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EDITOR'S INVITED COMMENTARY

Invited Discussion on—The Injection for the Lower Eyelid Retraction: A Mechanical Analysis of the Lifting Effect of the Hyaluronic Acid

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This is a very interesting report detailing the authors experience with lower lid recession (elevation) with hyaluronic acid gel (HAG) filler injection for both senile and cicatricial lower eyelid retraction (i.e., after lower blepharoplasty) [1]. Their mechanistic supposition regarding Hooke's law (extension is proportional to force) is interesting and may be valid. As I am not an expert on this physical principle, I will leave further evaluation at the readership's discretion. However, while academically intriguing, I do not feel (unlike the authors) that this principle is the relevant issue of the report, as it does not guide clinical judgment or treatment protocol for this complex and often perplexing eyelid malposition. Rather, the fact that filler injections can elevate retracted lower eyelids should be the focus of discussion. In this vein, I want to congratulate the authors on their efforts in an area of study that is sorely lacking data or evidence-based validation.

I will center my discussion on the treatment of post-blepharoplasty lower eyelid retraction (PBLER) [2], as this is a complication aesthetic surgeons may encounter, while the non-surgical management of senile eyelid retraction is typically not. I evaluate PBLER patients routinely and find this a very difficult problem to predictably manage with surgery. Having filler as an alternate treatment paradigm is valuable, and in my experience more patient friendly and acceptable, at least as an initial therapy [2]. The authors state a 100% (13/13 patients) success in lower lid elevation in PBLER patients if injected after 12 months of surgery. On average, they attain almost 1.2 mm of elevation 9 months after treatment (for all patients studied—PBLER patients not stratified). Given this, to truly validate efficacy, it would have been very helpful for the authors to have charted pre- and post-treatment MRD2s and scleral show for each individual patient—rather than just as an overall average. In my experience, most patients with PBLER have more significant retraction than 1 mm. The authors made no clinical recommendation on who should and should not be treated with HAG fillers. Do they feel the data suggest not to treat patients with more than "X" millimeters of lower eyelid retraction, as adequate elevation was not attainable at this point? Were the data skewed by patients with lesser degrees of pre-treatment retraction? Omitting individual patient data sets limits treatment guidelines and clinical recommendation—the true and meaningful relevance of this report.

The authors are correct in stating that this mode of therapy for treating lower eyelid retraction has not caught on among surgeons. I do not feel it is because the mechanism of elevation is unknown! As someone who speaks to surgeons about this problem frequently, the reasons cited to me are consistently: 1. How is it done? 2. Does it work? 3. Are patients satisfied? 4. What are the complications? and 5. Is it lasting? In my view, questions 1, 2 and 5 are well

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outlined in the report. For a procedure previously poorly defined with a visual description, a video demonstration is a lacking omission, especially when an ample sample size of patients was available. In today's era of patient privacy issues, it is understandable, but unfortunate, as this would have been the most valuable teaching point of the manuscript.

A critically important parameter not detailed was patient perspective on treatment (question 3). While a modest degree of mean lower lid elevation was noted in patients, this does not always equate to patient. My personal experience has been that patients are highly satisfied with this procedure, especially when still recovering from the psychological damage inherent to the complication, and thus not ready for formal revision surgery. In addition, attaining a more normal feeling of self in a 15-minute office-based procedure is very alluring to patients. A questionnaire evaluating patient opinion on procedure efficacy, outcome and satisfaction would go a long way toward swaying surgeon acceptance of the procedure, much more so, in my view, than a supposition of mechanism of action. In addition, as far as complications (question 4), color change and contour issues as stated do occur. I have also found that patients often require reinjection to maintain eyelid position (at a year) and lower lid edema not uncommonly follows. This can set up a cycle of injection, reversal (with hyaluronidase), injection, etc. This must be kept in mind.

Finally, an element of treatment not reviewed in the article, which I feel is the most important indicator of clinical success, is who are poor candidates for treatment. My experience has been that patients with PBLER who have a positive forced traction test (the lid does not move freely when pushed upward) [2] do poorly with filler alone. Often the injection of biologic wound modulators (such as 5-fluorouracil) [3, 4] acts synergistically in this setting. Also, PBLER often occurs when pre-surgical negative vector globe/midface topography exists [2]. When treating these patients, midface volume augmentation (additional filler) is a needed adjunct to attain proper lid elevation with filler.

Scholarly publications are meant to make us think, and this report certainly has done that for me. My commentary is in no way a criticism of the wonderful work the authors performed. To the contrary, it is an adjunctive message which can allow us to further understand and analyze HAG filler treatment for lower eyelid retraction.

Compliance with Ethical Standards

Conflict of interest The author receives royalties from Springer, Elsevier and Quality Medical Publishers. The author declares that he has no conflicts of interest to disclose.

Ethical Approval This article does not contain any studies with human participants or animals performed by the authors.

Informed Consent For this type of study, informed consent is not required.

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