International implantology in Berlin

Japanese lecturers at the DGZI Annual Congress 2013

[PICTURE: ©SEAN PAVONE]

_International speakers impressed the audience with their scientific knowledge on the international podium on the first day of the congress, among them Dr Keiichi Naruse, Dr Shohei Ikeda and Yoshishige Taniguchi from Japan. The following excerpts provide a summary of their enlightening speeches.

Three types of mandibular bone resorption and their respective bone augmentation techniques for successful dental implant treatments

Dr Keiichi Naruse

With reference to older and the latest research, particularly Naruse et al., I share my opinions and experience on bone augmentation techniques according to the condition of the bone or degree of bone resorption.

Bone augmentation in patients with resorbed mandibular ridges due to severe periodontal disease requires the use of advanced techniques. Mandibular bone resorption and the respective bone augmentation techniques are divided into three types based on the condition of severely and vertically resorbed mandibular ridges. One bone augmentation technique entails using non-autogenous bone. I agree with other researchers that autogenous bone, owing to its osteogenic, osteoinductive and osteoconductive abilities, is preferred as a bone replacement material in bone augmentation. However, I am also aware that this invasive technique may cause subsequent infection in the donor site. Therefore, in order to perform minimally invasive surgery, I performed 15 mm bone augmentation without using autogenous bone and the case was successful.

Reference

K. Naruse et al., "Advanced alveolar bone resorption treated with implants, guided bone regeneration, and synthetic grafting", Implant Dentistry, 19/6 (2010): 460–7.

Effect of metal artefacts on the visualization of periimplant anatomy in cone-beam computed and volumetric tomography images

Dr Shohei Ikeda

The objective of this study was to assess the effect of metal artefacts on the confidence levels of observers in the analysis of cross-sectional peri-implant anatomy in the buccolingual plane using CBCT and volumetric tomography (VT).

The VT machine used was OP200 D (Instrumentarium Dental) and the CBCT machine was 3DX (Morita). ITI implants (Straumann; Ø 3.8 mm, L 15 mm) were used. A 2:1 mixture of plaster of Paris and sawdust was used to simulate the bone block. Metallic posts (Ø 2 mm, L 2.5 mm) were used to simulate the

metal objects to generate the artefacts on the image. The implant was placed in between two metallic posts of similar diameter in the same line separated by equal distances in the simulated bone block. Fourteen different combinations were prepared using two posts to simulate the possible locations of such posts in vivo. Thus, prepared blocks were then used to record the images using both modalities by adjusting the exposure parameters to the density of the simulation device. The images obtained were analysed by five oral radiologists and their confidence levels regarding their assessment of the images were recorded for both modalities. The observers were asked to score the images in the central regions of the implants. A visual grading characteristics analysis was carried out to assess the relative confidence levels of observer responses for both modalities to determine their statistical significance. The assessment of peri-implant anatomy using CBCT was significantly better in the central region of the implant in comparison to VT, whereas in the periphery of the implant region both modalities performed similarly.

A recovery case with maxillary sinusitis and inferior alveolar nerve paralysis

Yoshishige Taniguchi

This case report presents a four-year follow-up of an implant recovery case caused by inappropriate implant therapy owing to insufficient examination and diagnosis, which was resolved by the removal and replacement of the implants with new implants.

Case description

A 62-year-old male patient complaining of implant movement and discomfort while eating first visited our clinic in March 2007. He had maxillary sinusitis on both sides and implants in positions 15–17, 25–27 and 45 with severe peri-implantitis. The screw was loosening in implant 17 and the implant fixture in position 25 was fractured. Other complications were that patient had inferior alveolar nerve paralysis on the right side of the mandible and fluid leaking from the nasal passage after drinking. The patient had always felt extremely dissatisfied with his dental treatment. He desired retreatment with new implants. Our clinical examination of both maxillary sinuses found that they were packed with non-absorbable bone substitute from the implant site; this was the cause of the sinus infection. The patient underwent radical maxillary sinus surgery, and all the implants and a loose tooth were extracted at a university hospital. After nine months (January 2008), new implants (NobelSpeedy Groovy; Nobel Biocare) were placed in positions 47, 44, 42 and 32 in our clinic. An implant with a 15 degree tilt was placed in position 44. At same time, absorbable bone substitute was used to avoid the mental foramen and owing to the severely atrophic alveolar ridge. In October 2009, new implants (NobelSpeedy Groovy) were inserted into the maxillary alveolar bone in accordance with the All-on-4 concept. A provisional prosthesis was then made from acrylic resin and seated on the same day.

Results and discussion

The final prostheses were fabricated six months from the day of surgery. The patient's complaints have been resolved and the final prostheses for both jaws are stable. Applying the All-on-4 concept in the maxillae and implant tilting in the mandible are the best methods available for implant recovery cases for patients for whom sinus augmentation is impossible and who have a severely atrophic alveolar ridge around the molars in the mandible._