

Arthroscopic Treatment for Femoral Nerve Palsy Associated with Ganglion Cyst of the Hip: A Case Report

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Learning Point for this Article:

Arthroscopic surgery for hip ganglion was a safe procedure.

Abstract

Introduction: There are several case reports of nerve palsy caused by ganglions arising from the hip joint. We herein report the arthroscopic treatment of a patient who presented with femoral numbness due to the compression of the femoral nerve by a ganglion of the hip joint.

Case Report: A 61-year-old man presented with a 3-month history of increasing pain in his left groin, and numbness and radiating pain in the anterior and medial thigh caused by a ganglion cyst. Magnetic resonance imaging showed a cyst situated at medial the iliopsoas muscle and tendon. The dimensions of the cyst were 56 mm in the coronal view, 22×24mm in the axial view. The mass, which was compressing the neurovascular bundle, was connected to the hip joint. A ganglion stalk incision was performed using hip arthroscopy, and the pain and numbness disappeared immediately after surgery. At 6months after surgery, the ganglion cyst had almost disappeared.

Conclusion: It is important to be aware that a ganglion cyst arising from the hip joint may sometimes cause neurological symptoms. The advantage of the arthroscopic procedure that was used in the present case was that the incision site was far from the neurovascular bundle. It was, therefore, safer to perform an arthroscopic stalk incision than it was to perform open surgery.

Keywords: Hip, ganglion, nerve palsy.

Introduction

Almost all of the ganglion cysts that are detected in routine medical examinations are of the wrist, hand, and knee joint [1]. Cysts arising from the hip joint are, therefore, considered to be relatively rare. Only a few cases of femoral nerve compression caused by a cystic lesion around the hip joint have been described in the literature [2, 3]. We here in present the outcome of the arthroscopic treatment of a patient who had groin pain and femoral numbness due to the compression of the femoral nerve by a ganglion of the hip joint.

Case Report

A 61-year-old man presented with a 3-month history of increasing pain in his left groin, and numbness and radiating

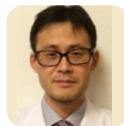
pain in the anterior and medial thigh without any injury. He reported that he was in constant pain and that his pain continued during sleeping hours. The pain and numbness were markedly increased when he was in a sitting position. Although he had opportunities to sit in his job as a factory manager, he was unable to do so due to the increased pain and numbness that he experienced while sitting. At the medical examination, he was unable to sit on the chair in the consultation room. A physical examination revealed tenderness in the femoral triangle and radiating pain and numbness. There was no palpable mass or muscle atrophy. The patient was observed to limp from the time of start of walking. His range of motion was observed to be restricted to 100 of flexion, 10 of extension, and 10 of internal rotation due to an increase in the radiating thigh pain and numbness. Plain

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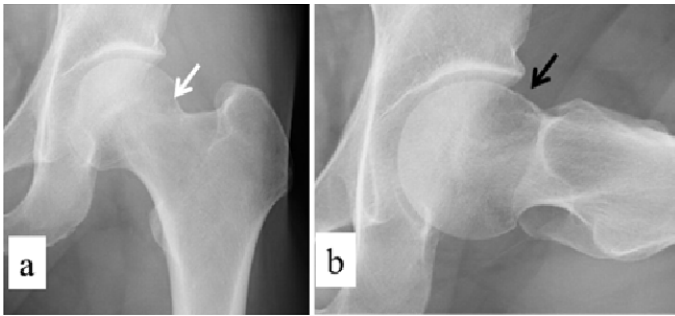


Figure 1: Plain radiographs, (a) AP view. The center-edge angle was 33°. The white arrow indicates a bone cyst, (b) 90° Dunn view. The α angle was 57°. The black arrow indicates a bump at the junction of the femoral head and neck.

