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Case Report

Femoro-acetabular impingement in athlete: A case report

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Abstract

Injuries in sports persons and athletes have tremendous financial implications and can often be career-ending. The injuries to the hip in particular, have not been given due importance in the past probably because the diagnosis and treatment were either ambiguous or not well developed. But, with improvement in the radiological studies especially MR arthrogram and newer hip arthroscopic surgery techniques, both diagnosis and management of such injuries have improved leaps and bounds. Hip arthroscopy as a diagnostic and treatment modality has offered an excellent tool to treat such injuries in athletes. This case report of a 21-year-old athlete had symptoms of hip impingement (Femoro-Acetabular impingement). The physical examination revealed joint line tenderness and positive hip impingement tests. The hip X-rays and MRI scans also indicated femoro-acetabular impingement (FAI) of the hip with tear in the acetabular labrum. Hip arthroscopy was planned as non operative treatment was unsuccessful. The CAM (bony bump on the femoral head-neck junction) resection and acetabular trimming and labral repair was done. He returned to regular sports without any symptoms in the hip. Hence, Arthroscopic CAM resection with acetabular trimming and repair of the labrum is an effective treatment for symptomatic FAI, especially in sport persons and athletes.

Key words: athlete, arthroscopy, hip impingement

Case report

A 21-year-old professional athlete had pain in the right hip for four weeks. Complaints of sharp pain in his right groin and sometimes in the lateral aspect began when he was sprinting during routine practice. He complained of occasional clicking in the hip joint. There were no inflammatory symptoms. There was no acute traumatic event. He noticed no significant improvement in the hip pain with analgesics, activity modifications and protected weight bearing. The clinical exam showed tenderness around the right hip joint line. The strength was 5/5 bilaterally for all muscles of the hips and pelvis. The adduction of hip in internal rotation and flexion reproduced.

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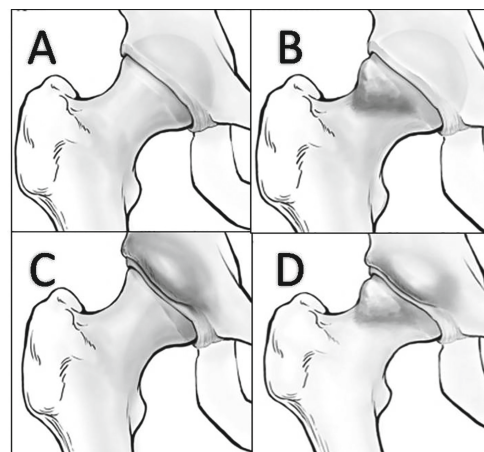


Figure 1: A. normal joint B. CAM morphology with bony prominence of anterolateral femoral head/neck junction. C. Pincer lesion with prominence of anterior acetabulum D. combined lesion

his right hip pain. The impingement clinical test was positive. The internal rotation in 90-degree flexion of hip was restricted by 15° on the right side compared to the left hip. A clinical diagnosis of FAI (femoro-acetabular impingement) was made (Figure 1). AP both hips and frog lateral view x-rays were

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obtained. The femoral head-neck junction showed a bump, known as CAM deformity (Figure 2). Hip dysplasia was ruled out. The MR imaging also confirmed the CAM deformity and showed some articular cartilage damage consistent with FAI. In this young athlete with FAI on clinical exam and imaging, surgical option was advised and pursued. Hip arthroscopy was performed on a fracture table in the supine position (Figure 3). The acetabular rim was trimmed 3-4mm using an arthroscopic burr and the labrum was repaired using three bio-absorbable anchors. The capsular release was done with a banana knife and CAM resection was performed next under vision (Figure 4). The intra-operative flexion-internal rotation was checked and found to have improved. Post operatively, emphasis was placed on restoring muscle power with the aid of supervised physical therapy program. The protected weight bearing with crutches was advised for four weeks to protect the femoral osteoplasty site. The patient was pain free three months after surgery with rehabilitation. He returned to pre-injury level of sports one year after the repair.

