

LATERAL INSTABILITY OF THE ANKLE TREATED BY A MODIFIED EVANS PROCEDURE

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A technically simple tenodesis of the peroneus brevis tendon has been applied in the treatment of 42 patients with lateral instability of the ankle; 33 patients have been examined 2–10 years after the operation and 91 per cent showed excellent or good results. It is concluded that this procedure gives good stability in the varus as well as the antero-posterior direction and is therefore comparable to the technically more difficult Watson-Jones procedure.

Key words: lateral instability of the ankle; tenodesis; peroneus brevis tendon

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Posttraumatic lateral instability of the ankle is a condition with well-defined clinical symptoms. An inversion trauma sometimes leads to recurrent sprains, a feeling of instability, and periodic pain and swelling below and in front of the lateral malleolus. Several operative procedures to stabilize the ankle have been presented during the last 40 years. In many of these the peroneus brevis tendon has been used as a substitute for the ruptured lateral ligaments. Broström (1966) considered a direct suture of the torn ligaments possible several years after the primary trauma. In many cases however some kind of ligamentous reconstruction is necessary. Hitherto the Watson-Jones repair appears to be the most widely used procedure (Watson-Jones 1952, Anderson & Le Cocq 1954, Lemberger & Kramer 1971, Gillespie & Boucher 1971).

PATIENTS AND METHODS

Between 1964 and 1974, 42 patients with lateral instability of the ankle were operated on in the orthopaedic department of Borås Central Hospital. The operative procedure used was a slight modification of those described by Nilsson (1932) and Evans (1953): A slightly curved incision is made over the peroneal tendons down to the tip of the lateral malleolus. The tendons are isolated to the level of the proximal retinaculum, which must be carefully preserved. The peroneus brevis muscle is sectioned just below the musculo-tendinous junction. The proximal end is sutured to the peroneus longus, while the distal end is drawn down through the proximal retinaculum. A channel of about 7 mm diameter is then drilled in the lateral malleolus from the tip directed proximally and dorsally. The tendon is driven through the channel and sutured to itself and to the periosteum (Figure 1). The tendon is sutured with the ankle in slight eversion. The ankle is postoperatively immobilized in a below-knee walking cast for 6 weeks followed by mobilization with full weight-bearing.

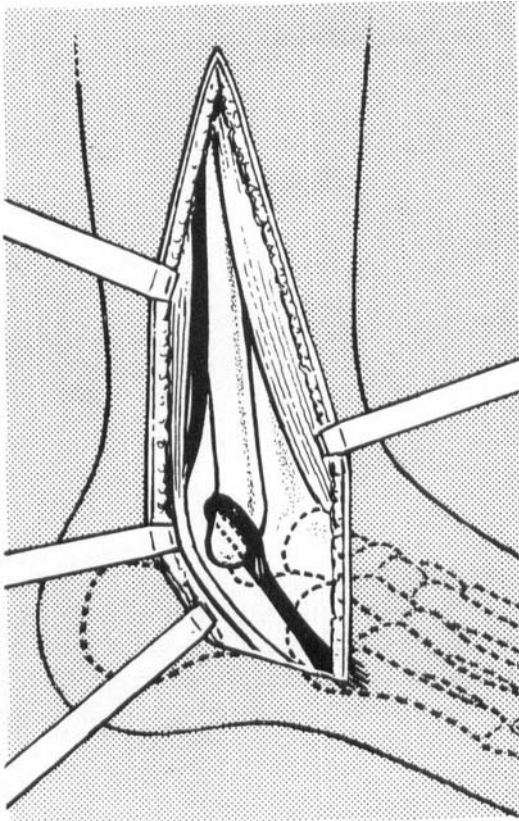


Figure 1. Schematic illustration of the operation after suturing of the peroneus brevis tendon.

All the case records were almost identical: A primary heavy sprain was followed by a feeling of instability, weakness of the ankle, periodic pain and recurrent sprains. The condition was in all cases associated with marked physical disability in relation to sporting activities such as tennis, badminton, golf and cross-country running. Because of the large normal variations in talar tilt (Laurin et al. 1968) the operative indication was based more on the clinical status than on the X-ray examination.

