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RECURRENT INSTABILITY OF THE ANKLE JOINT

Surgical Repair by the Watson-Jones Method

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Twenty-one ankle joints with recurrent lateral instability, treated with surgical repair by the Watson-Jones method, were included in a follow-up study 1–5 years after operation. Good results were achieved in 80 per cent. However, the results were not better than those after free dissection and direct suture of the ligamentous ruptures. It is therefore recommended that the more extensive Watson-Jones procedure be reserved for selected cases.

Key words: ankle injuries; ankle joint; ligaments, articular

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Over the years there has been a great deal of interest in the treatment of recurrent instability of the ankle joint. The instability is usually a consequence of insufficient or erroneous treatment of a lesion of the lateral ligaments of the ankle.

In order to re-establish stability of the ankle several different operative procedures have been devised. Peroneus brevis tenodesis is described in several modifications (Gallie 1913, Nilsonne 1932, Evans 1953, Chrisman & Snook 1969, Viernstein et al. 1974). Well known and often used is the Watson-Jones procedure from 1940 (Watson-Jones 1960, Windfeld 1953, Broström 1966, Gillespie & Boucher 1971, Cedell 1975).

Free transplants of tendon or fascia as a substitute for the damaged ligaments have been used by some authors (Elmslie 1934, Rosendahl-Jensen 1952, Weber & Hupfauer 1969), while others have found it possible to identify and free the ends of the torn ligaments even many years after the rupture, and perform direct suture (Broström 1966, Solheim & Aasen 1976).

The existence of so many methods arouses suspicion that none of them is convincingly preferable to the others. The results of a follow-up study of patients treated for recurrent instability of the ankle by the Watson-Jones technique are presented below.

MATERIAL AND METHODS

During the period 1972–1976, 20 patients, aged 14–47 years, underwent surgical repair of 22 ankle joints (15 males, 7 females). Preoperatively, all patients complained of recurrent instability of the ankle and of frequent distorsions. Seven ankles had previously been treated with a plaster-of-Paris cast for at least 4 weeks, while in the others a supportive bandage had been used for a shorter time in connection with the original trauma.

In addition to clinical examination, preoperative radiographs were taken in all cases, including inversion-stress exposures of both ankle joints.

All joints were repaired by the Watson-Jones method; the peroneus brevis tendon was cut as proximally as possible, taken through drill holes in the lateral malleolus and the neck of the talus and fastened to the malleolus with sutures. After the operation the joint was immobilized in a plaster-of-

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Paris cast for 6 weeks, which during the last 4 weeks was used as a walking boot.

Nineteen patients (21 joints) were subjected to a follow-up study 1–5 years (average 2.7 years) after operation. One patient did not wish to participate. In addition to the clinical examination, a thorough history was obtained with special attention to the patient's own assessment of the result. To disclose instability, if any, an inversion-stress radiograph was taken. The distance between the articular surfaces of the talus and tibia was measured at the prominence of the lateral eminence of the trochlea tali at rest and during forced supination. A difference of 3 mm or more was considered pathological (Figure 1).

The clinical and radiological examinations were performed independently of each other.

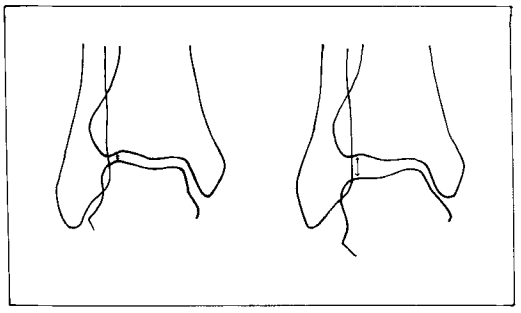

Figure 1. The opening of the tibiotalar joint (in mm) is determined by subtracting the normal distance at rest from the abnormally opened distance during forced supination (Ruth 1961).

