# Hip ganglion cyst associated with developmental dysplasia of hip in a child—a case report

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A 35-month-old boy was referred because of a tumor in his left inguinal region. He had been diagnosed as having left dislocated developmental hip dysplasia (DDH) when he was 14 months old and was treated with adductor tenotomy, closed reduction and a hip spica. During the past 3 months, his parents noted a growing mass in his left inguinal region. An egg-sized, firm and elastic nontender mass was palpated. He had normal pain-free motion of his hips and did not limp. His left hip was mildly dysplastic with an acetabular index of 30°. The radiograph showed partial avascular necrosis of the femoral head (Figure 1) and sonography revealed a well-encapsulated hypoechoic cyst. MRI revealed a well-defined cystic lesion, anterior to the left hip joint and lateral to the iliopsoas muscle. The mass had a low T1 signal intensity and high T2 signal intensity with poor enhancement (Figure 2).

At surgery, a well-encapsulated ganglion cyst was found lateral to the iliopsoas muscle. Its stalk, which passed around the lateral-inferior corner of the iliopsoas muscle, was connected to the hip joint capsule. After removal of the cyst, a radial-directed labral tear 3 mm from the margin of the acetabular bony roof was seen through the orifice of the stalk. Using nonabsorbent material, we repaired the tear by simple suturing. The contents of the mass were gelatinous and the specimen grayish white and elastic. Microscopic examination showed a multilocular ganglion cyst.

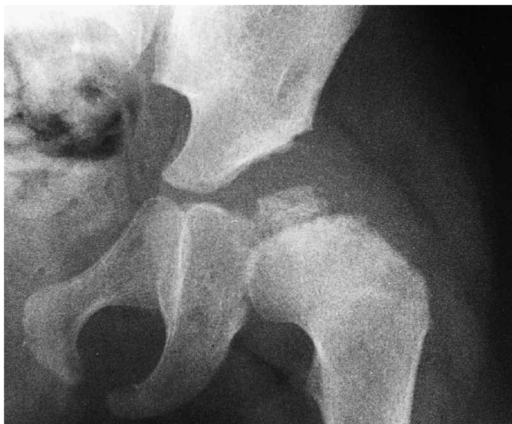
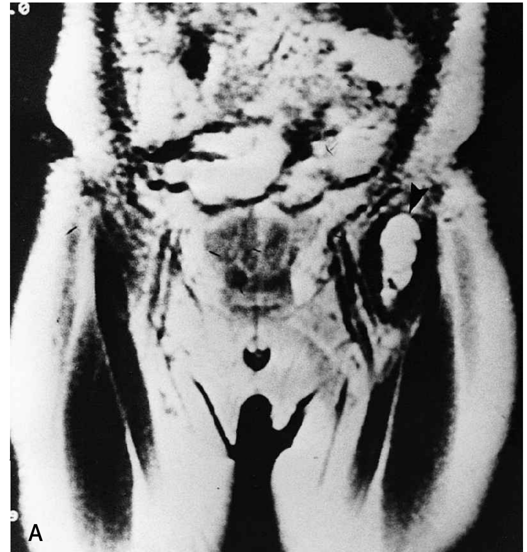


Figure 1. Partial necrosis of the femoral head.



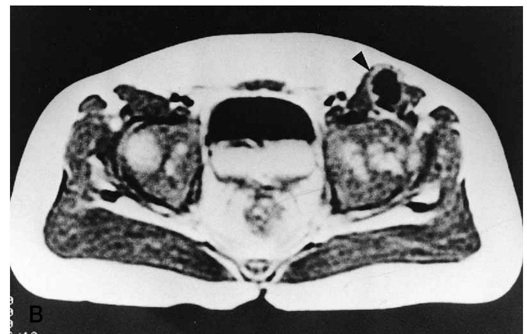




Figure 2. (A) The mass had high T2 signal intensity (arrow) and (B) it had low T1 signal intensity with poor enhancement (arrow).

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## Discussion

Only a few cases of ganglion cysts of the hip joint have been reported (Wu and Liu 1986, Bergenudd et al. 1987, DiMaio and Santore 1997), all of them occurred in adults with advanced rheumatoid arthritis or degenerative disease in the hip region.

Although the exact cause of ganglion cysts in the hip remains unknown, two mechanisms have been proposed. An effusion in the hip joint and an inflammatory reaction of the joint capsule may be involved in degenerative joint disease (Bergenudd et al. 1987) and severe rheumatoid arthritis (White et al. 1988).

The second mechanism is a traumatic tear in the labrum. In the 4 cases reported by Pope et al. (1989) and that reported by DiMaio and Santore (1997), a labral tear was found on surgical exploration. Haller et al. (1989) found that 2 ganglion cysts had been caused by a labral tear seen on arthrographs.

In our case, we found a tear in the labrum below the stalk's base, and a communication between the ganglion cyst and the hip joint. The labral tear may have been caused by closed reduction and spica casting of the hip.

Barrie (1979) reported 112 meniscal cysts, all of which were associated with meniscal tears. Parisien (1990) and Glasgow et al. (1993) have also noted a close correlation between presence of a cyst and a meniscal tear. We believe that there is also a close correlation between cyst formation and a labral tear in the hip joint. The tear functions like a check-valve between the joint space and overlying joint capsule and may cause formation of the cyst.

It is difficult to diagnose a ganglion cyst in the inguinal region. Ultrasound has been advocated as an inexpensive, noninvasive method for this purpose (White et al. 1988), but MRI is almost diagnostic as well as useful when planning the operation.

No benefits in any form have been or will be received from a commercial party related directly or indirectly to the subjects of this article.

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