PAIN AFTER TOTAL KNEE ARTHROPLASTY
CAUSED BY SOFT TISSUE IMPINGEMENT

DAVID M. HIRSH, JULIAN G. SALLIS

From the Albert Einstein College of Medicine, New York

The usual causes of pain after total knee replacement are well known, but there are a small number of patients in whom its aetiology is obscure. We report three patients with a specific pain syndrome caused by hypertrophic fibrous tissue in the intercondylar notch. Excision of this tissue relieved the symptoms completely.

Total knee replacement is an effective method of treating degenerative joint disease of the knee; it now has a low failure rate. The common causes of failure and of pain have been extensively reported, but there are a small group of patients, ranging from 5% to 9%, whose pain is unexplained (McDonald 1982; Lettin et al 1984; Bertin et al 1985; Rutledge, Webster and Murray 1986).

In a recent report from the Mayo Clinic, Pettine and Bryan (1986) described five patients who, between five months and two years after knee replacement, developed pain caused by intra-articular hypertrophic fibrous tissue in the patellofemoral part of the joint. Their findings included overgrowth about the patellar component and in the region of the infrapatellar fat pad. There was limited flexion and a palpable tender mass in the infrapatellar region; pain was relieved and flexion restored after excision of the fibrotic tissue. The patients we report had a different clinical presentation, but the pathological features were similar to those reported from the Mayo Clinic.

CASE REPORTS

The three patients we report all had knee replacements which had completely relieved their original pain. Then, after an interval which varied from two to six months, they again developed pain. This was felt mostly on extension activities resisted by gravity, such as rising from a chair or climbing stairs, but they were able to walk on the level without pain. There was no swelling or tenderness, no mass was palpable and radiographs were normal (Fig. 1).

All three patients, however, had a painful arc of resisted extension from 60° to 10°; flexion beyond 60° was painless. There was audible and palpable crepitus during flexion and extension. Since the symptoms were disabling and had not settled with conservative treatment, operation was advised.

In all three cases, hypertrophic fibrous tissue was found arising from the intercondylar notch (Fig. 2), and impingement against the anterior eminence of the polyethylene tibial component produced a gritty crepitus as the knee was extended. The surface of the fibrous tissue was frond-like, possibly as a result of the repeated impingement. In two cases, the tissue was excised at

D. M. Hirsh, MD, FACS, Associate Clinical Professor of Orthopaedic Surgery
J. G. Sallis, MD, MCh Orth, FRCS, Assistant Professor of Orthopaedic Surgery
Albert Einstein College of Medicine, 1825 Eastchester Road, Bronx, New York, USA.

Correspondence should be sent to Dr D. M. Hirsh, at 1180 Morris Park Avenue, Bronx, New York 10461, USA.

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Fig. 1
Radiograph after bilateral knee replacements.
open arthrotomy and the intercondylar notch deepened slightly (Fig. 3). In the third case, the fibrous tissue was excised arthroscopically.

All three patients had complete relief of symptoms, with rapid return to normal function at between two and four weeks. There has been no recurrence of symptoms, after two to four years follow-up.

**DISCUSSION**

The three cases we report, together with those from the Mayo Clinic, suggest that the impingement of excessive fibrous tissue on the moving surfaces of the arthroplasty may be the cause of symptoms in a significant number of patients with unexplained pain after a knee replacement. Whether pain is felt during extension, as in our cases, or in flexion as in the Mayo Clinic cases, must depend on the location of the impinging soft tissue.

We agree with Pettine and Bryan (1986) that fibrous tissue impingement should be diagnosed as the cause of pain only after careful evaluation has excluded other familiar causes such as loosening, infection and patellar malalignment. Arthroscopy will confirm the diagnosis; excision of the soft tissue either arthroscopically or by arthrotomy is then relatively simple and apparently curative.

**Conclusions.** We describe a specific syndrome characterised by pain and crepitus on resisted extension after total knee replacement. The cause was hypertrophic soft tissue in the intercondylar notch impinging on the prosthetic tibial eminence, and the surgical removal of this tissue was curative.

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**REFERENCES**


