

Surgical Planning for the Removal of Cranial Spheno-orbital Meningioma by Using Personalized Polymeric Prototypes Obtained with Additive Manufacturing Techniques

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Abstract : This study describes a clinical case and the results on the application of additive manufacturing for the surgical planning in the removal of a cranial spheno-orbital meningioma. It is verified that the use of personalized anatomical models and cutting guides helps to manage the cranial anomalies approach. The application of additive manufacturing technology: Fused Deposition Modeling (FDM), as a low-cost alternative, enables the printing of the test anatomical model, which in turn favors the reduction of surgery time, as well the morbidity rate reduction too. And the printing of the personalized cutting guide, which constitutes a valuable aid to the surgeon in terms of improving the intervention precision and reducing the invasive effect during the craniotomy. As part of the results, post-surgical follow-up is included as an instrument to verify the patient's recovery and the validity of the procedure.

Keywords : surgical planning, additive manufacturing, rapid prototyping, fused deposition modeling, custom anatomical model

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