Locked hip joint: an uncommon presentation of localized pigmented villonodular synovitis

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We report a 24-year-old male who was admitted to the emergency department with an unusual complaint of locked hip joint. Magnetic resonance imaging (MRI) showed a 3-cm intra-articular synovial nodular mass and a 3.0x2.4x1.6-cm yellow-brownish colored pediculed synovial nodular mass was excised with hip arthroscopy. Pathological examination confirmed the diagnosis of pigmented villonodular synovitis. Excision of the mass allowed prompt resolution of the symptoms and there was no sign of recurrence at 3-year follow-up.

Keywords: Hip arthroscopy; localized pigmented villonodular synovitis; locked hip joint.

Pigmented villonodular synovitis (PVNS) is a synovial proliferative joint destructive disease, which is mostly seen in the third and fourth decades of life, without any gender predilection. Two forms of PVNS have been described: localized (LPVNS) and diffuse (DPVNS). The knee is the most common localization of the lesion, whereas the hip joint is much rarer.[1] Visser et al. reported that the hip joint is affected 10–15 times less than the knee joint.[2] Patient complaints include swelling, pain, and stiffness of the involved joint without any apparent trauma. Periarticular erosion, thin rim of reactive bone, and joint space narrowing can be seen in plain X-rays. Magnetic resonance imaging (MRI) is specific and sensitive for diagnosis of PVNS and also for distinguishing LPVNS from DPVNS.[3] Open or arthroscopic synovectomy is currently the gold standard of treatment. Intra-articular radiosynovectomy with or without surgery is an alternative treatment method. Total joint arthroplasty is a salvage procedure for persistent cases or end stage arthritis.[1]

We present a case report of a patient admitted to the emergency department with an unusual complaint of locked hip joint due to LPVNS and discuss differential diagnosis of LPVNS.

Case report

A 24-year-old male who complained of acute locking of his right hip joint without any trauma was admitted to the emergency department. The hip joint was locked at 30° of flexion and could not be rotated or extended at physical examination. Neurovascular status and other joint examinations were normal. Laboratory tests for infection were within normal limits. Plain radiographs showed normal joint space in both hips without any loose intra-articular bony bodies. MRI showed a 3-cm intra-articular synovial nodular mass at the medial side of the femoral head and neck junction (Figure 1). Minimal joint effusion was detected. Because of the severe
pain and stiff joint, the patient was operated on the same day of admittance. Hip arthroscopy was performed in the supine position on a traction table. Standard anterolateral and anterior portals had been established. Arthroscopic finding revealed a large (3.0x2.4x1.6 cm) yellow-brownish colored pedicled synovial nodular mass between the femoral head-neck junction and acetabular contact point (Figure 2). The cartilage of the femoral head and acetabulum as well as the labrum was normal. Complete resection and biopsy of the lesion, causing mechanical block, was performed with punch and motorized shaver. Histological findings revealed synovial proliferation with multinucleated giant cells and macrophages, leading to the pathologic diagnosis of PVNS. Excision of the mass allowed prompt resolution of the symptoms and a quick return of the patient to activities of daily living. The patient experienced no pain in full weight bearing, and the hip joint had full range of motion after the operation. There was no sign of recurrence at 36-month follow-up with MRI, and no chondral lesion was observed by radiologic study.

Discussion

Differential diagnosis of non-traumatic monoarticular joint problems includes osteoarthritis, inflammatory arthritis, rheumatoid arthritis, synovial chondromatosis, PVNS, femoroacetabular impingement, as well as benign and malignant bone tumors.[4,5]

Locking of the hip joint is an extremely rare symptom, which may be caused by an intra-articular mechanical problem. Labral tears are the most common intra-articular pathology of the hip joint. Labral tears can result from trauma, degeneration, or femoroacetabular impingement, and they may cause locking symptoms. In cases of capsular laxity causing connective tissue diseases, dysplastic hip with a large floppy labrum, joint degeneration owing to repetitive nonconcentric motion, and loose bodies in the joint may produce labral tears.[6] The ligamentum teres is an intra-articular configuration that can be injured due to acute trauma, chronic synovitis, or inflammation. Complete or partial rupture and degenerative fraying of the ligamentum teres may cause a snapping and locking sensation. It has been documented that ligamentum teres deficiency tends to be associated with a lax hip joint and labral lesion.[7] Femoroacetabular impingement is an articular incongruity between the acetabulum and femoral head that consequently damages the femoral neck, acetabular rim, labrum, and chondral surface.[8] Other intra-articular pathologies such as chondral injuries of the hip joint, femoral head, or acetabulum, loose bodies in the hip joint, and synovial chondromatosis often coincide with labral tear and may lead to locking and snapping of the hip joint.

Diagnosis of intra-articular hip lesions can be per-
formed with advanced radiological imaging methods such as MRI or arthrogram. Hip arthroscopy is a successful method allowing the surgeon to access and treat intra-articular lesions with a minimally invasive approach. Surgical treatment with debridement of the hip joint and synovectomy is recommended for patients with PVNS. Treatment of PVNS of the hip joint is variable, most frequently containing open synovectomy and total joint arthroplasty. In a series of 16 patients, Vastel et al. demonstrated that complete open synovectomy was an acceptable technique to avoid setback of synovitis, with only 1 patient experiencing a recurrence of synovitis. The resulting synovectomy did not prevent the progression of secondary osteoarthritis. Recently, researchers have presented their results with arthroscopy in the current diagnosis and treatment of synovial disorders in the hip joint. Byrd et al.’s results of arthroscopy treatment of PVNS in the hip joint were favorable. In a series of 13 patients, there were no complications; 1 patient underwent total hip arthroplasty at 6-year follow-up.

In this case, we did not encounter recurrence of the lesion at 3-year follow-up. This successful result may be because the lesion was not in a diffuse form. It was advantageous that the patient presented with acute locking symptoms that guided the prompt diagnosis and treatment. We believe that early diagnosis and treatment with arthroscopy of LPVNS may preserve the joint cartilage, reducing the need for aggressive surgery. Thus, we recommend that LPVNS should be considered in the differential diagnosis of locked joints.

PVNS may occur with pain and limping, but locking of the hip joint is a very rare symptom, which can require emergency arthroscopic surgery. Some cases progress to osteochondral destruction. With proper patient selection and prompt diagnosis, early arthroscopic synovectomy and resection of the diseased synovia is effective in preventing recurrence and development of secondary osteoarthritis of the joint.

Conflicts of Interest: No conflicts declared.

References