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Systemic subclinical lymphedema due to obesity as the cause of clinical lymphedema: A new concept

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ABSTRACT

On evaluating patients with lymphedema, the authors found that obesity is associated with generalized edema of all extremities and the trunk with increased intracellular and extracellular fluids, thus suggesting a new concept of lymphedema that the authors have termed systemic subclinical lymphedema. Animal studies show that obesity and its progression lead to changes in the lymphatic system and microcirculation with alterations in lymphatic motility, inflammatory processes, capillary permeability and immune response. Systemic subclinical lymphedema is diagnosed when above normal fluid levels are detected in all the extremities and the trunk with the progression of obesity; this can lead to the appearance of clinical lymphedema of the extremities.

Letter to Editor,

Animal studies show that obesity and its progression lead to changes in the lymphatic system and microcirculation with alterations in lymphatic motility, inflammatory processes, capillary permeability and immune response. Furthermore, studies in humans show that increased body mass index (BMI) is associated with a higher prevalence of lymphedema both of which are common in patients with lymphatic system disorders such as after lymph node dissection to treat cancer, in particular breast cancer.

On evaluating patients with lymphedema, the authors found that obesity is associated with generalized edema of all extremities and the trunk with increased intracellular and extracellular fluids, thus suggesting a new concept of lymphedema that the authors have termed systemic subclinical lymphedema [1].

Patients with a BMI greater than 50 kg/m^2 may have systemic subclinical lymphedema, but may also have clinical manifestations of lymphedema lower limbs. One explanation is the effect of gravitational pressure that further aggravates the lymphatic insufficiency caused by obesity. However, other lesions of the lymphatic system in these patients may lead to early clinical manifestations of lymphedema.

Preliminary observations show that patients with BMIs above 50 who underwent bariatric surgery cannot always reverse the condition of systemic subclinical lymphedema with weight loss reaching BMIs of 25–30, so weight loss may normalize clinical lymphedema caused exclusively by obesity. However, this patient may maintain a subclinical lymphedema evaluated by the impedance. This observation suggests that lymphatic lesions caused by obesity may be irreversible but can be clinically controlled. The inflammatory processes associated with obesity can be improved with weight loss however; the immune response of the lymphatic system may have been irretrievably damaged. Animal studies show that lymph nodes were atrophic in obese animals, an issue that should be investigated further.

Systemic subclinical lymphedema is diagnosed when above normal fluid levels are detected in all the extremities and the trunk with the progression of obesity; this can lead to the appearance of clinical lymphedema of the extremities. However, the non-reversibility of systemic subclinical lymphedema observed in some patients, suggests that the lymphatic microcirculation has been compromised significantly. However, in these patients, clinical lymphedema can be reversed with weight loss alone.

Declaration of Competing Interest

None.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.mehy.2019.109312.

References

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