A systematic approach to augmentation treatment in the case of jaw defects

By Peter A. Ehrl, Germany

Ever-increasing significance is being placed upon augmentation with the expansion of different forms of implant procedures. Approximately 2/3 of all implants are currently performed using augmentation techniques (Tab. 1). Scientific comparison of various implant systems was and still is rather difficult, and this applies to augmentation techniques to an even greater extent.

This is due to the wide variety of materials, the pace of scientific change, and the infrequent use by relevant operators compared with the methods. Any good intention to carry out prospective long-term studies must nowadays be considered futile. Individual studies that deal with specific techniques do not generally follow a set example that allows several individual studies to be compared.

Moreover, these studies are often anecdotal in character. Given the current state of development — which in many cases is at the trial-and-error stage — these studies cannot be dispensed with in the hope that comparable results will be obtained in the future.

Today, it appears interesting at the outset to introduce a systematic approach when evaluating the wealth of methods available in order to help the user decide on a specific course of action.

Target Definition

A certain bone volume is required for implantation. This volume has not been accurately defined to date. The bone volume required thus depends essentially on the following parameters:
- Load direction (position in the dental arch)
- Load force (chewing force)
- Bone quality (D1–D4; Hounsfield units)
- Type of implant integration (superficial macro- and microstructure, coating)
- Intermaxillary distance (crown length to implant length)
- Type of prosthetic superstructure.

It is already obvious from this list of key parameters that it is difficult to give clear instructions in individual cases since an implant of a certain length, diameter, or...
AID touts 3D imaging for dental implants

For the two in three Americans with one or more missing teeth, dental implants increasingly are becoming the preferred option vs. bridge-work, dentures and root canals. Advanced, highly precise computer-guided dental implant surgery has made the procedure faster, highly predictable and long-lasting with a success rate of 97 percent, according to presenters at the annual scientific meeting of the American Academy of Implant Dentistry (AAID).

AID President Kim Gowey, DDS reported that 3D imaging is changing the practice of dentistry and helping many patients regain a healthy and confident smile, as well as improve oral function and overall quality of life.

“With state-of-the art digital imaging, we can analyze the anatomy of the patient’s jaw without surgery, which saves time and money and shortens implant recovery time,” Gowey said. “It’s like having the patient on the computer screen and helps make implants the most predictable procedure in dentistry today. Unlike dentures and bridge-work, titanium implants are stable, long-lasting and as close as we can get to restoring natural roots in the jaw.”

Gowey said life-like 3D images enable the dentist to assess bone density and locate nerves, blood vessels and sinususes before surgery, thereby eliminating uncertainty about which spots in the jawbone are the right sites for implant placement. “The precision of the CT scan and implant surgical planning software give the dentist a vivid map of the patient’s mouth to pinpoint potential problems and plan the entire implant procedure in advance,” Gowey explained.

He added that the superb clarity of the image allows precise insertion of the implant through the gum tissue rather than under it. This promotes faster healing because gum tissue is preserved. Once the implants are secured, prosthetic teeth are attached. For some, the entire procedure may take no more than an hour for a single implant.

“Implants are a win-win for patients and dentists,” said Gowey. “Implants do not decay or involve root canals. Further, they are 97 percent successful, which significantly exceeds the success rates of three-unit bridges or dentures, which require filing down or removing adjacent healthy teeth.”

Gowey noted that while consumer demand for dental implants is rising, more dentists need comprehensive training to become proficient at implant procedures. Attending a week-end courses isn’t enough,” said Gowey. “There is a higher level of risk with the procedure if the dentist has limited experience performing implant surgery. You wouldn’t go to a primary care physician for brain surgery, likewise, you shouldn’t see a dentist who isn’t credentialed in implant dentistry,” Gowey noted.

AID offers a rigorous implant dentistry credentialing program which requires at least 500 hours of post-doctoral instruction in implant dentistry, passing a comprehensive exam, and presenting to a group of examiners successful cases of different types of implants.

Established in 1951, AID is the oldest implant organization in the world and the only one offering implant credentials protected by federal court decisions. Its membership exceeds 3,100 and includes general dentists, oral surgeons, periodontists and prosthodontists from the United States and 40 other countries.

For more information about the AID and its credentialed members, log on to the website at www.aaid.com or call the AID at 512-555-1556. 

The “Implant World Expo” boasted more than 100 booths with a wide variety of exhibiting companies. (Photos by Sierra Rendon)