history of injury, which had led to the onset of her symptoms. However, her mother gave the history that she had clicky hips as a child and had spent 10–20 weeks in a Pavlik harness between 2 and 4 months of age.

Examination of her left hip revealed that she had a normal gait and Trendelenburg's test as well as the single leg hop test were negative. There was minimal tenderness over the abductors on resisted abduction and over the flexors on resisted flexion, while no tenderness over the adductors on resisted adduction. Flexion was up to 100°, internal rotation in 90° of flexion was 40° and external

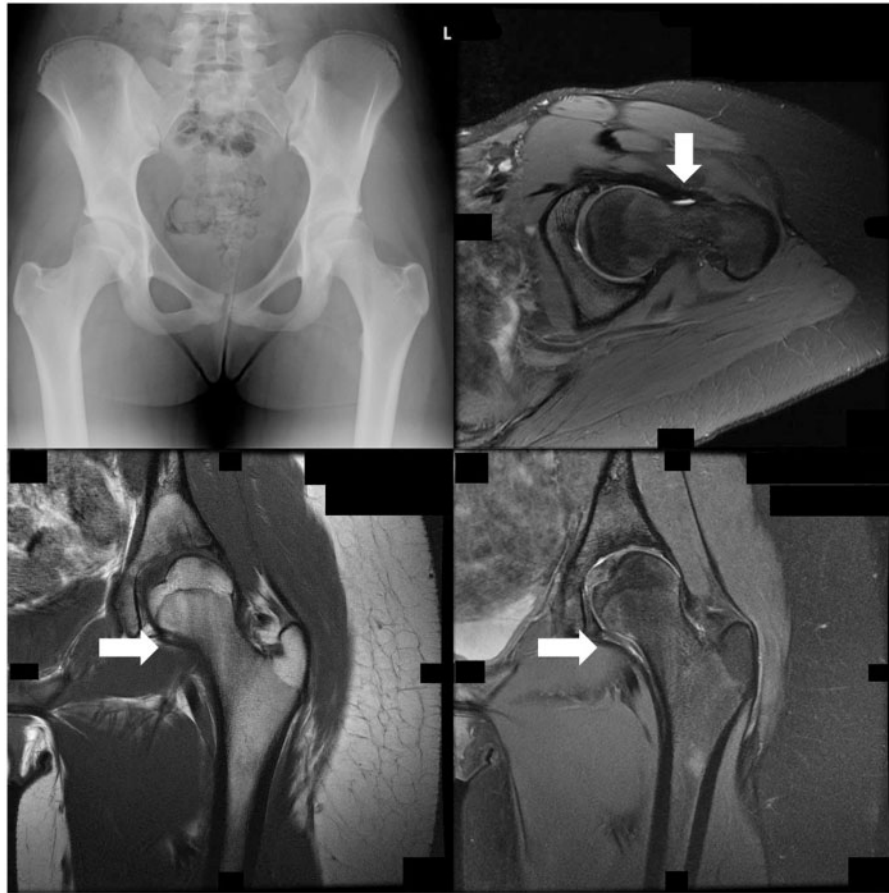


Fig. 1. X-ray and MRI scan. Arrow shows the area with abnormal intensity, which was consistent with the cyst found on the medial synovial fold.

rotation in 90° of flexion was 45° . Impingement test as Faber test were negative. Mechanical symptoms such clicking were not clearly reproduced during clinical examination. Dorsalis pedis was well palpable.

Plain radiographs did not reveal any obvious abnormality. MRI showed an labral tear with a shadow with abnormal intensity around the femoral neck, which corresponded with the area of the medial synovial fold (Fig. 1).

