ARTHROSCOPIC TREATMENT OF CYSTS OF THE LATERAL MENISCUS

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We have treated 69 patients with 72 cystic lateral menisci by arthroscopic surgery. Meniscal tears were observed in all cases, and 69 of these had a horizontal cleavage component. Three types of tear were identified and may be progressive.

Treatment was by arthroscopic resection of the meniscal tear, and decompression of the cyst through the substance of the meniscus. After a mean follow-up of 34 months the results were good or excellent in 64 knees (89%) and there were few complications.

We recommend this technique as the treatment of choice for cysts of the lateral meniscus.

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The relationship between lateral meniscal cysts and meniscal tears is controversial, but is crucial to their correct management. Barrie (1979) made a histopathological study of meniscectomy specimens, and found horizontal cleavage tears in all cases of cystic lateral menisci (Fig. 1). In most cases he was able to demonstrate a communication between the cyst and the tear. As a result of this work, opinion on aetiology has moved away from theories of simple ganglion formation in mesenchymal tissue, or of mucus-producing synovial cells incorporated into the meniscus either congenitally or through trauma. Most recent papers suggest an almost 100% association between cysts and meniscal tears, but Reagan et al (1989) found only an 84% association.

As surgeons became more aware of the association with meniscal tears, surgical management evolved. In the past, recurrence after simple cystectomy led to a period when total excision of the meniscus and cyst was advised, but concern about the loss of the mechanical function of the meniscus has forced a return to more conservative techniques (Flynn and Kelly 1976). Arthro-
scopic methods have been developed and are gaining in popularity (Seger and Woods 1986; Parisien 1990).

We have reviewed the experience of one surgeon with arthroscopic treatment over a 12-year period.

PATIENTS AND METHODS

Between 1979 and 1990, a total of 95 patients with 98 cysts of the lateral meniscus were referred to the senior author (MMSG). In 26, symptoms were too minor to justify treatment. The other 69 patients with 72 cysts were treated arthroscopically. There were 49 males, including three bilateral cases, and 20 females. The average age was 34.5 years (7 to 71). Detailed documentation of the meniscal pathology found at arthroscopy was made in all cases.

Surgical technique. Arthroscopy was performed on all the knees, using standard anterolateral viewing and anteromedial instrumentation portals. On superficial inspection the lateral meniscus often appeared to be intact, but careful probing of its under-surface with a hook revealed a horizontal cleavage tear in 70 of the 72 cases (Fig. 2).

The meniscal tear was then carefully resected using standard techniques and taking great care to preserve the meniscal rim. In most cases, the smaller, inferior leaf of the horizontal cleavage tear was partially resected. Through the anteromedial portal, a 3.4 mm arthroscopic punch forceps was then used to create a hole through the middle of the meniscus, starting at the apex of the cleavage lesion and entering into the substance of the cyst in its subcutaneous position (Fig. 3). This cystostomy was designed to create an adequate passage between the cyst and the main knee compartment, and in many cases a gelatinous fluid escaped into the joint as the cyst was decompressed. In four knees, methylene blue dye injected into the cyst was seen to pass freely into the knee. Confirmation of the position of the tip of the punch forceps in the cyst was possible by finger-tip palpation, and digital pressure over the cyst usually produced nearly complete decompression.

The knee was then washed out and the arthroscopic portals sutured. Patients were discharged from hospital fully weight-bearing within 24 hours, having been instructed to perform isometric quadriceps exercises. Early return to work and sport activities was encouraged.

All patients were reviewed and examined by one of the authors at a mean of 34 months (range 7 to 71) after operation. The result was recorded as excellent if the patient was asymptomatic with no clinically detectable recurrence of the cyst. Minimal symptoms with slight residual fullness at the site of the cyst were classified as good results, and minimal symptoms with definite cyst recurrence as fair. The result was poor when the patient had significant pain, irrespective of cyst recurrence.

RESULTS

Meniscal tears were identified in all 72 knees with a cyst of the lateral meniscus. There were three patterns of meniscal tear: simple horizontal cleavage (type I), radial split plus cleavage tear (type II) and complex 'parrot-beak' tear plus cleavage tear (type III). These are shown in Figure 4 and their incidence is recorded in Figure 5.

Four patients had a discoid lateral meniscus, all with a definite tear of the meniscal substance. After the central part of the discoid meniscus had been cored out, decompression was performed in the usual way, but was usually incomplete.

