

Impaired lymphatic transport and inflammation lead to the development of limb lymphedema in patients with obesity

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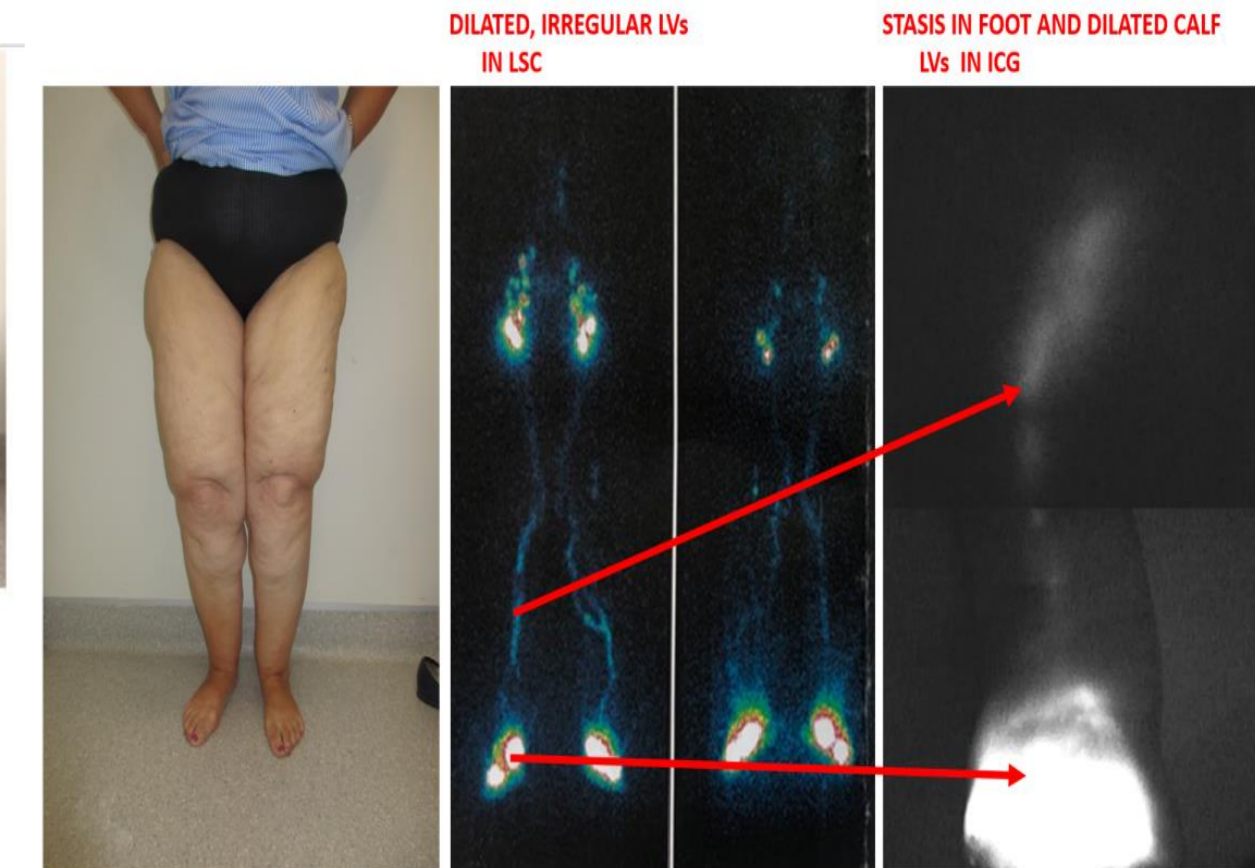
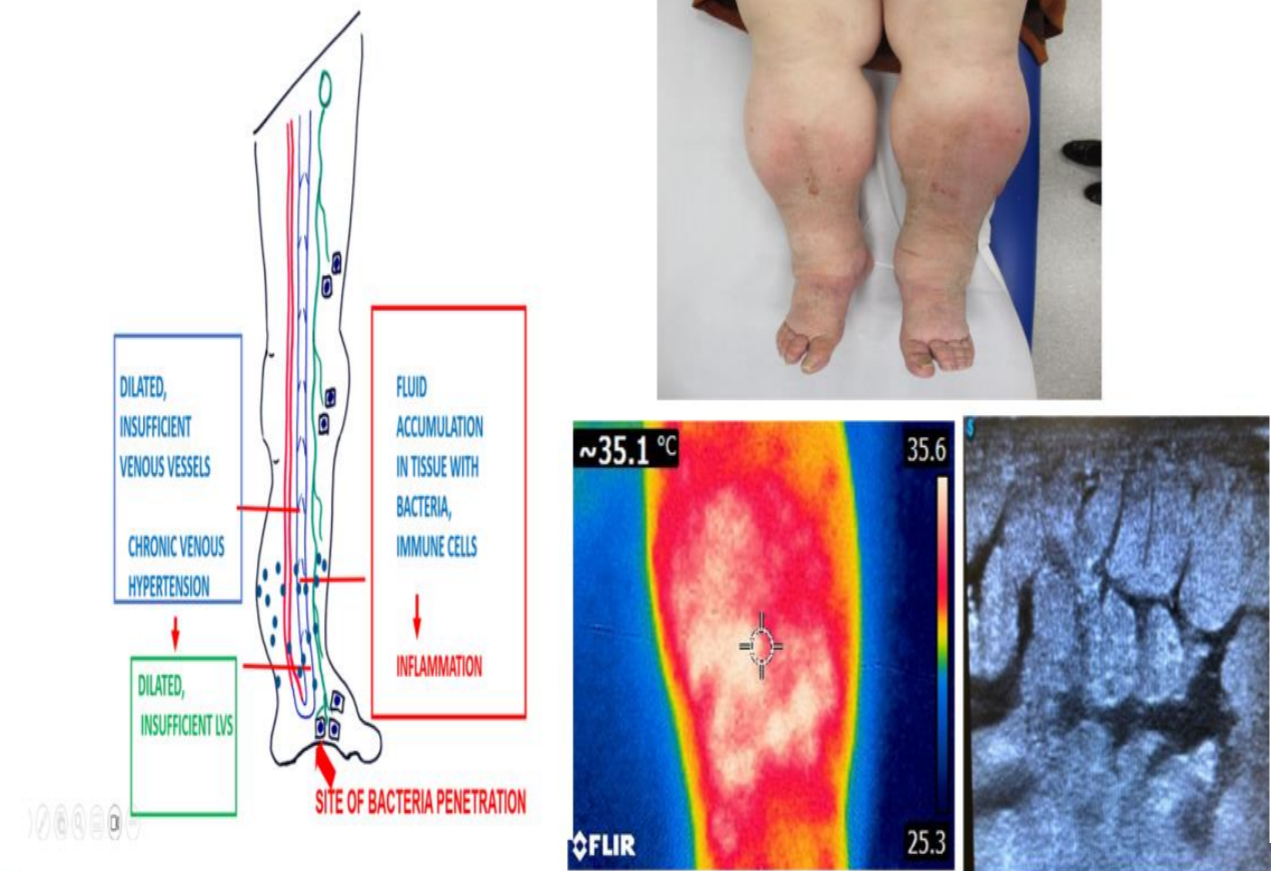
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Background. Obesity is one of the great and still increasing problems in the Western world. Irrespective of problems with metabolic, cardiac, and diabetes, obesity is one of the more frequent causes of lymphedema. Increased venous insufficiency leads to accumulations of excess fluid with bacteria drained from the skin, then to functional insufficiency of lymphatic vessels and skin and subcutaneous tissue inflammation. Untreated, it causes lymphedema of the lower limbs.

