

# The Use a of Four-Layer Compression Dressing with an Endovascular Iliocaval Reconstruction for the Treatment of a Thrombosed Non-Retrieval Inferior Vena Cava Filter and Bilateral Lower Extremity Ulcerations: A Unique Case Report

## PURPOSE

Post-thrombotic Syndrome (PTS) is a complication of inferior vena cava (IVC) filter insertion in the prevention of pulmonary embolism. This complication is rare; however, it can lead to venous stasis ulcerations. The four-layer compression dressing has been shown to be an effective treatment option in the management of lower extremity venous ulcerations. We present a case of an individual with venous stasis ulcerations secondary to post-thrombotic syndrome who was successfully treated with only weekly four-layer compression dressings.

## LITERATURE REVIEW

- The use of compression therapy in the treatment of lower extremity edema has been employed for centuries. Currently, there are several different multi-layer compressive dressings available.
- In 2003, Moffatt et al. compared four-layer (Profore<sup>®</sup> Smith&Nephew) vs two-layer (SurePress<sup>®</sup> ConvaTec) compression dressings therapy in patients with chronic venous ulcerations. They found that 88% patients with a four-layer compression dressing healed after 24 weeks compared to 77% of patients in the SurePress<sup>®</sup> (ConvaTec) group after 24 weeks. The study also reports a higher mean cost of the two-layer bandage in 24 weeks \$1,374 vs \$1,314 in the four-layer bandage.
- Szewczyk et al. in 2010 observed a 0.63cm<sup>2</sup>/ per week decrease in wound size in 15 patients with venous ulceration treated over twelve-week period treated with weekly 4-layer compression dressings.
- Chimera et al. measured skin perfusion pressure (SPP) in healthy patients wearing four-layer compression dressing at 8 different time points. They found that SPP at 40, 50 and 60 minutes was increased compared to baseline. This is clinically significant because SPP <30 mm Hg is considered to be critical limb ischemia (CRI).

## CASE STUDY

- A 36-year-old male with no significant comorbidities presented to clinic with a two-month history of bilateral lower extremity venous ulcerations. He has had lower extremity edema and intermittent ulcerations ever since placement of an IVC filter in 2003 after sustaining a pelvic fracture after a motor vehicle collision.
- After seeing an outside specialist, he was diagnosed with an occluded IVC filter (**Fig 2**).
- The patient had been self-treating his wounds (**Fig 1**) with compression stockings and Silvadene cream.
- There was no purulent drainage, cellulitis, or malodor from either wound. Peripheral pulses were palpable and sensation was fully intact in both lower extremities.

Figure 1



- He was treated with Mepilex Ag and Profore (Smith&Nephew) dressing. He was referred for a venous duplex as well as a vascular surgery consult.
- The plan additionally consisted of surgical debridement, possible biopsy and skin grafting. In the interim he was treated conservatively with weekly Mepilex Ag and Profore changes.