The results at review were excellent in 42 knees, good in 22, fair in 3 and poor in 5. The three patients with fair results were generally satisfied with the outcome.
of surgery despite the recurrence of swelling and did not require any further treatment.

Of the five with poor results, two had a discoid lateral meniscus; both of these had revision arthroscopic surgery with successful early results. In one patient significant degenerative changes had been noted at arthroscopy; at least part of the residual pain was related to this rather than to the slight recurrence of the cyst. In the other two patients with poor results both pain and swelling had recurred: in one, a woman aged 34 years, revision arthroscopic surgery was successful; in the other, a man aged 50 years, further surgery was declined.

Complications were few, but 20% of patients had a slower recovery than is usual after arthroscopic surgery. In one 20-year-old man a cyst had recurred shortly after its local external excision at another hospital. At arthroscopy a type I tear was found and treated by local resection, but it proved impossible to decompress the cyst arthroscopically, and an incision directly over the cyst was required. This resulted in a synovial fistula which settled only after prolonged plaster immobilisation and a course of antibiotics. The final result was excellent.

DISCUSSION

Cysts of the lateral meniscus are often misdiagnosed; their true incidence is probably much higher than has previously been suggested. They are usually described as occurring in the third and fourth decades, but we found them in a wide age range; most of the cysts in patients under 16 years of age were related to normally shaped rather than to discoid menisci. Many of our patients had been referred to us with a provisional diagnosis of meniscal tear: the cyst had not been diagnosed. Most lateral meniscal cysts are related to the mid-part of the meniscus, and often appear to lie over the upper tibial plateau rather than at the joint line. In many cases, they are only obvious with the knee in 15 to 90° of flexion, being obscured in full extension and apparently disappearing into the joint when it is flexed more than 90°. The most common differential diagnosis was of a large flap from a ruptured bucket-handle tear which lay under the main body of the meniscus.

Our results support Barrie’s view that lateral meniscal cysts are invariably associated with meniscal tears; even in our four cases of discoid meniscus there were definite tears. There appear to be two reasons for the view that they are not always related. First, many minor cleavage tears lie on the under-surface of the meniscus and very careful probing is required to make the diagnosis, especially of the so-called ‘shark’s-mouth’ tear (Fig. 6). The second reason is that a superficial ganglion overlying the lateral side of the knee is easily confused.
with a true degenerative cyst. In our experience a true
cystic lesion in a lateral meniscus presents as a much
firmer and more diffuse swelling in a constant anatomical
position, while a superficial ganglion may be more mobile
and will usually remain palpable beyond 90° of knee
flexion.

Not all horizontal cleavage lesions of the lateral
meniscus are painful; they are very common in the
menisci of elderly patients. The pain from a cyst is
probably related to the tear, but the lesion may be
progressive; the 26 patients who had only minor
symptoms and did not undergo arthroscopy may have
had small type I tears, horizontal cleavage lesions which
may not produce symptoms. It may be that the relatively
large number of type II and type III tears in the operated
group were due to a natural progression of the meniscal
pathology from type I. Of the 26 patients presenting with
a cyst, but not originally requiring surgery, two have
since returned with increased pain and have been treated
for type II complex tears.

The technique of arthroscopic decompression which
we have described is within the capabilities of the average
arthroscopic surgeon; our technique has not changed
over the 12 years of the study. We now warn patients
before operation that they may be left with some fullness
at the site of the cyst, but that this is usually painless
since the causative meniscal tear will have been resected.
This raises the question as to whether decompression of
the cyst is actually necessary in all cases. Large cysts will
obviously require decompressing, but there may be a
place for simple meniscal trimming alone in patients
with only minor swelling.

Our results support the views of Parisien (1990) who
first advocated this method of treatment in a preliminary
report. The technique has the obvious advantages of
preserving the meniscal rim and having a very low
morbidity. Our series is large enough to demonstrate that
satisfactory results can be obtained, and it also serves to
emphasise that the meniscal tear causes the pain in most
cases, not the cyst.

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REFERENCES
Barrie HJ. The pathogenesis and significance of meniscal cysts. J Bone
Flynn M, Kelly JP. Local excision of cyst of lateral meniscus of the knee
Parisien JS. Arthroscopic treatment of cysts of the meniscus: a
Reagan WD, McConkey JP, Loomer RL, Davidson RG. Cysts of the
lateral meniscus: arthroscopy versus arthroscopy plus open
Seger BM, Woods GW. Arthroscopic management of lateral meniscal