Pelvic Presentation of a Hip Joint Ganglion
A Case Report

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Abstract
Ganglia may be found near any joint. The hip joint is one location where these lesions have been reported. In most instances the ganglia found around the hip are small, deep-seated, and not palpable. Palpable ganglia are commonly larger and present as a groin mass. We report a ganglion cyst that was not palpable due to its intrapelvic location.

Ganglia are cystic lesions that arise in close proximity to a joint, either within osseous or soft tissue structures. Ganglia may be unilocular or multilocular. The origin of ganglia is unclear. It has been hypothesized to include a diverticular outpouching of the joint capsule, a developmental synovial remnant or post-traumatic connective tissue degeneration, although most patients do not have a history of trauma. Idiosyncratic weakness of connective tissue and excessive or intense use of joints have also been considered as possible factors in the development of ganglia. Ganglia occur most commonly at the dorsal aspect of the wrist, along the tendon sheaths of the hands and feet, and in the vicinity of the ankle and knee joints, in decreasing order of frequency. The hip joint is a relatively unusual location for a ganglion cyst. When arising in the vicinity of the hip, ganglia are usually pararticular and are associated with rather vague symptoms of joint derangement. Occasionally, a large ganglion cyst may develop and produce symptoms due to mass effect on neurovascular bundles. These rarely reported lesions usually present as a palpable groin mass.

We report a case of a large ganglion cyst of the hip that extended into the pelvis through the obturator foramen. In this case, the patient presented with symptoms but without a palpable mass in the groin region.

Case report
A 33-year-old male presented with a six month history of left groin pain radiating down the medial thigh to the knee. The pain was worse with standing and relieved by sitting. His past medical history was non-contributory. He denied a history of prior injury. On physical exam, the left inguinal region was tender and rebound tenderness was elicited over a 2 by 2 centimeter region inferior to the mid-inguinal ligament. A palpable mass was not noted. The patient was neurologically intact. His family history was notable in that his mother had ganglia in her wrists and his sister had a ganglion in the region of the coccyx.

Radiographs of the patient’s left hip were obtained and demonstrated no abnormality. Due to persistence of the patient’s symptoms, magnetic resonance (MR) imaging was performed. The MR image demonstrated the hip joints to be within normal limits. However, a well-circumscribed cystic mass with signal characteristics of fluid was noted in the lower left pelvis—along the pelvic sidewall. On T1-weighted sequences the mass was of homogeneous low signal intensity (Fig. 1). On proton density and T2-weighted sequences, the lesion demonstrated homogeneous intermediate and high signal intensity, respectively. The lesion was notable for a tapering, beaked pedicle with the same signal characteristics as the mass. The pedicle was found on axial and coronal images to extend through the obturator canal and emerge from the obturator foramen in the proximity of the inferior recess of the left hip joint capsule (Figs. 2 and 3). These MR imaging features were considered most com-
compatible with a ganglion cyst arising from the hip joint.

Upon imaging the mass was described as cystic and amenable to percutaneous aspiration. However, in accordance with a second surgical opinion cautioning against the possibility of recurrence and due to persistent symptoms, the patient opted for surgery. At surgery, a transverse incision was made in the left lower quadrant through the aponeurosis of the external oblique muscle and the medial third of the rectus muscle. The left superior and inferior pubic rami were identified. A cystic lesion at the medial aspect of the obturator foramen was identified. The obturator nerve was noticeably deviated by the mass. The mass was dissected away from the obturator nerve and then opened revealing mucoid material. The lesion was then completely removed from the obturator foramen.

Histologic evaluation revealed a cystic lesion consisting of a thin wall of fibrovascular connective tissue (without synovial lining) containing acellular mucoid material consistent with a ganglion cyst.

Discussion

The differential diagnosis of a cystic structure arising from a joint is limited and includes synovial and ganglion cysts. A synovial cyst is an outpouching of the joint capsule lined by synovium that arises in the setting of joint effusion or inflammatory processes of the joint. It is thought to develop secondary to the flow of synovial fluid via a one-way ball-valve mechanism into a synovial sac formed by a herniation of the joint capsule.5

![Figure 1](image1.png)  
**Figure 1** Coronal T1 weighted (TR/TE 440/12 ms) image. A homogeneous low signal intensity mass is noted along the pelvic sidewall (large arrows). A multiloculated tail with the same signal characteristics is noted to extend from the mass to the inferior aspect of the hip joint (small arrows).

![Figure 2](image2.png)  
**Figure 2** Coronal T2 weighted fat suppressed (TR/TE 4026/60 ms) images, A and B. The mass is of homogeneous high signal intensity (large arrows). The tail has the same high signal intensity (small arrows) and appears to extend into the joint through the inferior acetabular notch.
Synovial cysts are seen with rheumatoid arthritis, osteoarthritis, gout, pseudogout, infectious arthritis, and post-traumatic degenerative disease. In this case the hip joint was normal, making the diagnosis of a synovial cyst less likely.

A related cystic structure is a bursa, which is a synovium-lined sac that does not arise from the joint capsule but resides at points of musculotendinous friction about joints. These bursae may or may not communicate with the joint. The bursa most frequently observed in the vicinity of the hip is the iliopsoas bursa. When enlarged, this structure could present as a groin or pelvic mass that could produce symptoms via mass effect on neurovascular bundles.

Ganglia may arise about any joint or tendon. These cystic structures lack a synovial lining and may be uniloculated or septated. Histologically, the capsule is composed of collagen fibers and lined by fibrocytes. Ganglia contain a gelatinous fluid that is highly viscous secondary to the presence of hyaluronic acid and other mucopolysaccharides. When they impinge upon nerves or vessels, ganglia may become symptomatic. In the vicinity of the hip, ganglia may extend into the inguinal region where they simulate adenopathy or hernia, or produce venous compressive symptoms mimicking a deep venous thrombosis. An intrapelvic presentation of a hip ganglion, to our knowledge, has not been previously reported.

The MR imaging appearance of the lesion reported here was compatible with that of a ganglion cyst arising from the hip joint that insinuated itself into the pelvis via the obturator foramen and canal. This follows the pathway of the obturator nerve and explains the patient’s radicular symptoms. The obturator canal is a defect in the tendinous insertion of the obturator internus muscle onto the posterior aspect of the superior pubic ramus, which is a passage way for the obturator neurovascular bundle (Fig. 4). This canal communicates with the defect in the obturator membrane that covers the obturator foramen.

The patient’s family history of ganglia as noted above (his mother and sister had ganglia) is noteworthy. However, we were unable to find documentation in the literature as to the hereditary nature of ganglia.

Recently, a study of 13 patients with hip ganglia detected by MR imaging demonstrates eight cysts posteriorly and five in the anterior aspect of the joint, all associated with labral tears. Most were small and none extended into the pelvis.

The lesion described in this report represents a true ganglion cyst. It was situated in the pelvis and was not palpable. The ganglion impinged upon the obturator nerve and produced radicular pain. The origin of the cyst from the inferior recess of the capsule probably determined the unusual pathway of this lesion’s growth through the obturator foramen and canal into the pelvis.
This is indeed an unusual presentation of a hip ganglion.

References