radiographs showed no osteoarthritic changes (Fig. 1a, b). Computed tomography showed a bump and bone cyst in the anterolateral aspect of the femoral neck (Fig. 2a, b). The presence of cam type femoroacetabular impingement was indicated. Magnetic resonance imaging (MRI) showed a cyst situated at the medial side of iliopsoas muscle and tendon. Its dimensions were 56 mm in the coronal view and 22×24 mm in the axial view. The mass, which was compressing the neurovascular bundle, was continuous with the hip joint (Fig. 3a, b, c). Based on these findings, a ganglion cyst arising from the hip joint and femoral nerve palsy associated with the ganglion were diagnosed. Initially, the patient was treated conservatively for 2 months with a nonsteroidal anti-inflammatory drug. However, his pain and numbness worsened, leading us to perform surgery. Hip arthroscopy was performed under general anesthesia in the supine position with traction. Three portals (anterior: A-portal, mid-anterior: MA-portal, and anterolateral: AL-portal) were used. A Vulcan and Shaver (Smith and Nephew: London, UK) were inserted through the MA-portal, and a 70° arthroscope was inserted from the AL-portal. Capsulotomy was performed to connect the AL-portal to the MA-portal. From the MA-portal, the joint capsule (which was adjacent to the iliopsoas tendon) was dissected, and the iliopsoas tendon was identified. The

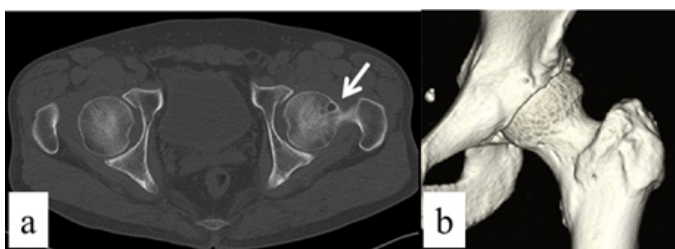


Figure 2: Plain computed tomography. (a) Axial view. The white arrow indicates a bone cyst, (b) 3D view. A bump formation was observed in the femoral neck.

capsule dissection was continued in the cranial direction to expose the iliopsoas tendon. The arthroscope from the AL-portal was used to partially resect the articular side of the iliopsoas tendon. The A-portal was used to secure visualization and the operation space. The arthroscope was changed from 70° to 30° to observe the more medial side of the iliopsoas tendon and an incision was made on the medial side of the tendon using the Vulcan. The fluid contained in the ganglion was discharged, and the ganglion stalk connecting the ganglion to the joint was cut open (see Additional file 1: Ganglion movie). Synovectomy, labral partial debridement, and osteochondral plasty for cam deformity were also performed in this surgery. The patient's groin pain and the radiating pain and numbness of his thigh disappeared immediately after surgery. On MRI, the ganglion shrank at 3 months after surgery and had almost disappeared at 6 months (Fig. 4 a, b). At the final follow-up examination (9 months postoperatively), the patient became aware of slight groin pain when he twisted the hip joint. The modified Harris hip score was improved from 58 points preoperatively to 87 points postoperatively.

Discussion

Neurological symptoms of the lower limbs are commonly caused by spinal disease, including lumbar disease. Thus, we began examining the patient of the present case for conditions in the area surrounding the hip joint (such as femoral triangle) after excluding the possibility of spinal disease. The ganglion cyst caused local pain through the increased pressure that is placed on the joint. Ganglions have been reported to cause symptoms other than local pain through pressure on the neurovascular bundle. There are reports of symptoms caused by leg pain and intermittent claudication in a patient with a compressed artery [4], and lower limb swelling and edema similar to deep vein thrombosis in a patient with a compressed vein [5]. With regard to the neurological symptoms caused by ganglion cysts around the hip joint, cysts

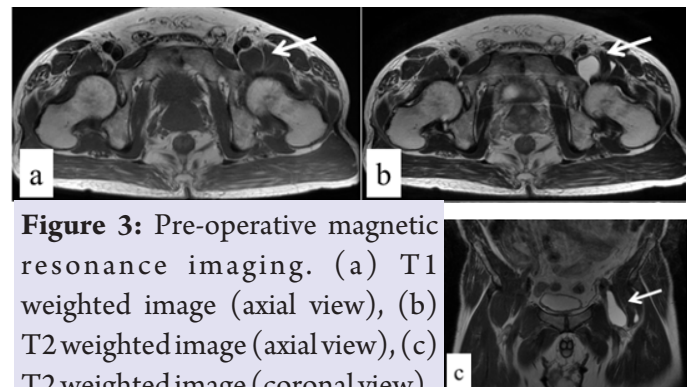


Figure 3: Pre-operative magnetic resonance imaging. (a) T1 weighted image (axial view), (b) T2 weighted image (axial view), (c) T2 weighted image (coronal view).