Since she was tender over the muscles and the impingement test was negative, we decided to proceed with a diagnostic hip injection using local anaesthetic to elucidate whether the pain was intra or extra-articular in origin. This resolved her symptoms temporarily indicating an intra-articular source of pain. However, she continued to remain symptomatic and it was therefore decided to proceed with arthroscopic surgery of her hip. At arthroscopy, she was found to have a small anteroinferior labral tear, which was stable and it was therefore debrided with the help of a radiofrequency probe. The ligamentum teres showed

minimal fraying but it was intact and the posterior labrum was intact as well. There was no evidence of articular cartilage damage in the acetabulum or over the femoral head. Findings in the peripheral compartment consisted of a well-defined cyst on the medial synovial fold which was abutting against the zona orbicularis leading to pectineofoveal impingement (Fig. 2). The cyst was excised and so was the medial synovial fold until there was no impingement on the zona orbicularis.

She was advised to follow the 16-week post-operative rehabilitation protocol following surgery. Six weeks, following the procedure she demonstrated a pain free functional range of movement of her hip joint, and there was no obvious sign of any complications. Tenderness over the abductors and flexors had settled following surgery and rehabilitation. Twelve weeks following surgery, all her preoperative symptoms of pain and clicking had settled down and she had re-gained a pain free and functional range of movement of her hip joint. She was allowed to get back to her favourite sport, netball, at that

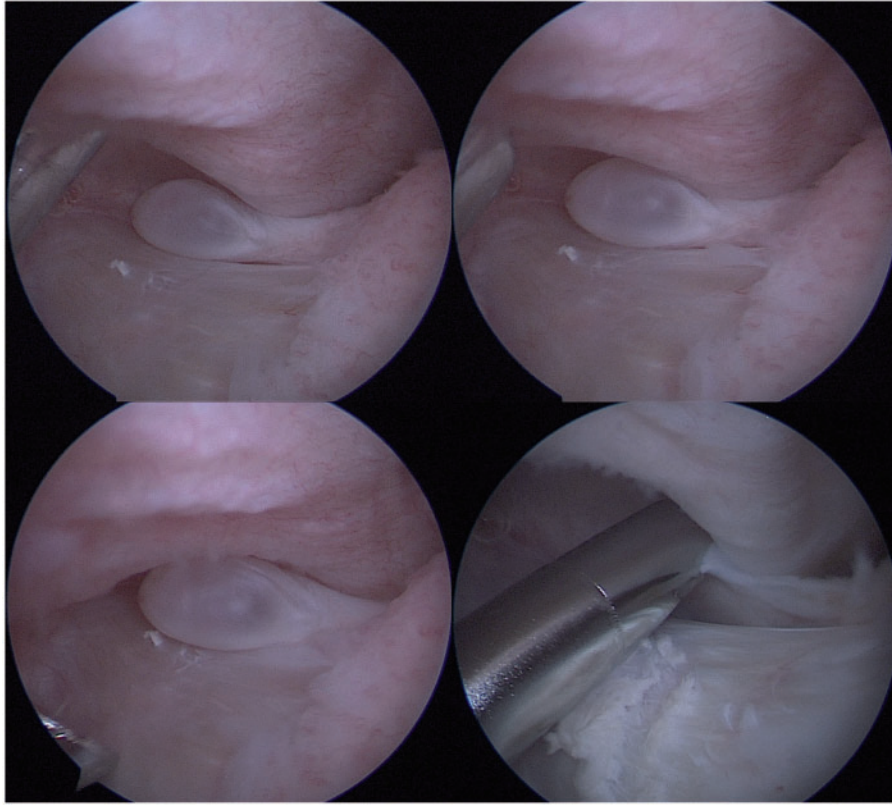


Fig. 2. Arthroscopic images of the peripheral compartment. A cyst was identified on the medial synovial fold and this was abutting against the zona orbicularis.

stage and remains symptom-free at the last follow-up (7 months following her procedure).

DISCUSSION

We describe the arthroscopic appearance of a medial synovial fold cyst which led to pectineofoveal impingement. Impingement cysts are frequently seen on the femoral head neck junction in patients undergoing hip arthroscopy for FAI and are found predictably within the epicentre of the femoral-induced impingement.⁵ Cysts can also be found in the labrum as degenerative process or secondary to iliopsoas impingement. Tey *et al.*⁶ reported the case of a young sportsman with groin pain caused by psoas impingement with a labral tear and secondary paralabral cyst that was treated arthroscopically by debridement of the cyst, psoas tenotomy, and labral repair. However, the medial synovial fold cyst, as described in our patient, has not been reported previously.

