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Pressure relief by means of a lower leg total contact cast (TCC) in the treatment of diabetic foot ulcers—results from a case study

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Problem: Pressure relief is indispensable in the treatment of diabetic foot ulcers. A well documented method is the lower-leg total contact cast (TCC). In Germany, this particular method of pressure relief has thus far not been widely used in practice. This case study was performed to investigate its efficacy in patients with diabetic foot syndrome treated in a diabetic foot outpatient clinic.

Method: 6 diabetic patients (2 f, 4 m) with foot lesions (max. Wagner 2, no clinically relevant ischaemia, no infection, wound size: 0.06 - 11.7 cm²) were fitted with a bivalved total contact cast (Cellacast® Xtra, Lohmann & Rauscher GmbH & Co KG) on the lower leg. Four of these patients were suffering from plantar ulcers (including one case of Charcot foot); one woman presented with an ulceration on the ball of the great toe, and one patient had undergone a forefoot amputation subsequent to revascularisation. In four patients, wound healing stagnated over a period of 2-9 months with a forefoot pressure-relief shoe or a custom-fit shoe. Following extensive wound débridement or forefoot amputation, respectively, two patients were fitted with a TCC for follow-up treatment on an outpatient basis. Wound care was continued as before without any changes, based on the principles of moist wound treatment; dressings were changed every 3-7 days.

Outcome:

In five patients, the plantar ulcers had completely healed after an average period of 40 (SD +/-18) days. In the patient who had undergone the forefoot amputation, a distinct reduction in wound size by 12% was apparent during the 38-day observation period.

Summary: These outcomes demonstrate that the TCC is a highly effective method of pressure relief, well suited for use in a diabetic foot outpatient facility.