

RESURFACING OF DEPRESSION FRACTURES OF THE LATERAL TIBIAL CONDYLE

A Report of Five Cases

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Five patients with fractures of the lateral tibial condyle were treated operatively by resurfacing of the lateral tibial plateau by means of a Marmor polyethylene tibial prosthesis. The indications were persistent pain and valgus deformity. In four patients, in whom the cartilage of the lateral femoral condyle was normal at the time of operation, the results were excellent. One patient with osteoarthritic cartilage degeneration of the femoral condyle was not improved by the operation.

Key words: fractures of the tibial condyle; resurfacing arthroplasty

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Fractures of the lateral tibial condyle with depression and fragmentation of the joint surface and valgus deformity often result in severe disability in spite of corrective operative treatment. The main complications are persistent pain and secondary osteoarthritis, probably due to joint incongruity. Since 1975 a new approach to the problem has been used in a small series of patients and this paper is a preliminary report of our results. The results are shown in Tables 1 and 2.

MATERIAL AND METHODS

Our series consists of five patients, one man and four women, aged 55.2 (44–65) years, mean and (range). The follow-up period ranges from 5 to 56 months, mean 29 months. The period of time between the fracture and the resurfacing operation varied between 4 and 72 months, mean 33 months. Two of the patients had had operative treatment in other hospitals whereas three were referred after conservative treatment.

OPERATIVE PROCEDURE

The operative treatment consisted of resurfacing of the lateral tibial plateau by means of a Marmor

Table 1. Knee mobility before and after operation

	Pre-operative	Post-operative	Improvement
Case 1	20–90°	0–115°	+45°
Case 2	5–100°	0–135°	+40°
Case 3	5–120°	0–130°	+15°
Case 4	0–95°	0–90°	–5°
Case 5	0–130°	0–140°	+10°

Table 2. Valgus deformity before and after operation

	Preoperative	Postoperative
Case 1	30°	Normal
Case 2	30°	Normal
Case 3	Normal	Normal
Case 4	Normal	Normal
Case 5	Normal	Normal

polyethylene tibial prosthesis (Figure 1). A model was chosen that restored the axis of the knee as well as possible. Overcorrection was avoided. The state of the cartilage on the lateral femoral condyle was noted during operation. In four patients it appeared normal, but in one case (no. 4) there were visible signs of osteoarthritic degeneration.

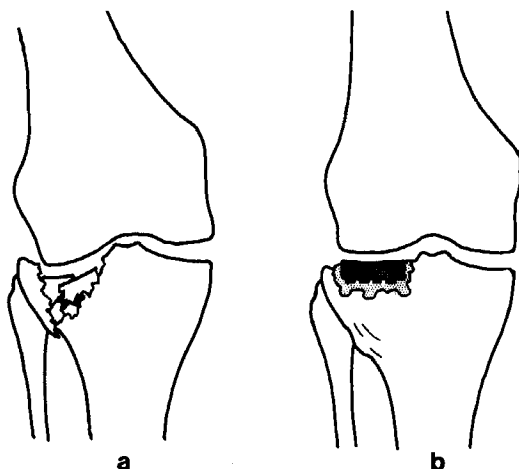


Figure 1. Schematic presentation of the operative procedure.

- a) Depression fracture of the lateral tibial condyle with valgus deformity.
- b) Resurfacing of the lateral tibial condyle with restoration of the normal axis after solid healing of the depression fracture.

The postoperative regimen followed the rules used for patients operated for unicompartmental osteoarthritis of the knee joint *ad modum* Marmor. Quadriceps training began the first day after operation. On the second day the knee was moved gently. The sutures were removed on the 12th day and walking with two crutches and full weight-bearing was allowed from this day.

No operative or postoperative complications were encountered.

CASE REPORTS

No. 1. 44-year-old woman, employed as a medical secretary. Fracture of the right lateral tibial condyle in November 1974. Conservative treatment resulted in severe restriction of joint movement and a valgus deformity of 30 degrees, combined with pain on loading and joint movements. Resurfacing was performed in January 1975. At follow-up 4.5 years later the patient was working full-time and had no knee complaints.

No. 2. 62-year-old woman, employed as a medical secretary. Fracture of the left lateral tibial condyle in February 1974. Treated conservatively with bandages, but because of severe valgus deformity and persistent pain she was referred to our clinic, where resurfacing was done in November 1975. At follow-up 4 years later she was working full-time and had no knee complaints.

No. 3. 65-year-old woman, manager of a fashion boutique. Fracture of the left lateral tibial condyle in

August 1977. Primary treatment conservative, but because of persistent pain on loading and a severe limp she was referred to our department, where resurfacing was done in January 1978. At follow-up 20 months later she was free of pain, but had decided to sell her shop for other reasons.

No. 4. 45-year-old woman, housewife. Fracture of the left lateral tibial condyle in 1972. Primary treatment by osteosynthesis and elevation of the depressed fragments. Admitted to our department because of persistent pain on loading and at rest. Resurfacing was performed in August 1978. During the operation it was noted that the cartilage of the lateral femoral condyle showed moderate signs of osteoarthritic degeneration. The operation did not improve her condition and in June 1979 resurfacing of the lateral femoral condyle was performed. At the moment her condition is satisfactory.

No. 5. 60-year-old man, employed as an insurance agent. Fracture of the left lateral tibial condyle in June 1974. Primary treatment was operative with elevation of depressed fragments. Admitted to our department because of persistent pain on loading and inability to work. Resurfacing was done in March 1979. At follow-up 5 months later the patient was without complaints and had returned to normal work.

DISCUSSION

The results of this series indicate that resurfacing of depression fractures of the lateral tibial condyle can eliminate pain and valgus deformity. Furthermore, it seems that contact with the polyethylene prosthesis is tolerated by healthy cartilage at least for a considerable period of time. It would be interesting to investigate the long-term tolerance in experimental studies. The operative procedure is simple and the mechanical changes in the knee joint are kept to a minimum. At present, resurfacing seems a promising form of treatment for these patients and our experience may show that the operation is best performed before irreparable damage has been done to the cartilage of the lateral femoral condyle (see also Ewald et al. 1976).

REFERENCE

- Ewald, F. C., Sledge, C. B., Corson, J. M., Rose, R. M. & Radin, E. L. (1976) Giant cell synovitis associated with failed polyethylene patellar replacements. *Clin. Orthop.* **15**, 213–219.