Pectineofoveal impingement is a rare condition, which can cause unexplained hip or groin pain in young adults. The only articles describing this pathology have been published in the French literature⁷⁻⁹ and some communications have been made in the annual meetings of International Society of

Hip Arthroscopy,^{10,11} but as yet there have been no articles published on this subject in the English literature. The medial synovial fold represents a fibrous band located anteromedially on the femoral neck, and it is consistently visualised during arthroscopy of the peripheral compartment of the hip. Anatomically, it originates from the head-neck junction and inserting distally onto the capsule, crossing the zona orbicularis and iliopsoas tendon. The medial synovial fold is well known for its utility as a landmark during arthroscopic trans capsular release of the iliopsoas through the peripheral compartment.¹² Pectineofoveal impingement may be symptomatic when an abnormally shaped medial synovial fold impinges against overlying soft tissue, primarily the zona orbicularis.⁴ In this case, a cyst occurring in the medial synovial fold itself led to impingement against the overlying zona orbicularis leading to the pain and perhaps clicking as well in the hip. There is a possibility that the cyst was impinging against the labrum as well especially during deep flexion. Symptomatic pectineofoveal impingement is usually treated by arthroscopic resection of the medial synovial fold. Although there has been no English-language study which reported the outcome of the treatment for pectineofoveal

impingement until now, Bardakos mentioned his experience in his review that a female sprinter diagnosed with isolated pectineofoveal impingement had achieved a fully successful outcome following arthroscopic intervention.

Our patient underwent decompression of the cyst followed by excision of the medial synovial fold, which abolished her symptoms. Surgeons involved in the care of young adults with hip pain should keep pectineofoveal impingement as a differential especially in a patient with pain and mechanical symptoms.

CONFLICT OF INTEREST STATEMENT

None declared.

REFERENCES

1. Chaudhry H, Ayeni OR. The etiology of femoroacetabular impingement: what we know and what we don't. *Sports Health* 2014; **6**:157–61.
2. Leunig M, Beaulé PE, Ganz R. The concept of femoroacetabular impingement: current status and future perspectives. *Clin Orthop Relat Res* 2009; **467**:616–22.
3. Anderson SE, Siebenrock KA, Tannast M. Femoroacetabular impingement: evidence of an established hip abnormality. *Radiology* 2010; **257**:8–13.
4. Bardakos NV. Hip impingement: beyond femoroacetabular. *J Hip Preserv Surg* 2015; **2**:206–23.
5. Leunig M, Mast NH, Impellizzeri FM *et al.* Arthroscopic appearance and treatment of impingement cysts at femoral head-neck junction. *Arthroscopy* 2012; **28**:66–73.
6. Tey M, Alvarez S, Rios JL. Hip labral cyst caused by psoas impingement. *Arthroscopy* 2012; **28**:1184–6.
7. May O, Boyer T, Dorfmann H. Pectineofoveal pathology and arthroscopic treatment. *Rev Chir Orthop* 2004; **90**:182.
8. May O. Pectineofoveal impingement, Anatomy, Technique of surgery, Results. *Advances in Hip Arthroscopy*, Paris, 2006.
9. May O. Pectineofoveal Impingement. *Advances in Hip Arthroscopy*, Paris, 2008.
10. May O, Boyer T. Pectineofoveal and soft tissue impingement - Does it exist? International Society of Hip Arthroscopy (ISHA) annual meeting, 2013.
11. May O. Pectineofoveal Impingement - Etiology and Treatment. International Society of Hip Arthroscopy (ISHA) annual meeting, 2014.
12. Aprato A, Jayasekera N, Bajwa A *et al.* Peri-articular diseases of the hip: emerging frontiers in arthroscopic and endoscopic treatments. *J Orthop Traumatol* 2014; **15**:1–11.