Aim. We aimed to investigate the lymphatic vessel's function and lymph drainage in lower limbs in obese patients with and without acute tissue inflammation.

Materials and Methods. We investigated 50 patients with obesity (BMI 32-50) who appeared in outpatient clinics and complained about edema and pain in the lower limbs. In all patients, we did ICG lymphography and LSC to evaluate the status of the lymphatic vessels. Patients with acute tissue inflammation were treated with antibiotics (Amoxicillin) for 2-4 weeks before ICG and LSC investigation. All patients were advised of compression therapy, ACS, bandaging, or stockings, depending on the edema and skin condition stage.

CASCADE OF CHANGES IN VENOUS AND LYMPHATIC VESSELS AND IN TISSUE IN THE LOWER LIMB IN PATIENTS WITH OBESITY



Results. Among 50 obese patients, 36 (72%) visible signs of calves' skin and subcutaneous tissue inflammation, such as redness and increased skin temperature, were seen. In 4 patients, we noticed fluid leakage and a small ulcer. In ICG lymphography, we observed fluid accumulation in the entire or part of the calves in 85% of patients with inflammation and 15% of dilated irregular lymphatic vessels. The most common changes in patients without acute inflammation were dilated and irregular LVs with slower lymph transport to the regional LNs. In LSC, we observed changes as dilated, multiple, and tortuous LV, dermal backflow in the calves, and slower lymph transit to inguinal LNs.

Conclusions. Obesity impairs the function of lymphatic vessels and causes tissue inflammation. Early diagnosis and intervention are necessary to prevent lymphedema, fluid leakage, and ulceration.