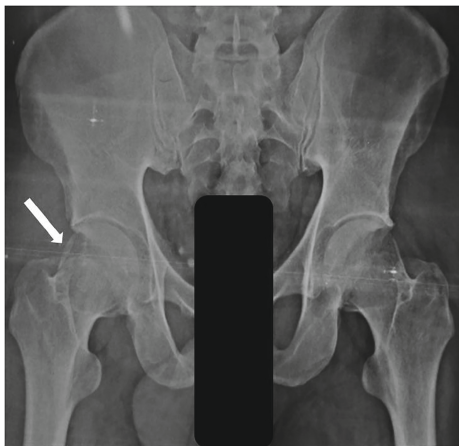


Figure 2: Right Hip CAM lesion (white arrow)

Discussion

Impingement (FAI) of the hip joint is a known morphologic variation that predisposes the joint to intra-articular pain and pathology.¹ It was under-diagnosed before but now it is increasingly being confirmed as a cause of hip pain and functional disability in young people engaged in physical activities and sports. If left untreated it is shown to lead to secondary osteoarthritis of the hip joint.² Early osteoarthritis of the hip joint and its

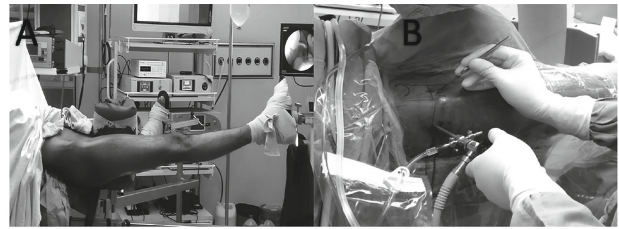


Figure 3: A. Hip arthroscopy positioning on fracture table. B. Hip arthroscopy anterior portal making

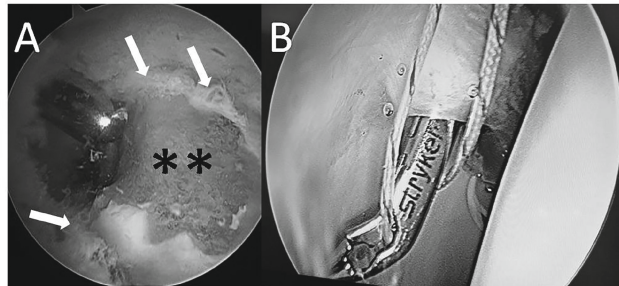


Figure 4: A. Capsular release (white arrows) and Femoral Osteoplasty (asterix*). B. Labral repair and Rim trimming

association with the pistol-grip deformity of the femoral neck was first described by Stulberg *et al.*, in the early seventies.³ Ganz *et al.* described the femoral bump and CAM deformity as the precursor to the development of secondary osteoarthritis of the hip joint.⁴ They also sub-grouped femoro-acetabular impingement into three types; pincer type impingement, CAM deformity impingement and combined type of impingement. They also described an open surgical approach for correcting the impingement (Figure 3). CAM deformity type impingement results from a deformed femoral head abutting against the labrum and acetabular rim. This non-sphericity of the femoral head causes damage and delamination of articular cartilage and labral tears. The CAM deformity results either by a developmental disorder (premature eccentric closure of the growth plate at femoral head - neck junction) or by reactive lesions of the joint.⁵ On the other hand, the pincer type impingement may result from a variety of morphologies of the acetabulum, including increased acetabular retroversion, protrusion acetabuli, large femoral head, and post-traumatic deformities.⁶ This causes over coverage by the acetabular rim resulting in labral tears, acetabular cartilage lesions and the femoral neck junction damage, especially in flexion and internal rotation of hip.⁷ The cystic changes especially on the femoral neck may often be observed.⁸ Surgery has

been shown to be a preferred choice in the treatment of hip impingement than conservative treatment.^{9,10} Arthroscopy of the hip joint has a steep learning curve and arthroscopic surgery is a technically demanding procedure.¹¹⁻¹⁴ However, all the available data suggest a huge success rate for arthroscopy and it is clearly known that this method enables athletes and sports persons to recover physical fitness in a really short time.¹⁵⁻²⁰

