



"Objet's 3D modeling solution helps us show presentable and professional models to patients, resulting in both good patient-doctor communication and a planning tool for surgery"

Dr. Ben Chow,
Specialist in Oral &
Maxillofacial Surgery

Case Study

At a Glance

Company: Dental Implant & Maxillofacial Centre
URL: www.aboc.com.hk
Location: Hong Kong
Industry: Dental Implants & Maxillofacial Surgery

Challenges

- Creating accurate 3D models of oral structures and minimizing in-mouth molding of dental implants
- Inadequate 2D scans hindered doctor-patient communication
- Non-durable powder-based models could not be used in the operating room

Solution

Eden260V Printing System from
Objet Geometries

Results

- Improved doctor-patient communication and better surgical planning due to accurate 3D models created in-house
- Models can be sterilized and used in the operating room, enabling pre-molding of dental implants outside the patient's mouth
- Quicker and less invasive oral surgeries, better scheduling and higher profitability

Objet Helps to Reduce Length & Invasiveness of Oral Surgeries

When it comes to reconstructive oral surgery, precise planning and excellent patient-doctor communication are essential. The Dental Implant & Maxillofacial Centre in Hong Kong has discovered that both can be dramatically improved through the use of high-quality, accurate 3D models of intricate oral and dental structures.

The Centre, founded in May 2003, specializes in providing patients with implant surgery, rehabilitative oral surgery and maxillofacial surgery. It is one of the largest private specialist clinics and day surgery centers in Hong Kong and is renowned for its excellent standards of care and innovative treatments.

For many years, the Dental Implant & Maxillofacial Centre depended on 2D images and a combination of CT scans and models made from a powder for surgical planning. It was difficult to accurately plan procedures because 3D powder-based system cannot be sterilized and so cannot be used in the operating room. Whenever an implant needed adjustment, the surgeon would have no choice but to adjust the implant mold in the patient's mouth. 3D powder-based models are also less durable when compared with other 3D models.

All that changed in 2009, when the Dental Implant & Maxillofacial Centre installed the Eden260V Printing System from Objet Geometries.

Objet models are now used to show a patient what to expect from his/her procedure, greatly improving doctor-patient communication. The models can be sterilized and are used in the operating room for oral mold adjustments. The material used for oral implants can be easily re-molded and having the Objet models on hand enables pre-molding and adaptation to be done outside of the mouth, minimizing surgery time.

Dr Ben Chow, Specialist in Oral & Maxillofacial Surgery at the Dental Implant & Maxillofacial Centre, explains: "The professional consensus for oral surgical implants is that 2D planning is inadequate. Routinely our patients have CT scans and we use 3D data in order to plan their procedures. With a 3D printer on site, we can take it a step further visually and evaluate the actual model of the patient's mouth, we can even refer to the model during surgery."





Cutting-edge surgeries based on Objet models

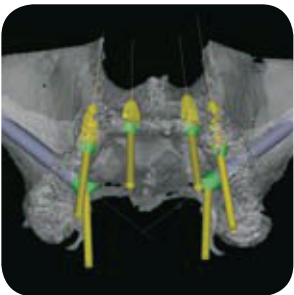
Thanks to the speed and precision of Objet's PolyJet™ 3D printing technology, the Dental Implant & Maxillofacial Centre can plan and schedule. This means surgeries can be planned and scheduled with less waiting time for the patient. The accurate 3D models are particularly valuable for treatment of synchronic fractures. Prior to surgery, the surgeons can rearrange the model "bones" according to the surgical plan and then pre-adapt the plates outside the mouth, significantly shortening surgery time.

In a different procedure, to correct an unbalanced jaw bone, the center can do advanced 3D planning by mirroring the corrected jaw with the abnormal one. Dr Chow explains, "We can even make some artificial implants to amend deficient areas by using the Objet printer".



According to Dr. Chow, the Dental Implant & Maxillofacial Centre is very satisfied with the Objet 3D printing solution. It is pleased to offer its patients an increased range of services, shortened surgery times and clearer doctor/patient communication. Looking ahead, Dr. Chow envisages an expanded role for 3D printing in maxillofacial surgery: "In the future, we hope models printed on the Eden 260V could be a surgical carrier for bone growing in the dental implant industry."

"In the future, we hope models printed on the Eden 260V could be a surgical carrier for bone growing in the dental/implant industry."



About Objet Geometries

Objet Geometries Ltd., the innovation leader in 3D printing, develops, manufactures and globally markets ultra-thin-layer, high-resolution 3-dimensional printing systems and materials that utilize PolyJet™ polymer jetting technology, to print ultra-thin 16-micron layers.

The market-proven Eden™ line of 3D Printing Systems and the Alaris™30 3D desktop printer are based on Objet's patented office-friendly PolyJet™ Technology. The Connex™ family is based on Objet's PolyJet Matrix™ Technology, which jets multiple model materials simultaneously and creates composite Digital Materials™ on the fly. All Objet systems use Objet's FullCure® materials to create accurate, clean, smooth, and highly detailed 3D parts.

Objet's solutions enable manufacturers and industrial designers to reduce cost of product development and dramatically shorten time-to-market of new products. Objet systems are in use by world leaders in many industries, such as Education, Medical / Medical Devices & Dental, Consumer Electronics, Automotive, Toys, Consumer Goods, and Footwear industries in North America, Europe, Asia, Australia, and Japan.

Founded in 1998, Objet serves its growing worldwide customer base through offices in USA, Mexico, Europe, Japan, China and Hong Kong, and a global network of distribution partners. Objet owns more than 50 patents and patent pending inventions. Visit www.objet.com.

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