Our series consisted of 21 male and 12 female patients. At the time the investigation was carried out one of the 42 patients had died and eight others were not available for other reasons (mainly because of the great turnover of inhabitants in this part of the country). The age at operation averaged 33 years (range 15–63 years). The time between primary trauma and operation averaged 6 years (range 1–27 years) and follow-up time 5 years (range 2–10 years).

At follow-up the patients outlined their subjective condition by answering a special

questionnaire. All the patients were examined clinically with respect to: 1) Ankle joint mobility. 2) Stability (varus instability and/or "drawer" symptom). 3) Peroneal function and circumference of the calf. 4) X-ray (AP-sagittal and forced supination).

RESULTS

No operative complications were recorded. Table 1 presents the subjective results. In the group "improved" there were slight complaints such as: swelling at the lateral malleolus (11 cases), sporadic distorsions (6 cases) and periodical pain (5 cases).

The three patients in the group "not improved" considered their ankle joints to be just as unstable as before operation. One of these demonstrated a completely normal status clinically and on X-ray. The ability to perform sports activities is presented in Table 2. Preoperatively no patient was able to take part in any form of sporting activity.

Table 1. Subjective results in 33 operated cases

Result	No. of cases	Per cent
No complaints	19	58
Improved	11	33
Not improved	3	9
Total	33	100

Table 2. Postoperative physical ability

Sporting activity	No. of patients	Per cent
Competitive athlete	6	18
Occasional sport	23	70
No sport at all	4	12
Total	33	100

At the clinical examination supination was reduced by less than 10° in 10 patients. In five cases a very slight "anterior drawer sign" could be demonstrated, while no patients revealed varus instability. Moderate swelling at the lateral malleolus was found in five cases. Peroneal strength compared to the non-operated side was normal, and there was no atrophy of the calf muscles.

Slight to moderate osteoarthritis was recorded in two patients and advanced osteoarthritis in one. In two of these three cases, however, the X-ray picture was completely unchanged in comparison with the pictures taken preoperatively.

DISCUSSION

Lateral instability of the ankle is a disabling condition, which reduces the mobility of the patient, especially on uneven ground. In elderly patients relief of symptoms may be obtained by nonoperative measures, such as peroneal strengthening exercises. The majority of younger and middle-aged patients demand surgical treatment, in order to improve their physical performance. In addition to the technique of direct suturing (Broström 1966) good results have been presented after use of the Watson-Jones repair (Watson-Jones 1952, Anderson & Le Cocq 1954, Lemberger & Kramer 1971, Gillespie & Boucher 1971). This repair includes a transfer of the peroneus brevis tendon through the talus, which makes the operation technically more difficult than the modified Evans procedure we have used. The anterior fibulo-talar ligament is considered to be the most important of the lateral ligaments, from the point of view of stability (Leonard 1949, Broström 1966, Laurin et al. 1968). The position of the transplant in the modified Evans procedure described here seems to substitute for the function of this ligament as well as that of the fibulo-calcaneal ligament (Figure 2). The procedure was performed after sectioning of the two ligaments in a cadaveric specimen and a good

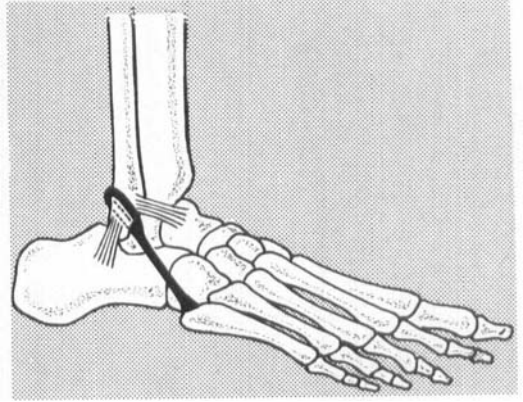


Figure 2. Position of the transplant between the two relevant ligaments.

stabilizing effect in the antero-posterior as well as varus direction was noted. The modified Evans procedure is a simple method of treating lateral instability of the ankle. The stabilizing effect seems very good. Also the subjective results are very gratifying.

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