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Clarifying Scar Revision Techniques and Their Proper Use—Reply

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Authors

Petukhova, Tatyana A
Ratnarathorn, Mondhipa
Eisen, Daniel B

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Letters

COMMENT & RESPONSE

In Reply We thank Thomas and colleagues for their impassioned commentary regarding our article,¹ and we would like to address some of the issues that have been raised regarding our study.

First, Thomas and colleagues state, “Because linear primary closure and secondary scar revision techniques using Z-plasty or W-plasty have such different indications and uses, comparing them as done in this study is, at the least, incongruous and inappropriate.” When considering revision techniques to address a suboptimal scar, where functional or free margin distortion is not a concern, one option is simply to excise it and close it primarily. Or alternatively one could use a Z-plasty or an excision with W-plasty. Both Z-plasty and W-plasty rely, in part, on the notion that an irregular zigzag scar is less noticeable than a linear one. Given these are some available revision options, and little was known on the public’s perception of linear vs zigzag scars, this seemed like a good basis for our study. Public perception is an important aspect when considering any scar revision method and our study provides valuable data in that regard.

Thomas and colleagues mention, “Importantly, there is an erroneous use of the term ‘Z-plasty’ by the authors, who seem not to understand that a Z-plasty is not just a ‘zigzag’ incision as they state, but transposed flaps used for specific scar revision purposes, such as improving contracted and/or misdirected scars.” Our article¹ acknowledges that “surgeons perform Z-plasties for reasons other than cosmetic concerns, such as the release of contractures and webs of scars.” However, our study does not address those purposes. Regarding the redirection of scars, it should be noted that in 4 of our 12 surveyed sites, the transverse limbs of the flaps completely matched the facial rhytides of the patients, yet there was a significant difference in favor of the linear scars. For our study,¹ we used the premise of Z-plasties rather than W-plasties because the lengthening produced through the transposition of the flaps (75% for a traditional 60° angle, as noted in our article) is better defined than that which occurs through the use of W-plasties. Although Z-plasties may be more than zigzag incisions, they do not appear any different from W-plasties to the lay public or the surgeon, thus, perseverating on whether flaps or excisions have been used to create the virtual zigzag pattern is of no value.

Next, Thomas and colleagues state, “the Z-plasty is, in fact, the indications for utilizing such scar revision techniques that are based on confirmed biomechanical studies and expert experience [...]” We would note that “Expert opinion without explicit critical appraisal, or based on physiology, bench research or ‘first principles’” is considered level 5 evidence, the lowest form.² Our study¹ was conducted because there is a lack of empiric evidence in the literature on whether linear clo-

tures appear more or less aesthetically pleasing than appropriately lengthened zigzag ones.

The virtual zigzag scars studied were designed based on the dimensions of a real scar to model the length and angles of what a Z-plasty revision would have appeared to accomplish. We did not purport that Z-plasty or W-plasty be used as a primary closure technique, but more so, we evaluated whether the postulation that a scar that has been broken down into smaller segments of a zigzag (irregularized) is, in fact, less conspicuous. The answer in our 12 different scenarios (4 subjects with scars in 3 different locations) appears to be no from the public’s perspective.

Finally, Thomas et al seem to take issue with our use of the word “dogma,” which is defined by the Merriam-Webster dictionary as “something held as an established opinion; especially: a definite authoritative tenet.”³ The word is appropriately used within our manuscript and without the “pejorative” meaning that was claimed.

Limitations of our study¹ were noted, including that “the virtual 2-dimensional photographic image cannot account for potential scar irregularities that may affect cosmesis in a 3-dimensional real-life situation. Furthermore, our study included a limited number of anatomic locations and model subjects, thus reducing its applicability to only a few facial sites” and finished with “The present study highlights the need for a large, multicenter, randomized clinical trial to best assess the cosmetic outcomes of linear vs multiple Z-plasty closure techniques. Until that time, traditional dogma related to aesthetic preferences regarding Z-plasty scars should be interpreted with caution.” We believe these are reasonable statements.

Tatyana A. Petukhova, MD, MS

Mondhipa Ratnarathorn, MD

Daniel B. Eisen, MD

Author Affiliations: Department of Dermatology, University of California, Davis, Sacramento (Petukhova); Sutter-Pacific Medical Foundation, California (Ratnarathorn); Department of Dermatology, University of California, Davis, Sacramento (Eisen).

Corresponding Author: Daniel B. Eisen, MD, Department of Dermatology, University of California at Davis, 3301 C St, Ste 1400, Sacramento, CA 95816 (dbeisen@ucdavis.edu).

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1. Ratnarathorn M, Petukhova TA, Armstrong AW, Wang AS, King TH, Eisen DB. Perceptions of aesthetic outcome of linear vs multiple Z-plasty scars in a national survey [published online April 7, 2016]. *JAMA Facial Plast Surg*. 2016. doi:10.1001/jamafacial.2016.0107.

2. Oxford Centre for Evidence-Based Medicine Levels of Evidence. 2009. <http://www2.cch.org.tw/ebm/file/CEBM-Levels-of-Evidence.pdf>. Accessed April 24, 2016.

3. “Dogma” definition. Merriam-Webster.com. <http://www.merriam-webster.com/dictionary/dogma>. Accessed April 24, 2016.