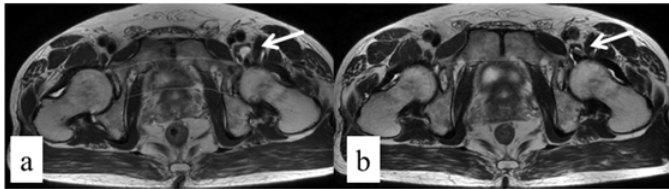


Figure 4: Post-operative magnetic resonance imaging.(a) A T2 weighted image (axial view) at 3 months after surgery, (b) A T2 weighted image (axial view) at 6 months after surgery.

on the posterior side of the hip joint have been reported to cause sciatic nerve palsy [6, 7], while cysts on the anterior side of the hip joint have been found to cause femoral nerve palsy [2, 3]. In the present case, the radiating pain and numbness in the patient's anterior thigh were considered to have been caused by the compression of the femoral nerve. Although ganglion cysts of the hip joint only rarely cause neurological symptoms, it is important to recognize that these cysts can cause the neuralgia and numbness in the lower limbs. When treating ganglion cysts, conservative treatments should be selected first because the cyst may heal naturally. Surgery should only be selected for the cases that do not improve with conservative treatment and/or cases with very strong symptoms. In surgery, it was important to excise the stalk of the ganglion cyst. There are previous reports concerning the treatment of ganglion cysts with open surgery [1, 2, 3, 4, 5, 6, 7, 8]. Open surgery allows for the excision of the ganglion with its stalk and is, therefore, considered to be beneficial. However, open surgery is associated with a high risk of complications because the procedure must be performed very close to the neurovascular bundle. There is also the possibility that the stalk might not be found during open surgery. Recurrence is a possibility in cases where the ganglion stalk remains. Furthermore, although recurrence often occurs in the ganglion, re-operation in cases of recurrence may be difficult and have a higher risk of complications due to adhesion. In the arthroscopic treatment of the present patient, we only performed a stalk incision from the intra-articular side. Although this was not a typical case because the hip joint is located deep in the body, arthroscopic ganglion stalk incision procedures have been reported in shoulder and knee, and the efficacy of such procedures has been proven [9, 10]. The present study is associated with a limitation in that we did not perform a histological examination because we only performed a stalk incision. The advantages of this procedure were that the incision site was far from the neurovascular bundle and that a clearer view of the incision site was possible than that which could be achieved in an open procedure. Based on these advantages, arthroscopic surgery was considered to involve a lower risk of intraoperative complications. Moreover, it seems that there was less adhesion

than in open procedures in recurrent cases. For this reason, the procedure would be considered to be effective even in cases involving re-operation.

Conclusions

We herein reported a case of femoral nerve palsy caused by a ganglion of the hip joint. Although such cases are rare, it is important to be aware that ganglion cysts of the hip joint may cause neurological symptoms. Arthroscopic stalk incision was considered to be a safer procedure than open surgery for treating the ganglion cyst of the hip in the patient of the present study.

Clinical Message

Arthroscopic stalk incision was a safe procedure because the incision site was far from the neurovascular bundle, and a clear view of the incision site was possible.



Video 1: Ganglion stalk incision - After capsulotomy, synovectomy was performed to ensure the field of view. Additional capsulotomy was performed to identify the iliopsoas tendon using a Vulcan (Black bar). Partial resection of the iliopsoas tendon was performed, and an incision was made on the medial side of the tendon. The discharge of fluid and the opening of the ganglion stalk were confirmed. (Scan QR Code to watch video.)

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Consent: The authors confirm that Informed consent of the patient is taken for publication of this case report

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