

Use of Intermittent Pneumatic Compression for Treatment of Upper Extremity Vascular Ulcers

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Ischemic vascular ulcerations of the upper extremities are an uncommon and frequently painful condition most often associated with scleroderma and small vessel inflammatory diseases. Digital amputation has been advocated as primary therapy because of the poor outcome with medical care. Intermittent pneumatic compression (IPC) pump therapy can improve ulcer healing in lower extremity ischemic ulcerations; however, the value of this treatment in upper extremity ischemic ulcerations is not known. This observational pilot study consisted of a consecutive series of 26 patients with 27 upper extremity ischemic vascular ulcers seen at the Mayo Gonda Vascular Center from 1996 to 2003. Inclusion criteria were documented index of ulcer size and follow-up ulcer size and use of the IPC pump as adjunctive wound treatment. Twenty-six of 27 ulcers (96%) healed with the use of the IPC pump. Mean baseline ulcer size was 1.0 cm² (SD=0.3 cm²) and scleroderma was the underlying disease in 65% (17/26) of cases. Laser Doppler blood flow in the affected digit was 7 flux units (normal greater than 100). The mean ulcer duration before IPC treatment was 31 weeks. The average pump use was 5 hours per day. The mean time to wound healing was 25 weeks. Twenty-five of 26 patients reported an improvement in wound pain with pump use. Intensive IPC pump use is feasible and associated with a high rate of healing in upper extremity ischemic ulcers. A prospective, randomized, sham-controlled study of IPC is needed to determine whether IPC treatment improves wound healing compared to standard medical care.

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