

Arthroscopic diagnosis of ruptured acetabular labrum

We performed arthroscopy in nine hips in 8 patients with hip pain of unknown origin. Of them, 5 patients had a rupture in the posterior or posterosuperior labrum, not seen by arthrography. On physical examination the patients complained of pain on both passive flexion and internal rotation of the hip, and when the thigh was pushed backwards at 90 degrees of flexion.

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Reports on arthroscopy of the hip are few (Holgersson et al. 1981, Ohgiya et al. 1984), because the femoral head is covered by the acetabulum and the joint is difficult to reach. Hip arthroscopy, however, gives a valuable information on the cartilage, the labrum, and the synovial membrane. We report our experience of arthroscopy of the hip, especially 5 cases with labrum rupture.

Patients and methods

From 1984 to 1985, arthroscopy was carried out in 49 hips in 45 patients with various hip disorders at our hospital. Of them 8 patients (Table 1) had hip pain of unknown origin, bilateral in 1 patient.

Under epidural anesthesia, the patient was put in the supine position on a traction table; general anesthesia was used in children under 10 years of age. The hip was abducted between 10 and 25 degrees. The head of the femur was gradually pulled more than 5 mm distally while physiologic saline was injected into the joint. When it was difficult to pull the head distally, 1 or 2 weeks of preoperative continuous traction with about 2 kg of weight facilitated the examination. The insertion and direction of the arthroscope were determined under image intensifier control. The incision was made about 1 cm above the tip of the great trochanter, but to inspect the round ligament or acetabular fossa, it was placed more superior. Then, the 5 mm trocar, with a blunt rod, was inserted into the joint laterally through the incision. The joint capsule was perforated inferior to the la-

brum by rotating the trocar to avoid a violent jerk. One of four arthroscopes (Storz 4 mm, 0, 30, 70, and 120°) was chosen according to the aim of the examination. If the joint space was not wide enough, the Storz needle scope was used. When necessary, the biopsy punch was inserted through the trocar.

With the 30 and the 70° optics, the upper part of the femoral head could be seen, which was facilitated by rotation of the hip. The upper half of the acetabulum could be seen by rotating the scope with the 70° optics, and in young patients the round ligament could also be observed. About half of the labrum could be visualized with the 70 and 120° optics (Figure 1); it could be differentiated by its elasticity from the cartilaginous acetabulum. The synovial membrane and its vascularity could be observed with the 120 and 70° optics. The round ligament, the labrum, and the synovial membrane were moved by injection of physiologic saline.

Table 1. Patients with hip pain of unknown origin

Case	Sex	Age	Side	Trauma	Labrum rupture
1	M	15	L	+	+
2	M	15	R	+	+
3	M	13	R	- ^a	+
4	F	16	R	-	+
5	F	16	R	-	-
			L	-	+
6	F	13	L	+	-
7	M	37	L	-	-
8	F	37	R	-	-

a: Past history of CDH.

Results

A ruptured labrum undiagnosed by arthrography was found in five hips, all in teenagers (Table 1). In the other 3 patients, there were no abnormal findings.

The ruptures were located at the posterior or posterosuperior base of the labrum.

Case 1. A 16-year-old boy had sudden onset of pain when he flexed his left hip during athletic training. Two months later, he had pain both at passive flexion and internal rotation of the hip. He also complained of pain when the thigh was pushed backwards at 90° of flexion. Hip arthroscopy showed that the attachment of the posterior labrum was ruptured with reddish tissue emerging through the tear. Blood vessels were observed on the ruptured labrum (Figure 1).

Case 2. A 15-year-old boy felt severe pain in his left hip when he was tackled during a rugby match. Since then he had complained of pain while walking. When he was referred to us 5 months after the injury, he had pain both on passive flexion and on internal rotation. Arthroscopy revealed a tear in the attachment of the posterior labrum.

Case 3. A 13-year-old boy who had had no hip problems after successful treatment for congenital dislocation of the hip in his infancy,



Figure 1. Case 1. A part of the left femoral head (upper left) and the ruptured labrum.



Figure 2. Case 3. A part of the right femoral head (right) and the ruptured labrum.

had sudden onset of pain in his right hip while walking. Two years later, he was referred to us because of persistent pain. On physical examination, the findings were the same as in Case 1. Arthroscopy disclosed a rupture at the posterior base of the labrum. After nonweight bearing for 2 months, he still had pain, and repeated arthroscopy revealed that the tear had not healed (Figure 2).

Case 4. A 16-year-old girl had pain in her right hip while walking. When we saw her 3 months later pain occurred when she flexed and internally rotated the hip joint. Arthroscopy revealed a rupture in the posterosuperior labrum. The pain persisted even after non-weight bearing for 2 months.

Case 5. A 16-year-old girl had an insidious onset of bilateral hip pain. Five months later, a physical examination revealed the same findings as in Case 2. At arthroscopy of both hips, there was no synovial inflammation, but a rupture was found in the left posterosuperior labrum. While the pain subsided in the right hip, it still persisted in the left hip 9 months after the examination.

Discussion

The clinical significance of the labrum rupture has not been clarified. However, the labrum

embraces the femoral head tightly and enhances the stability of the hip joint (Harty 1973). Perhaps a labrum rupture can cause instability and pain in the same way as a meniscus tear in the knee.

In our cases the labrum rupture could only be identified by arthroscopy. When young patients complain of hip pain of unknown origin, a labrum rupture should be taken into consideration. It is unknown whether or not the tear of the labrum can heal. However, we think that nonweight bearing should be continued until the pain subsides.

A labrum rupture in the dysplastic hip is often observed, probably explained by constant excessive pressure on the rim. However, it may be possible that there is excessive force on the

posterior labrum at flexion and internal rotation even in the normal hip; this might explain the rupture in Cases 1 and 2. Case 3 had no history of trauma, but he had CDH in his infancy; possibly there was weakness in the labrum after treatment of the dislocation. Cases 4 and 5 had had neither trauma nor disease.

References

- Harty, M. (1973) *Surgery of the hip joint*. Tronzo, R. G. R. (Ed.) pp. 45-78. Lea & Febiger, Philadelphia.
- Holgersson, S., Brattström, H., Mogensen, B. & Lidgren, L. (1981) Arthroscopy of the hip in juvenile chronic arthritis. *J. Pediatric Orthop.* **1**, 273-273.
- Ohgiya, H. et al. (1984) Arthroscopic findings of coxarthrosis deformans. *Arthroscopy* **9**, 85-88.