References

1. Beck M, Leunig M, Parvizi J, Boutier V, Wyss D, Ganz R. Anterior femoro-acetabular impingement: part II. Midterm results of surgical treatment. *ClinOrthopRelat Res* 2004; 418:67-73.
2. Gaskill TR, Philippon MJ, Naal FD, Miozzari HH, Wyss TF, Nötzli HP. Surgical hip dislocation for femoroacetabular impingement. *Am J Sports Med* 2012; 0:29-31.
3. Stulberg SD, Cordell LD, Harris WH, Ramsey PL, Mac Ewen GD. Unrecognized childhood hip disease: a major cause of idiopathic osteoarthritis of the hip. In: *The hip: proceedings of the third open scientific meeting of the hip society*. St Louis, MO: CV Mosby; 1975; 212-228.
4. Seilbenrock KA, Schoniger R, Ganz R. Anterior femoro-acetabular impingement due to acetabular retroversion: treatment with peri-acetabular osteotomy. *J Bone Joint Surg* 2003; 85A:278-286.
5. Philippon MJ, Weiss DR, Kuppersmith DA, Briggs KK, Hay CJ. Arthroscopic labral repair and treatment of femoro-acetabular impingement in professional hockey players. *Am J Sports Med* 2010; 38:99-104
6. Giori NJ, Trousdale RT. Acetabular retroversion is associated with osteoarthritis of the hip. *ClinOrthopRelat Res* 2003; 417:263-269.
7. Dora C, Zurbach J, Hersche O, Ganz R. Path morphologic characteristics of post-traumatic acetabular dysplasia. *J Orthop Trauma* 2000; 14:483-489.
8. Beall DP, Sweet CF, Martin HD, *et al*. Imaging findings of femoro-acetabular impingement syndrome. *Skeletal Radiol* 2005; 34:691-701.
9. Parvizi J, Leunig M, Ganz R. Femoro-acetabular Impingement. *Journal of the American Academy of Orthopaedic Surgeons*. 2007;15(9):561-570.
10. Briggs KK, Philippon MJ, Herzog M, *et al*. Quality of life assessment for non-operative treatment versus arthroscopy for Femoro-acetabular impingement. *Arthroscopy* 2013; 29(10): e62-e63.
11. Dietrich F, Ries C, Eiermann C, Miehle W, Sobau C. Complications in hip arthroscopy: necessity of supervision during the learning curve. *Knee Surg Sports TraumatolArthrosc*. 2014;22:953-958.
12. Konan S, Rhee SJ, Haddad FS. Hip arthroscopy: analysis of a single surgeon's learning experience. *J Bone Joint Surg Am*. 2011;93:52-56.
13. Lee YK, Ha YC, Hwang DS, Koo KH. Learning curve of basic hip arthroscopy technique: CUSUM analysis. *Knee Surg Sports TraumatolArthrosc*. 2013;21:1940-1944.
14. Park MS, Yoon SJ, Kim YJ, Chung WC. Hip arthroscopy for Femoro-acetabular impingement: the changing nature and severity of associated complications over time. *Arthroscopy*. 2014;30:957-963.
15. Byrd JWT and Jones KS. Paper # 62: arthroscopic management of femoro-acetabular impingement (FAI) in athletes. *Arthroscopy* 2011; 27(10): e108.
16. Levy DM, Kuhns BD, Frank RM, *et al*. High rate of return to running for athletes after hip arthroscopy for the treatment of Femoro-acetabular impingement and capsular plication. *Am J Sports Med* 2017; 45(1): 127-134.
17. Menge TJ, Briggs KK, and Philippon MJ. Predictors of length of career after hip arthroscopy for femoro-acetabular impingement in professional hockey players. *Am J Sports Med* 2016; 44(9): 2286-2291.
18. Kelly BT, Kivlan B, Klingenstein GG, *et al*. Hip injuries in the overhead athlete. *ClinOrthopRelat Res* 2012; 470(6): 1579-1585.
19. Malviya A, Paliobeis CP, and Villar RN. Do professional athletes perform better than recreational athletes after arthroscopy for Femoro-acetabular impingement? *ClinOrthopRelat Res* 2013; 471(8): 2477-2483.
20. Melville P, Engstrom C, Bailey D, *et al*. Femoro-acetabular impingement in former high performance male water polo players. *J Sci Med Sport* 2012; 15(Suppl 1): S243