вдосконалення гостроти зору продовжується наступні 3-6 місяців. Повідомляється, що у 60% - 90% хворих підвищення гостроти зору на дві або більше ліній може бути тільки через 6 - 12 місяців після операції. Метаморфопсії суттєво зменшуються після пілінгу ЕММ, але у 20% пацієнтів можуть залишатися назавжди тому, що анатомічне положення фоторецепторних клітин не повертається до свого точного початкового стану після операції.

Висновок. Отримані результати свідчать про високу ефективність інтравітреальних втручань з приводу видалення ЕММ та підтверджують необхідність виконання операції у ранні терміни розвитку цієї патології, що дозволяє досягти більш високої гостроти зору зі стабільним структурним анатомічним результатом.

DIGITALIZATION OF ZYGOMATIC BONE AS A PART OF THE ORBIT WALL

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Objectives. Three-dimensional (3D) technologies in the form of digital models play an irreplaceable and significant role in different areas of medicine, including the education process and clinical studies. 3D printing has become an accepted standard of care for preoperative planning and prosthesis design. 3D modelling and simulation software allows virtual reconstruction of craniofacial structures and enables simulation of the surgical procedures to plan an optimal postoperative result. This technology offers researchers

the opportunity to create patient-specific models from medical images that represent anatomical structures in complex cases of congenital or multiple anomalies. For educators, it enables remote education, as well as enriches and supports the self-education process for students.

The zygomatic bone (zygoma; *os zygomaticum*) or cheekbone is an important foundation structure of the craniofacial skeleton and the most anterolateral projection of the midface. It presents as a thick quadrangular bone and forms most of the lateral and inferior orbital walls.

In this research, the zygomatic bone has been digitalized with the help of three different techniques (3D scanning, photogrammetry, and micro-computed tomography) to produce a digital 3D model that can be related to bony orbit walls. As zygomatic bone poses an intricate structure in terms of morphology, as well as its well-established protocol of replacement by an implant in case of severe injury, this makes zygomatic bone an ideal candidate for the creation of a precise and accurate human bone 3D digital model.

Materials and methods. Three techniques have been chosen as the most effective approaches in 3D model creation from natural specimens, which are being actively used at the Department of Morphology of Rīga Stradiņš University. The photo images used for the photogrammetry technique were acquired with the help of a Sony 7RM2 camera and a Sigma 70 mm F2.8 macro lens. For microcomputed tomography scanning the μCT50 machine was used. For 3D scanning, the EinScan-S 3D scanner was used. All created models have been simplified and optimized except the model created by the 3D scanning technique, which was only optimized. For mesh simplification and optimization, MeshLab software was used.

Results. Three digital zygomatic bone models have been created in total using different techniques - 3D scanning, photogrammetry, and microcomputed tomography and are

presented with an applied shader, light sources, global illumination, ambient occlusion, as well as post-process filters, on the Sketchfab platform (https://sketchfab.com/edler). All the models, except the one obtained with the help of the micro-computed tomography technique, are provided with textures.

Conclusions. In this study, three different techniques have been presented and compared for the creation of the digital 3D zygomatic bone model, similar to a part of the orbit walls of natural specimens. The results demonstrate that these techniques varied in their precision, complexity, quality, and accuracy, which distinguishes the techniques in terms of possible applications of the created 3D model. For morphological accuracy, the most preferable technique is micro-computed tomography; for visualization and demonstration of the original texture, the photogrammetry technique is the most optimal choice. The 3D scanning technique requires a professional and advanced 3D scanner to be able to compete with the other two techniques.