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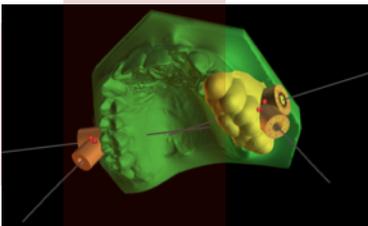
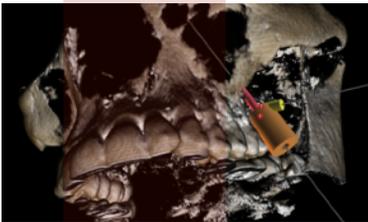
New horizons in **skeletal anchorage**: "**Dynamic 3D Surgical Guide**" for infrazygomatic TADs

Aim The purpose of this poster is to define the characteristics, design and construction of a new surgical guide for infrazygomatic mini-screws for skeletal anchorage

Materials and Methods

The Authors have developed a new surgical guide for infrazygomatic TADs, defined DSG "**Dynamic 3D Surgical Guide**", whose peculiar characteristic is the possibility of **modifying the insertion axis** of the miniscrew during insertion, a fundamental procedure for the realization of correct extra-alveolar anchorage. The project was carried out with open-source software, in particular through **Blue Sky Plan** and **MeshMixer**.

An .stl file obtained by an intraoral scannig of the upper arch is matched with the DICOM images obtained from a CBCT. Virtually 2 TADs of the predetermined size and length are then positioned and adjusted through the 3D controls present in **BSP**: the first screw will simulate the horizontal insertion axis (first step of the insertion movement), while the second will be adjusted in the final position of the TAD, at the level of the infrazygomatic crest.



Using the 3D tools of the software, the guide file that will contain the 2 separate guide tubes is created and exported. Therefore, using **MeshMixer**, the boolean subtraction of the meshes is performed to create the hole between the 2 tubes, eliminating the septum: in this way the rotation of the screwholder is allowed during insertion.



Conclusions

The new **DSG (Dynamic 3D Surgical Guide)** described by the Authors was fundamental for the placement of **infrazygomatic TADs**, both in complex and simpler cases. The realization with open-source software make the guide easy to use, simplifying the procedures for inserting extra-root screws and opening new horizons for skeletal anchoring. The combined use of **new technologies, 3D controls and open-source software** will bring more and more colleagues closer to complex surgical procedures.