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LETTER TO THE EDITOR

Response to: "Eyebrow and eyelid position in anophthalmic sockets reconstructed with conical or spherical implants: a quantitative analysis"

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Dear Editor,

We read with great interest the article by Bigheti et al. entitled "Eyebrow and eyelid position in anophthalmic sockets reconstructed with conical or spherical implants: a quantitative analysis"[1]. The authors should be congratulated for addressing an underexplored aspect of anophthalmic socket reconstruction and for applying objective photographic measurements to compare periorbital outcomes between conical and spherical orbital implants. We would like to offer several comments regarding the interpretation of the study's findings.

First, implant volume may represent an important confounding factor that was not adequately addressed. Although the study primarily focused on implant geometry, both conical and spherical implants were used in different sizes, and implant-size information was unavailable in a substantial proportion of the spherical implant group. Orbital volume replacement is a major determinant of superior sulcus contour, eyelid support, and prosthetic positioning, and previous studies have emphasized the importance of restoring adequate orbital volume to optimize cosmetic outcomes in anophthalmic patients[2]. Therefore, the absence of an analysis adjusted for implant size makes it difficult to determine whether the observed differences—or lack thereof—are attributable solely to implant shape.

Second, caution may be warranted when interpreting the statistically significant difference observed for eyebrow distance to the upper eyelid margin during infraduction. The authors evaluated numerous eyelid and eyebrow parameters, including margin reflex distance 1 (MRD1) and margin reflex distance 2 (MRD2), vertical and horizontal palpebral fissure dimensions, superior sulcus depth, and multiple angular measurements. When multiple hypotheses are tested simultaneously, the risk of type I error increases, potentially resulting in statistically significant findings occurring by chance[3]. Because no correction for multiple comparisons was reported, the isolated significance of the infraduction measurement should be interpreted carefully.

Third, the follow-up period of 6 months may not fully capture the long-term relationship between orbital implants, periocular tissues, and customized prostheses. Remodeling of the anophthalmic socket and adaptation of the eyelids to the prosthetic device may continue beyond the early postoperative period. Previous investigations have shown that the long-term outcomes of orbital implants may differ from early postoperative observations, particularly regarding soft-tissue contour and prosthetic integration[4].

Finally, we noted a methodological ambiguity regarding the study design. The authors described the investigation as a prospective observational study; however, implant allocation was reportedly performed "by lot." Such allocation suggests a

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degree of randomization, which differs conceptually from a purely observational design. Clarification of the allocation process would help readers better assess the internal validity of the study and the strength of causal inferences regarding implant geometry.

Despite these considerations, the study provides valuable quantitative data regarding eyelid and eyebrow positions in reconstructed anophthalmic sockets. Future investigations incorporating volumetric analyses, standardized implant sizing, longer follow-up periods, and larger cohorts may further clarify whether implant geometry independently influences periorbital aesthetics and patient satisfaction with anophthalmic prostheses[5].

AUTHOR CONTRIBUTIONS:

Significant contribution to conception and design: Göksu Alaçamlı, Murat Kaşıkcı.

Data Acquisition: Göksu Alaçamlı, Murat Kaşıkcı.

Data Analysis and Interpretation: Göksu Alaçamlı, Murat Kaşıkcı.

Manuscript Drafting: Göksu Alaçamlı, Murat Kaşıkcı.

Significant intellectual content revision of the manuscript: Göksu Alaçamlı, Murat Kaşıkcı.

Final approval of the submitted manuscript: Göksu Alaçamlı, Murat Kaşıkcı.

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Response:

Dear Professor Göksu Alaçamlı and Dr. Murat Kaşıkcı,

Thank you very much for your interest in our article and for your thoughtful comments on this important topic. We appreciate your careful review and agree with most of your observations.

We fully agree that implant size is a critical determinant of orbital volume and eyelid position. As noted in our manuscript, implant size was selected intraoperatively using a sizing device according to the orbital volume. However, detailed implant size information was unavailable for many cases, preventing a reliable analysis adjusted for this variable. Moreover, other factors, such as implant positioning within the orbital cavity, also influence the effective orbital volume; therefore, implant size alone does not fully explain postoperative outcomes. Our primary objective was to investigate the potential influence of implant geometry on eyelid position. Although previous studies have suggested a possible advantage of conical implants[1], our findings did not demonstrate a significant effect. We acknowledge the limitation posed by the incomplete implant size data and agree that restoring adequate orbital volume remains a key objective for optimizing cosmetic outcomes in patients with anophthalmic sockets.

Regarding your second comment, we agree that multiple hypothesis testing increases the risk of type I error. In our analysis, p-values were reported for each comparison according to the predefined 5% significance level described in the Methods section. We used Dunn's test, which controls for type I error in pairwise comparisons. Nevertheless, we acknowledge that emphasizing isolated statistically significant findings may overstate results that could have occurred by chance. Furthermore, the infraduction position is rarely used in aesthetic evaluation, further limiting the clinical relevance of this isolated finding. Therefore, the observed difference in eyebrow-to-eyelid distance during infraduction should be interpreted with caution.

We also agree that a 6-month follow-up may be insufficient to evaluate long-term outcomes comprehensively. Previous studies have shown that the long-term outcomes of orbital implants may differ from early postoperative findings, particularly with respect to soft-tissue contour and prosthetic integration[2]. The anophthalmic socket undergoes continuous changes over time, including progressive reduction in extraocular muscle function, fibrosis, fat atrophy, decreased vascularization, and chronic mechanical stress from the ocular prosthesis. These processes emphasize that the socket remains dynamic throughout life. Although a 6-month follow-up is generally sufficient for postoperative edema to resolve and is commonly reported in the literature, it does not capture the full extent of long-term remodeling. Therefore, our findings should be interpreted within the context of this relatively short follow-up period.

Finally, we thank you for pointing out the methodological ambiguity. The study was designed as a prospective observational investigation. The phrase "by lot" referred only to a simple draw used to distribute the available implants among patients as a practical measure to minimize investigator selection bias. This process did not constitute formal randomization because there was no allocation concealment or systematic control of potential confounding factors. We would like to clarify that the study remained observational in nature, and the allocation by draw served solely as a logistical method to ensure impartial implant distribution.

Thank you again for your valuable comments, which have provided an opportunity to clarify important methodological aspects of our study.

Sincerely,

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Carlos Roberto Padovani

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