

VALGUS INSTABILITY OF THE KNEE JOINT: A SIMPLE SURGICAL REPAIR*

A. T. MATHESON, B.Sc., F.R.C.S., *Port Elizabeth*

SUMMARY

The technique described for the late treatment of valgus instability of the knee joint appears to be far simpler than the great variety of alternative methods. In these late cases, the deep part of the medial ligament is almost always unsuitable for direct repair by suture or stapling. Generally it shows extensive fibrosis and shortening. Various methods designed to repair or to replace this structure are complex

and, in our own and other hands, have given indifferent results.

In the procedure described, a formal medial meniscectomy is performed even in the minority of cases where the meniscus appears to be normal. The quadriceps expansion, forming the superficial (or capsular) part of the medial ligament, is overlapped side to side under maximal tension. It forms a significant and permanent reinforcement of the medial side of the joint.

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The objective and subjective results are described. Regardless of the cause of injury, duration of delay of surgical treatment and age of the patient, most pleasing results were obtained.

Twenty cases of valgus instability of the knee joint have been treated by a simple operative method. In all cases the primary damage to the medial structures of the knee joint had received inadequate treatment for one of several reasons, ranging from simple failure to seek treatment after the initial injury to intensive care of other and more serious injuries to limbs or vital organs.

All patients with damage to the same joint other than the simple features of valgus instability, whether tibial plateau fractures or obvious laxity of lateral or cruciate ligaments, were excluded from the series. Furthermore, the adaptation of the basic technique to reinforce repairs of acute rupture of the medial collateral ligament, are not considered in this series.

PRESENTING SYMPTOMS AND SIGNS

The major presenting symptoms were very variable and were suggestive of internal derangement of the knee joint in no less than 15 cases. The dominant symptom was periodic painful locking in 7 cases; a feeling of insecurity with weight-bearing strains in 5 cases; persistent or recurrent swelling of the joint in 3 cases, and simple aching over the medial or posteromedial aspect of the joint in 5 cases.

By simple testing without anaesthetic, all patients showed obvious laxity of the medial collateral ligament. This was graded as: slight—0 - 10°; moderate—11 - 20°; and severe—over 20°.

Active treatment was instituted between 4 weeks and 15 months after the date of the original injury, the average being 18 weeks. The patients' ages ranged from 18 to 51 years. The cause of the original injury varied from simple falls and sporting mishaps to serious road accidents. In 6 patients, claims for compensation were significant.

PROCEDURE

After suitable pre-operative strengthening exercises, the same operation was performed on all patients in this selected series. Under tourniquet, an anteromedial S-shaped incision was made, 100 - 125 mm long and centred at joint level. Fibres of the medial quadriceps expansion were split in their line along the full length of the exposure at a point midway between the medial epicondyle of the femur and the medial border of the patella. They were retracted to expose the synovial cavity which was opened to permit exploration of the knee joint.

The medial meniscus then was removed in all cases. It was clearly torn in 6 cases, was unduly mobile from a probable healed peripheral detachment in 4 cases and could be shown to constitute a mechanical impediment to flexion of the joint in slight valgus in a further 5 cases; in these and in the remaining 5 cases, the meniscus appeared to be quite normal clinically. In three-quarters of the cases

the necessity for meniscectomy was obvious; but in all cases it constituted an essential part of the operative procedure. Division of the attachment between the periphery of the meniscus and the medial capsule permitted a freer forward sliding of the posterior part of the quadriceps expansion in the subsequent repair.

The deep part of the collateral ligament was ignored by and large. In cases which presented so late for treatment, such repairs as were technically possible and were attempted—in 6 of the early cases—did not constitute an appreciable improvement of stability to testing.

The quadriceps expansion, the part posterior to its line of section having been freed by the meniscectomy as described, was overlapped side to side under maximal tension with the knee flexed to 140°. The overlap was sutured by a double row of interrupted mattress sutures of strong (No. 1) chromic catgut, usually 6 - 8 sutures to each row.

The stability of the knee joint to valgus strains was then tested and was compared with the other (normal) knee. In no case was more than the slightest movement possible and this stability was judged clinically to be equal to the normal side. The skin incision was closed. In the first 14 cases an ankle-to-groin padded plaster cast was applied with the knee joint in the same position of slight flexion, and it was retained for a period of 4 weeks. In the later 6 cases this immobilization was abandoned in favour of a Robert Jones wool and crepe-bandage dressing, which provided adequate temporary immobilization with greater comfort. It was replaced by a simple woven elastic stocking after 2 weeks.

Quadriceps exercises were commenced 24 hours after operation. Depending on the patient's progress, crutch walking without weight-bearing was permitted between 4 and 10 days after operation and limited weight-bearing assisted by crutches was started 3 - 3½ weeks after operation.

RESULTS

All patients resumed their normal work and reasonable physical activities within 8 weeks of the surgical procedure. The average was 6½ weeks (45 days). More strenuous ambulant work and all sport were prohibited until a full 3 months after operation.

The subjective disabilities were eliminated in all 20 cases, including the 6 in whom compensation claims were

TABLE I. RESULTS

	Laxity grading				Total patients
	Nil (0 - 10°)	Slight (11 - 20°)	Moderate (21 - 30°)	Severe (over 30°)	
Pre-operative	0	6	9	5	20
Postoperative	4	11	4	1	20

pertinent. With the exception of one patient who re-injured the same joint, the objective results were surprisingly favourable. The degree of valgus instability was reduced in 15 of the 19 cases and in the remaining 4 it was eliminated completely. These results are illustrated simply in Table I.