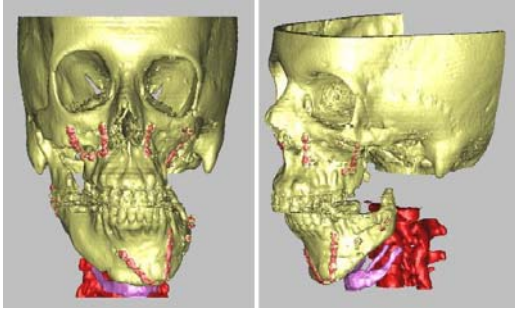


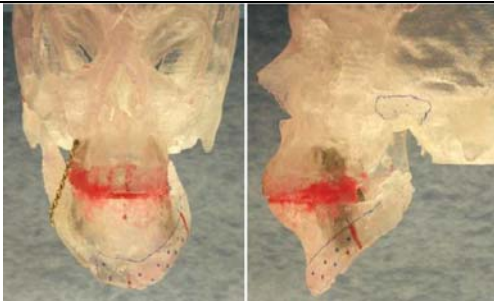
**Temporomandibular joint and mandibular ramus reconstruction in a patient with left hemifacial microsomia using stereolithographic(STL) techniques.**

Case presented by

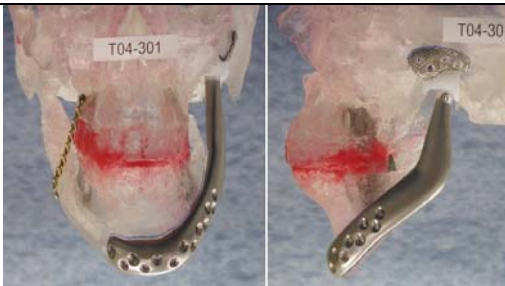
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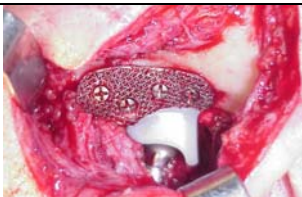
**Figure 1:** Using Mimics software a 3-D virtual skull model is produced of a 26-years-old female suffering from a left hemifacial microsomia (Type III, Pruzansky). The left glenoid fossa , condyle and ascending ramus were absent and the left zygomatic arch was hypoplastic. Because of the co-existing severe hypoplasia of the masseteric muscles the chin was deviated toward the affected left side. Despite the previous osteotomies performed in both jaws this young patient was functionally and aesthetically still suffering.



**Figure 2:** As a second step a STL model of the skull has been developed. On this bio-model after achieving and waxing up the preferred dental occlusion, a precise implant design and manufacturing process was undertaken by TMJ Concepts.



**Figure 3:** The implant was composed of two parts: a temporal component for the reconstruction of the absent glenoid fossa and an other mandibular component for the reconstruction of the absent condyle and deficient left mandible. The preferred position and length of the fixation screws were also measured and evaluated.



**Figure 4:** During surgery the temporal component was precisely and easily adapted and fixated.



**Figure 5:** In a similar way the mandibular component was placed.



**Figure 6:** Patient's photos : **6a.** Before reconstruction and **6b.** After reconstruction without left chin deviation. Intermaxillary fixation was applied for two weeks after surgery.



**Figure 7:** A month after surgery there was no deviation during the opening position. A more effective masticatory function and a more acceptable aesthetic result were achieved.

**CONCLUSION:** Using the STL model in this patient with hemifacial microsomia the disturbed anatomy of the facial skeleton was thoroughly studied. A complex preoperative reconstruction planning such as the implant-design and manufacturing process was done with high accuracy. During surgery both implant components were safely fixated on the anatomical sites without any need for further manual adaptation. This would never been possible without the making of a STL model. Also, less surgical time and tissue stress were observed.