

Shockwave Therapy for the Prevention of Paradoxical Adipose Hyperplasia After Cryolipolysis: Myth or Reality?

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I read with great interest “A Multicenter Evaluation of Paradoxical Adipose Hyperplasia Following Cryolipolysis for Fat Reduction and Body Contouring: A Review of 8658 Cycles in 2114 Patients,”¹ and commend the authors on their thorough review. Data abstracted from a multicenter evaluation between January 2015 and December 2018 showed an incidence of between 0.05% and 0.39% of paradoxical adipose hyperplasia (PAH) per cryolipolysis treatment cycle. This is equivalent to a rate as high as 1 PAH case per 256 treatment cycles, which is more than the incidence of 1/4000 or 0.025% per treatment cycle suggested by the manufacturer of the largest cryolipolysis brand in the world, CoolSculpting, from Allergan plc (Dublin, Ireland).

The underlying mechanisms of PAH development have yet to be fully elucidated. Clinically, PAH presents as a well-demarcated subcutaneous mass, which progressively increases in size at the treatment area, and can be slightly tender. Although rare, previous studies have reported an increased prevalence of PAH in men and in people of Hispanic ancestry.¹ In their multicenter evaluations, the authors¹ found a preponderance of PAH cases when older models of applicators and CoolSculpting units were used, 76.9% of all cases. This suggests that there is a mechanical entity contributing to PAH. Older models of applicators used 2 parallel cooling plates for a treatment duration of 60 minutes, as compared with 35 minutes for the newly redesigned contoured cup surface applicators which also need less tissue suction. The contoured cup also maximizes surface contact. The new applicators’ characteristics, being less traumatic to the tissue, must play a role in preventing PAH.

Besides the newer cup applicators, it is our belief that a new standardized protocol of combined cryolipolysis and shockwave therapy (SWT) will improve outcome and significantly decrease PAH incidence. Between April 2017 and mid-January 2021, our center performed 2291 treatment cycles of cryolipolysis followed by SWT. Out of these treatment cycles, we had no cases of documented PAH. SWT has recently been shown to have a high patient satisfaction rate when performed after cryolipolysis while being safe and effective.² High-energy radial SWT has been used in musculoskeletal injury, renal calculi treatment, acute and chronic wound care, and cellulitis treatment.³ Stroumza et al evaluated PAH histologically, and revealed nonspecific lobular panniculitis, interstitial infiltration of macrophages, with areas of focal necrosis.⁴ Not only has SWT been shown to increase the incidence of adipocyte death after cryolipolysis to enhance results, but it also improves blood flow and microcirculation.^{3,5} It also has an antifibrosclerotic effect and decreases oxidative stress in tissue.⁶ Oxidative stress is present after cryolipolysis and can be one of the numerous causes of panniculitis.⁷ Hence, SWT can only have a positive effect on postcryolipolysis tissue.

Lastly, we observed an improvement in postprocedure swelling and discomfort in patients when we introduced SWT to our cryolipolysis treatments. The mechanical, anti-inflammatory and procirculatory effects of SWT play an

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essential role in reducing side effects after cryolipolysis and preventing PAH as seen in our cohort of patients. Further research is needed to fully grasp the concept of PAH after cryolipolysis and the benefits of SWT, as an adjunct to cryolipolysis, to improve efficacy and safety in patients seeking noninvasive body contouring modalities.

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