

Four case studies using Intermittent Pneumatic Compression (IPC) device in the resolution and management of non-healing lower limb ulcers



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Aim: To examine the effects of IPC applied to the thigh of patients with a lower limb ulcer of venous aetiology over a 16 week period.

Method: Four patients with long standing venous leg ulcers (VLU) were followed for 16 weeks. Outcomes assessed were: % change in wound size, wound related pain (via visual analogue scale) and acceptability of IPC as an adjunctive therapy. Wear time of the device was captured using a patient diary which was reviewed every 2 weeks

Case study 1
75 year -old- gentleman – 5 year duration VLU
Hydrofiber dressing, compression: 2 layer bandage system

Week 0
Area 15.96cm²
Pain VAS: 21

Week 16
Area 5.22cm²
Pain VAS: 16

Case study 2
74-year-old lady - 5-year duration VLU
Hydrofiber dressing, compression wrap system

Week 0
Area 63.84cm²
Pain VAS: 91

Week 16
Area 18.2cm²
Pain VAS: 26

Case study 3
78 year -old gentleman – 13 month duration VLU
Hydrofiber dressing, two layer bandage system

Week 0
Area 4.5cm²

Week 5
Healed – measured for class 3 hosiery

Case study 4
51 year-old lady - 13-month duration VLU
Contact layer wound dressing, plus compression wrap.

Week 0
Area 7cm²

Week 16
Healed – measured for class 3 hosiery

Results

Wound Size	Pain	Device Acceptability	Device wear time
<ul style="list-style-type: none"> • Patient 1's wound reduced by 64% • Patient 2's wound reduced by 72% • Patients 3 & 4 healed 	Pain scores were significantly lower following IPC therapy	Patients found the device easy to apply and remove	2 hours was an acceptable therapy time for patients.

Discussion
Traditionally IPC has been applied directly over wound sites and patients frequently find this uncomfortable and difficult to tolerate. Within these case studies, the application of IPC to the thigh as an alternative was both effective at progressing wounds towards healing and also acceptable to patients. Patient experience was extremely positive, the feeling of being actively involved in their therapy had a hugely positive impact on all 4 patients.



Accelerate

Transforming wound and lymphoedema care

Intermittent thigh compression – can this adjunct therapy support venous leg ulcer healing?

Hayley Turner-Dobbin, Clinical Delivery Lead, Accelerate

Introduction

Venous leg ulcers can be hard to heal, can reoccur and be persistent for months! An 82-year-old gentleman previously known to our service via our multi-disciplinary clinic presented with a new ulceration to the right medial gaiter measuring 8.5cm x 2cm (17cm²). He had a 10-year history of lymphovenous disease and gravitational dermatitis.

After slow healing for 9 months with the local service, this gentleman started to attend our Complex Wound Clinic once a week in which he then started on the intermittent pneumatic compression alongside his below knee compression bandaging.

Method

On week one the patient commenced the intermittent pneumatic compression to the thigh and for this evaluation the therapy was used for a total of 16 weeks or until healed for 2 hours each day. A patient diary was kept regarding the time the unit was used and any additional supporting information as to comfort and ease of use.

Intermittent pneumatic compression is a therapeutic technique used in medical devices. It includes an air pump and inflatable cuff for the thigh in a system designed to improve venous circulation in the limbs of patients who suffer oedema or are at risk of deep vein thrombosis or pulmonary embolism².

Discussion

This is a very positive evaluation, however it may be that the daily elevation was a critical factor in enabling rapid healing. The device was considered easy to use by the patient and supports care at home with self-management. The patient is required to elevate the limb whilst the cuff is in situ for 2 hours per day which encourages a rest period further aiding venous return. This could be a contributory factor to the success in leg ulcer healing.

Results

Week one	The wound measured 17cm ²
Week four	The wound had signs of epithelial tissue which had bridged across
Week five	There was significant reduction in wound size to 0.25cm ²
Week six	The wound had fully healed

Conclusion

This gentleman had a slow healing leg ulcer that appears to have been prompted to heal with an adjunct intermittent pneumatic compression device to his thigh.

References

- 1 Harding K, et al. (2015) Simplifying leg ulcer management. Consensus recommendations. *Wounds International*.
- 2 Morris R J, (2008) Intermittent pneumatic compression systems and applications, *Journal of Medical Engineering & Technology*, 32:3, 179-188.

