

THE PROGNOSTIC IMPORTANCE OF PRIMARY DISLOCATED ANKLE JOINT IN PATIENTS WITH MALLEOLAR FRACTURES

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Sixty-nine patients with bi- or trimalleolar ankle fractures were evaluated in a questionnaire on an average of 9.6 years after their fracture. Patients with primary clinically severely dislocated ankle joints had significantly more complaints than patients with nondislocated ankle joints. The prognostic importance of this condition is emphasized.

Keywords : prognosis ; ankle ; dislocation ; malleolar fracture.

Mots-clés : pronostic ; chenille ; luxation ; fracture malléolaire.

INTRODUCTION

In publications dealing with malleolar fractures, none has focused upon the correlation between the clinically severely dislocated ankle joint and the occurrence of late complaints. In this report the patients subjective condition forms the basis for illustrating such a correlation.

MATERIAL AND METHODS

In 1978, 69 consecutive patients (38 male and 31 females) were treated for bi- or trimalleolar ankle fractures, stage 3 and 4 according to Lauge-Hansen (1). By this system the fractures are described in two ways : The position of the foot at the moment of fracturing and secondly the forced movement producing the fracture. Supination-eversion fracture stage 2 (SE 2) describes a detachment of the lateral ligaments with a small avulsion from the lateral malleolus) and an oblique fracture of the supramalleolar part of the fibula.

SE 3 is an SE 2 fracture and an avulsion from the dorsal lip of the tibia. SE 4 is an SE 4 fracture plus fracture of the medial malleolus. Pronation-eversion fracture stage 2 (PE 2) describes an avulsion fracture of the tip of the medial malleolus and detachment of the anterior tibiofibular ligament with a small antero-lateral avulsion from the tibia. PE 3 is a PE 2 fracture and a spiral fracture of the fibula approximately 8 cm proximal to the tip of the fibula. PE 4 is a PE 3 fracture plus fracture of the dorsal lip of the tibia.

We used 28 patients with stage 2 fractures (only one malleolus fracture, SE 2 and PE 2) treated in the same period as a clinical control group. Median age 46 years (range 15 to 82 years).

In 24 patients the ankle joint was dislocated and acute reduction was done on arrival at the hospital. Four patients were treated non-operatively while 65 were operated. All patients had a plaster bandage for 5 weeks. The roentgenologic position of the fracture after treatment is retrospectively classified according to Cedell (2). Twenty-two were in anatomical position, 22 good and 14 bad. There was no control X-ray in 11 cases. There was no superficial or deep infection.

Median follow-up is 9.6 years (range 9 to 10 years).

Any occurrence of pain in the ankle joint, fatigue, stiffness or tendency to swelling was evaluated in a questionnaire. The patients were required to state if they had : A. No complaints at all, B. Occasional slight complaints, C. Daily slight complaints and D. Daily disabling complaints.

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Statistics. The Kruskal-Wallis test, an extension of the Wilcoxon rank sum test was applied for statistical analysis. Level of significance 5 per cent.

RESULTS

Nineteen patients had no complaints at all, 29 had occasional slight complaints, 15 had daily slight complaints and 6 patients had daily disabling complaints. Patients with primary dislocated ankle joint had 4 times as many ($p < 0.01$) disabling late complaints than patients with non-dislocated malleolar fracture (table 1).

The roentgenological classification of the fracture was related to the occurrence of late complaints (table 2), but this correlation disappeared if patients with dislocated ankle joints were not included (table 3).

The roentgenological fracture position after treatment did not correlate with complaints at follow-up.

Table I. — Patient evaluation of complaints after malleolar fractures in relation to the primary clinical position of the ankle joint $p < 0.01$

	non dislocated ankle joint	dislocated ankle joint
no complaints at all	14	5
occasional slight complaints	21	8
daily slight complaints	8	7
Daily disabling complaints	2	4
	45	24

$p < 0.01$.

Table II. — Subjective condition in relation to fracture classification
Total number of patients. $p < 0.05$

	SE/PE 2	SE/PE 3, 4
no complaints at all	13	19 (5)
occasional slight complaints	13	29 (8)
daily slight complaints	2	15 (7)
daily disabling complaints	0	6 (4)
	28	69 (24)

SE: Supination eversion; PE: Pronation eversion; () = dislocated joints; $p < 0.05$.

Table III. — Subjective condition in relation to fracture classification patients with primary dislocated ankle joints not included. $0.5 < p < 0.1$ NS

	SE/PE 2	SE/PE 3, 4
no complaints at all	13	14
occasional slight complaints	13	21
daily slight complaints	2	8
daily disabling complaints	0	2
	28	45

SE: Supination eversion; PE: Pronation eversion; $0.5 < p < 0.01$ non significant difference (NS).

DISCUSSION

The use of a questionnaire has been used earlier in evaluation results following treatment of malleolar fractures (3). In several publications it is claimed that patients with malleolar fractures develop ankle joint arthrosis more often if the fracture heals in a bad roentgenologic position (4, 5, 6). But the importance of severe ankle joint dislocation in relation to late complaints has never been focused upon. In one publication (7) approximately 10 per cent of the patients develop arthrosis in spite of fracture healing in anatomical position. It is discussed that the fracture might have been worse than evaluated radiologically. An explanation of this question might be that these fractures were primarily associated with severe joint dislocation, which probably reflects widespread soft tissue damage. We find that such patients have chronic complaints 4 times as often as patients with non dislocated joints. It is therefore of great prognostic importance to register the position of the ankle joint at the time of the fracture.

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SAMENVATTING

J. BAGGER, P. HØLMER, K. F. R. NIELSEN. De prognostische waarde van primaire enkelluxatie bij malleolaire fracturen.

Zesennegentig patiënten met een bi- of een trimalleolaire fractuur werden 9,6 jaar na het ongeluk onder-

vraagd met behulp van een vragenlijst. Patiënten met een ernstige klinische primaire enkelluxatie hadden heelwat meer klachten dan de patiënten zonder luxatie. De auteurs leggen de nadruk op de prognostische waarde van de primaire luxatie.

RÉSUMÉ

J. BAGGER, P. HØLMER, K. F. R. NIELSEN. L'importance pronostique de la luxation primaire de la cheville dans les fractures malléolaires.

Les auteurs ont interrogé, à l'aide d'un questionnaire, 96 patients ayant présenté une fracture bi- ou trimalléolaire, en moyenne 9,6 ans auparavant. Les blessés qui avaient présenté une grave luxation clinique primaire de la cheville se plaignaient nettement plus que les blessés indemnes de luxation. Les auteurs soulignent la valeur pronostique de la luxation primaire, associée à une fracture malléolaire.