BENIGN SYNOVIOMA CAUSING INTERNAL DERANGEMENT OF THE KNEE

A REPORT OF NINE CASES

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Nine pedunculated benign synoviomata causing mechanical symptoms similar to those of a torn meniscus are described. The average age of the patients was 34.4 years.

During the period of study, 2254 meniscal lesions causing mechanical symptoms were identified, giving an incidence of one benign synovioma for every 250 meniscal lesions. All the lesions were removed arthroscopically with relief of symptoms.

Many reports of pigmented villonodular synovitis have been published since Jaffe, Lichtenstein and Sutro first used the term in 1941. Granowitz and Mankin (1967) and Fraire and Fechner (1972) described localised lesions, and Granowitz, D'Antonio and Mankin (1976) suggested that the disorder existed as a spectrum between localised and diffuse forms. The localised form can cause mechanical symptoms similar to a loose body or meniscal lesion and Woods et al (1977), Flandry, Jacobson and Andrews (1986) and Lopez-Vazquez et al (1988) have each reported one case. We report nine such cases with the results after a mean follow-up of 21 months.

PATIENTS AND METHODS

Nine patients were encountered with mechanical symptoms attributable to a pedunculated benign synovioma more than 1 cm in diameter (Fig. 1). The average age of the patients was 34.4 years (range 25 to 44). There were seven men and two women. The lesions were found among 6500 knee arthroscopies performed during a period of 13 years; during the same period, 2254 meniscus lesions causing symptoms were encountered; thus 250 symptomatic meniscal lesions were seen for every pedunculated benign synovioma.

All the patients complained of clicking or locking of the knee consistent with a mechanical derangement. The clinical diagnosis was a mobile loose body in four patients, a meniscal lesion in three, and a loose body with synovial attachment in two. Three knees had recurrent swelling and effusion. The lesion could be felt under the fingers in five knees. Two had a block to extension at the time of examination. The average duration of symptoms before operation was 5.2 months (range 10 days to one year).

Three knees had undergone previous operations: a medial meniscectomy and lateral extra-articular anterior cruciate reconstruction had been done in one, a loose body had been removed more than 10 years earlier in another, and the third had undergone a lateral meniscectomy many years earlier and three arthroscopies to investigate the recent mechanical symptoms. One patient also had recurrent swelling of the wrists but no evidence of a generalised joint disorder was found on investigation. The radiographs were normal in all the patients.

All the knees were examined arthroscopically and the lesions removed under arthroscopic control without formal arthrotomy. A note was made of other abnormalities within the knee.

FINDINGS

The average size of the lesions was $2 \times 2 \times 1$ cm (range $1 \times 1 \times 1$ to $3 \times 3 \times 2$ cm). Two arose from the patellar margins, two from the region of the medial synovial shelf, two from the lateral gutter and one each from the infrapatellar fat pad, the medial gutter and the intercondylar notch. The lesions were pink, yellow, grey or brown, with a smooth or nodular surface. Three of the nine had a villous or polypoid appearance.

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Fig. 1

A pedunculated synovioma lying in the medial gutter of a right knee. (From *Arthroscopy of the knee: a diagnostic colour atlas* by David J. Dandy with the permission of the publishers – Butterworths and Gower Medical Publishing, 1984.)

Histological examination. Synovial proliferation was seen, with some villous formation surrounding cellular tissue consisting of spindle cells with pseudoglandular clefts. The strands were separated in places by rich avascular fibrous tissue. There were haemosiderin deposits surrounded by nuclear cells, small giant cells, plump foam cells and occasional lymphocytes. Giant cells were seen in five. The histological diagnosis was benign synovioma in seven knees and pigmented villonodular synovitis in two.

Arthroscopic findings. Only three knees were free of any articular cartilage changes. Four patellae had articular cartilage irregularities; one in grade I, two grade II, and one grade III (Dandy 1987). The two compartments from which menisci had been removed both showed grade III changes.

Mild generalised villous synovitis was seen in one knee and a second, which was locked in 20° of flexion, had intense synovitis in all areas. The synovium was normal in the other knees and no knee had more than one lesion.

Results. The mechanical symptoms were relieved in all cases and none had undergone a second operation. The mean follow-up was 26 months (range one month to eight years) after which six patients had clinical examination and three were contacted by telephone.

DISCUSSION

The patients in this series are similar to the single cases reported by Woods et al (1977), Flandry et al (1986) and Lopez-Vazquez et al (1988). The results of simple arthroscopic excision are satisfactory and we disagree with the suggestion of Ushijima et al (1986) that a complete synovectomy is required in all cases. However, this may be required if the symptoms of synovitis overshadow the mechanical symptoms as they did in the patients described by Rao and Vigorita (1984).

Although a rare cause for internal derangement to the knee, with one patient being seen for every 250 meniscal lesions, the condition is likely to be encountered several times during the career of an orthopaedic surgeon. The condition may remain unsuspected without arthroscopy, and the symptoms can be relieved both simply and effectively by arthroscopic excision of the lesion.

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