RESULTS

The results are summarized in Table 1. Fourteen patients found that the operation had been successful. The tendency to instability and distorsion had disappeared. These patients had only slight discomfort from the scar and slight pain mainly localized to the malleolus itself (drill holes?), especially after a long walk. Several of these patients took part in sports activities and were not impeded in any way. There were no complaints of stiffness of the ankle. In nine, the clinical examination revealed reduced inversion ability, while five had, clinically, a normal mobility of the ankle joint. Radiographically, all 14 showed normal conditions.

Three patients reported that the operation had improved the condition. They complained of slight residual instability, so that they had to refrain from sports activities and similar heavy strain on the ankle. Clinical examination revealed normal mobility of the ankle in these three patients. Radiographically, pronounced instability, unchanged as compared with the preoperative examination, was disclosed in one of them, whereas the remaining two were normal.

The remaining four patients were dissatisfied with the result of the operation. They complained of persisting instability and frequent distorsions, and therefore they had to wear a supportive bandage constantly. At the clinical examination, one ankle was laterally loose, two were normal, and one showed limited mobility. Radiographically, all four were normal.

In four ankles the radiological examination disclosed abnormal mobility on the unaffected side.

Table 1. Clinical assessment and the patient's own assessment of the results of operation compared with the pre- and postoperative radiographic findings

Result as assessed by the patient	No. of ankles	Postoperative clinical mobility			Radiologic examination			
					Preoperative		Postoperative	
		Increased	Normal	Reduced	Stable	Unstable	Stable	Unstable
Good	14		5	9	2	12	14	
Improved	3		3			3	2	1
Poor	4	1	2	1	1	3	4	
Total	21	1	10	10	3	18	20	1

DISCUSSION

Most authors who have considered this problem agree that, although they are adequate, the various methods of stabilizing the chronically unstable ankle by operation are inferior to those of repair of the fresh lesion (Ruth 1961, Weber & Hupfauer 1969, Cedell 1975, Reichen & Marti 1974). The mechanisms determining the stability of the ankle are not fully understood.

That many patients have abnormal mobility of the ankle joints without symptoms of instability, and that clinical and radiological stability is not always accompanied by functional stability have been pointed out by Bosien et al. (1955), Rubin & Witten (1960), Freeman (1965), and others. In three ankles, the instability was not radiographically apparent preoperatively. Two of these patients were satisfied with the result of the operation. Both were clinically and radiographically stable. Three patients who before the operation showed clinical and radiographical instability were not satisfied with the operation, although their ankles at the follow-up were both clinically and radiologically stable. It is not possible to offer any valid explanation for this functional instability. A defect in the proprioceptive nerves around the ankle, caused by trauma, may be responsible (Freeman et al. 1965).

Abnormal lateral mobility without symptoms occurred on the unaffected side in four patients (20 per cent) of this series. None of these ankles had previously been exposed to any severe trauma. Abnormal mobility on the unaffected side was thus more frequent than normal in our series, as patients with acute trauma to the ankle are found to have abnormal mobility on the unaffected side in only 5 per cent (Johannsen 1978).

Seventeen ankles (80 per cent) were functionally stable or distinctly improved after the Watson-Jones operation. This shows the applicability of the method. Similar results were reported by Gillespie & Boucher (1971). However, 20 per cent of the patients complained of instability after the operation; the method is thus not better than considerably less extensive stabilizing techniques. In a follow-up study of directly sutured "old" ruptures, Broström (1966) found residual instability in 15 per cent. In a similar series Solheim & Aasen (1976) reported postoperative instability in 14 per cent. In addition, a substantial objection to the Watson-Jones method is that the operation deprives the ankle of one of its most important pronators, so that an unsuccessful operation can aggravate the preoperative condition.

These circumstances favour a more reserved attitude to tenodesis of the chronically unstable ankle. A more active approach to the fresh lesion would also reduce the need for later operations (Reichen & Marti 1974).

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