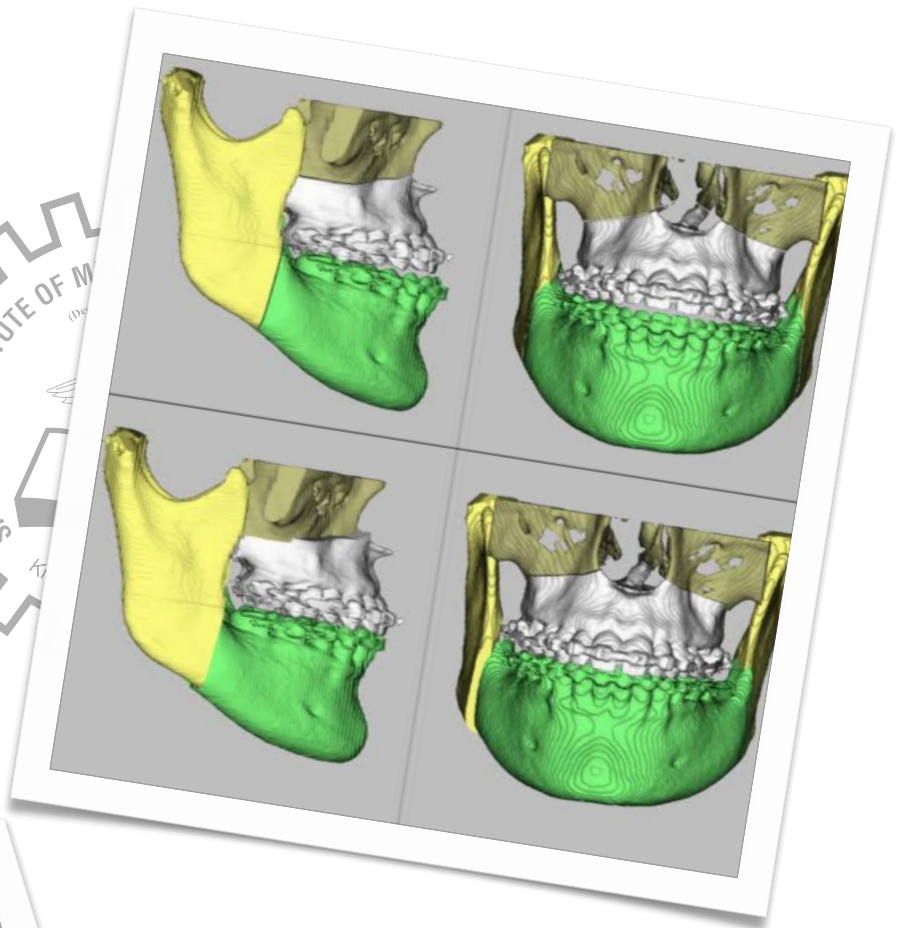


GEOMAGIC



Oral and maxillofacial surgery deals with complex defects resulting from trauma, pathological bone lesions. Orthognathic surgery also called as jaw correction surgery requires complex treatment planning and execution. The conventional surgical planning for maxillofacial surgery utilizes preformed plates and screws with clinical on-operating-table decisions which might not be a 100% accurate. When a defect, deformity, or injury alters cranial bones, surgeons need a unique blend of engineering and artistry to return the human face to its former aesthetics. Advances in volumetric CAD technology allow traditional CAD manufacturing principles to meet complex medical modelling needs that formerly couldn't be handled digitally — like reshaping the human skull. These advances let us digitally sculpt a custom cranial implant or surgical guide with the best fit and function for each patient.

Saveetha Dental college and Hospitals is equipped with Geomagic, the revolutionary scanning and designing software which is used to capture and model 3D content from physical objects, organically sculpt complex shapes, and prepare products for manufacturing. The ability to create 3D printed, personalised models on site is changing the way surgical simulation, personal medical devices and individualised implants are used. The 3D models derived from DICOM data allow complete visualisation of the oral and maxillofacial structure to enable better planning, surgery and post-surgical treatment.

With the use of (CAD/CAM) technology for virtual surgical planning (VSP) at saveetha dental college and hospitals, precision planning for complex maxillofacial and reconstructive surgeries in patients with facial and skull deformities is possible.

VSP has been shown to improve the predictability of outcomes in complex maxillofacial surgery and to decrease total operating time, thereby reducing the duration of intraoperative general anesthesia and wound exposure time.

For patients, moreover, virtual surgical planning has the potential to offer optimal cosmetics and reduce donor site morbidity. VSP for maxillofacial reconstruction involves collecting data prior to surgery as a foundation for diagnosis and the creation of a treatment plan that can be precisely reproduced in the operating room. Thus, surgeons generate anatomically accurate, three-dimensional CAD/CAM stereolithographic models of a patient's bone structure. Once complete, these models are used to design osteotomy guides for planned surgery. Precise to within 1 mm, the guides increase intraoperative efficiency and accuracy, streamline decision-making and produce optimal aesthetic results.

The software allows us to perform virtual surgery, visualize the surgical defects created and plan for reconstruction. Mirror imaging the normal side of the jaws to the side of defect ensures the reconstruction is done without causing the least facial asymmetry. The presence of this cutting-edge software ensures saveetha dental college and hospitals is a step above the rest.

