



A new approach to pain management in Lipedema

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Lipedema is characterized by a painful, disproportionate accumulation of fat in the arms and/or legs. The exact causes are largely unknown; however, it appears to be hormonally influenced, as it occurs exclusively in women and often begins during periods of hormonal change, such as pregnancy, menopause, or other hormonal transitions [1, 2].

Contrary to what the name suggests, lipedema does not involve a classical edema that can be indented or visualized on ultrasound as dark fluid deposits within the fat tissue. Instead, it may involve an inflammatory process within the adipose tissue or activation of nociceptive nerves, although this has not yet been fully researched [2].

Current treatment options primarily focus on compression therapy, which alleviates pain, combined with exercise while wearing compression, weight management (in cases where obesity is also present), anti-inflammatory diets, and, if these measures fail, liposuction [1, 2].

The use of local anesthesia for treating scar or phantom pain is a well-established and recognized method. The author has questioned for years whether part of the pain relief seen after liposuction might actually stem from the infiltration of local anesthetic itself, rather than solely from fat removal. This is analogous to phantom pain treatment, where infiltration may have long-lasting effects, despite the anesthetic itself works only for a few hours.

With this concept in mind, the author applied diluted local anesthesia to the subcutaneous fat tissue in two patients with lipedema and varicose veins during standard tumescent anesthesia for laser ablation of the great saphenous vein (GSV) along the inner thigh. At the follow-up one week later, both patients were asked about their pain levels in the fat tissue. The tenderness along the treated vein was significantly reduced and remained so at the three-month follow-up.

Based on this result, a targeted intervention was performed on a single patient (38 years old, BMI 52) working in healthcare, who had painful lipedema of the calves and obesity-associated lymphedema (Stage II). A numeric rating scale (NRS) pain score from 0 to 10, where 0 means no pain and 10 maximum imaginable pain was used to score the pain for each leg. The patient self-reported pain levels before the application for 1 week daily, after getting up, at noon and in the evening and the same for the week after the application as well as 7 days after treatment of the left leg (3 months later) (see Figure 1, and the electronic

supplementary material 1 (Figure E1), as well as ESM 2 (Tables E1 and E2).

The right lateral calf was infiltrated with 500 ml diluted local anesthetic (Mepivacaine 0.04% in NaCl) (see Tables 3 and 4 in ESM 2). The patient was informed that this is a standard pain management method, although it had not previously been applied in this manner for lipedema. Two ampoules of Mepivacaine 2%, 5 ml were diluted in 500 ml of 0.9% NaCl to achieve a 0.04% concentration. The infiltration was performed under ultrasound guidance using a roller pump (as used in endovenous procedures for tumescent anesthesia), targeting the subcutaneous fat tissue on the right lateral calf, from the lateral malleolus up to the lateral knee.

The treatment was initially performed on one side only to provide a direct comparison. The right leg was selected due to a slightly higher pre-treatment pain score. Over time, the untreated leg maintained a similar pain level to that reported before treatment. After the consistently positive result for the treated leg was confirmed at the three-month follow-up, the second leg was treated as well.

Additionally, the patient's physiotherapist noted a marked reduction in tissue fibrosis and more effective lymphatic drainage, initially only in the right leg, later in both.

Four weeks after the second treatment, the patient summarized her experience as follows: *"In the week following the second treatment, I initially had more swelling and hematomas on the left leg. By day 7, all the swelling had resolved, and the hematomas had healed. With compression garments, my pain level in both lower legs is between 2 and a maximum of 3 throughout the day. In the morning, it is 0 or 1. Even on days without compression, the pain does not increase significantly and remains nearly the same. Overall, a significant improvement in body awareness and freedom."*

I approached my ethics committee to inquire about conducting a study: infiltration of diluted local anesthetic to reduce pain on one leg versus placebo (NaCl only) on the other leg, using a randomized, double-blind, intra-individual comparison design in women with lipedema. However, the regulatory requirements in Europe for such a study are almost as complex as those for the introduction of a completely new drug, amounting to several million euros.

I therefore invite colleagues outside Europe to take on the project to perform a randomized study and encourage colleagues in Europe or all over the world to take on this

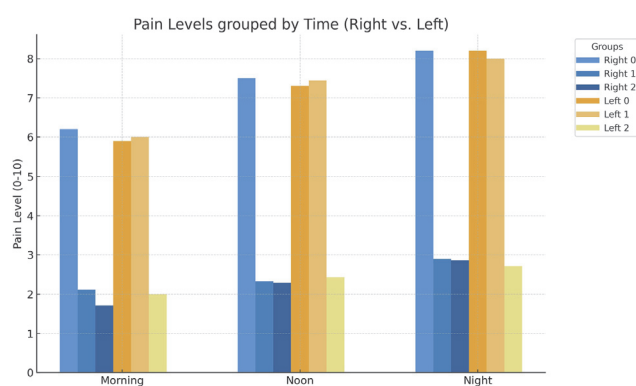


Figure 1. Evolution of the daily pain in a scale from 0 to 10 on the calf compared right and left, morning, noon and evening throughout the first 9 days after the infiltration of the right calf. Blue bars right leg, orange bars left leg. Compression was worn daily in flat knitted and knee-long.

approach and submit anonymized baseline data to contribute to a multicenter registry: https://de.surveymonkey.com/r/Lipedema_Meaverin. The application protocol is described in detail in the additional data. In summary, it involves ultrasound-guided infiltration of 0.04% Mepivacaine into the subcutaneous fat tissue of the painful area, adhering to the maximum dosage limits.

I am available to support the planning of randomized trials and invite colleagues treating patients in this way to submit anonymized baseline data to contribute to a multicenter registry (see QR code in ESM 3, Study protocol) or use the following link: https://de.surveymonkey.com/r/Lipedema_Meaverin

If it is confirmed that this approach provides long-term pain relief for lipedema, it could offer significant help to many women.

Electronic supplementary material

The following electronic supplementary material is available with this article at <https://doi.org/10.1024/0301-1526/a001224>

ESM 1. Evolution of the daily pain (Figure E1).

ESM 2. Scoring of the pain by leg (Table E1); Scoring of the pain by leg starting 1 of the second treatment (Table E2); Maximum Mepivacaine dosage per session depending on the body weight (Table E3); Required dilution of Mepivacaine (Table E4).

ESM 3. Study documentation.

References

1. Faerber G, Cornely M, Daubert C, Erbacher G, Fink J, Hirsch T, et al. S2k guideline lipedema. *J Dtsch Dermatol Ges.* 2024; 22(9):1303–15. <https://doi.org/10.1111/ddg.15513>
2. Bertsch T, Erbacher G, Elwell R, Zähringer T, Corda D, Damstra RJ et al. Lipoedema: a paradigm shift and consensus. International Consensus Document. *Journal of Woundcare.* 2020; 29(Sup11b):1–51.

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Conflict of interest

The author declares that there are no conflicts of interest.

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