## CASE STUDY (cont.)

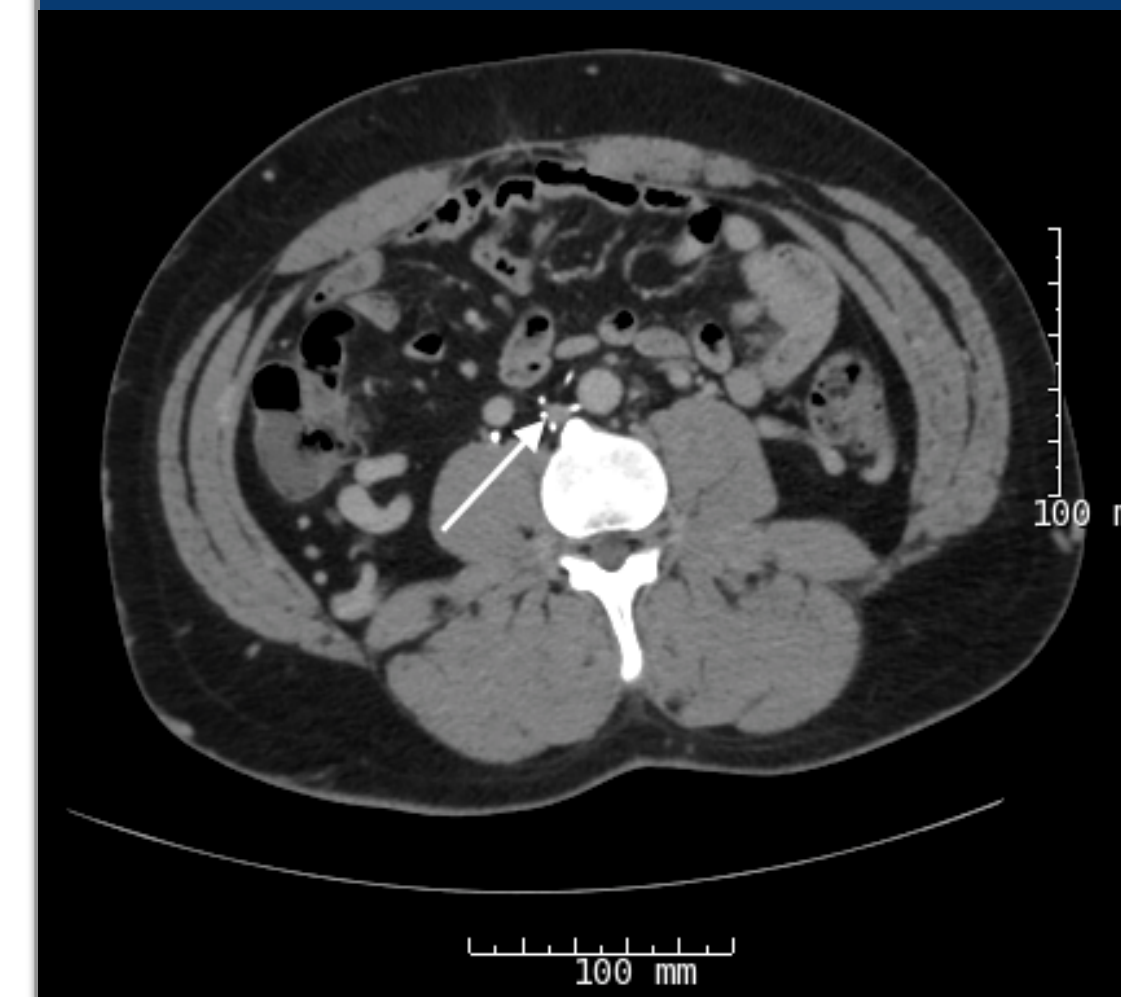


Figure 2

- Vascular Surgery recommended no additional treatment of non-occlusive DVT and to continue compression therapy.
- The patient continued his weekly Mepilex Ag and Profore treatments and approximately 11 weeks after initiation of treatment the right leg wound completely healed.



Figure 3

- After two weeks of compression treatment the left leg wound completely healed (**Fig 3**) and right leg wound decreased in size by 28%.
- With the drastic improvement, surgery was no longer considered. A venous duplex was ordered that showed a non-occlusive DVT.

- The patient was lost to follow up and was not seen for another year. The patient presented with re-ulceration of bilateral legs.
- The same protocol of Mepilex Ag and Profore was used. Aside from a hospital admission for LE cellulitis, the patient healed uneventfully.

## DISCUSSION/CONCLUSION

- Our study demonstrates the effectiveness of a four-layer compression dressing in the treatment of venous ulcerations secondary to PTS. This is likely due to a decrease in swelling and possible increase in SPP.
- The use of multilayer compression dressings is a reliable treatment option for patients with lower extremity edema. The decreasing pressure gradient at the foot to the calf is effective in improving venous return.
- The weekly four-layer compression dressing changes make wound maintenance easy and the dressing minimally disrupts ambulation without additional energy expenditure.
- Additionally, there has not been any reported increase in oxygen cost during walking when wearing the dressing.
- When treating patients with compression therapy one must take into consideration peripheral arterial disease (PAD). Many patients with lower extremity edema may also have PAD. Current recommendations are to avoid compressive dressing for patients with PAD but more investigation is needed.

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