AO Orlando preview: The sinus floor bone graft

Dr. Jensen on ‘understanding when, how and if’

By Ole Jensen, DDS, MS

Twenty years after the watershed Sinus Consensus Conference of 1996, co-chaired by Leonard Shulman, Michael Ilieck, Vincent Lacono and myself, we editorialized in ‘The International Journal of Oral & Maxillofacial Implants,’ highlighting five areas of significant change that have occurred since that time. These five areas will be the topic of a session, titled ‘Sinus Consensus Update Session,’ that I will moderate on March 17 as part of the Academy of Osseointegration 2017 Annual Meeting.

The state of the science of the sinus floor bone graft is not settled. There remains significant controversy, and therefore ongoing innovation, as it relates to augmentation procedures to enhance osseointegration. The goal of this course will be to present key topics that have improved our understanding of when and how and if to do the sinus floor procedure.

One could say that the profession does not yet know what to do about aeration of the posterior maxilla with regard to tooth replacement, which is why every specialty must contribute to making treatment planning a success.

Here are five key developments that have informed our thinking.

- **Graft material:** At the time of the consensus conference in 1996, the use of autogenous bone, including mandibular, iliac, tibial and cranial graft, was championed, while alloplast and allografts were thought to be inferior (though the consensus conference found otherwise). Since that time, the use of xenogenic bone has been found to be highly effective, if not the most effective, for sinus floor augmentation—a mostly space-maintenance process with new bone formation migrating from the sinus floor. In fact, space maintenance without any graft material at all forms bone. Though the use of bioimplantics are effective in the sinus floor and are an excellent tissue engineering advance, the use of growth factors and BMPs are generally reserved for more challenging cases.

- **Technical advances since 1996:** The sinus floor bone graft now involves using an alveolar approach instead of a lateral approach. Transcrestal osteotomes are used vertically to intrude the sinus floor, sometimes simultaneously alveolar splitting to gain alveolar width.

- **Increased reports of combined alveolar and sinus-floor grafting:** Orthoalveolar form, that is, the formation of ideal shape and size of the alveolus for emergence profile restoration is favored by clinicians even in the back of the mouth. Combined alveolar procedures done in conjunction with the addition of bone to the sinus floor gains bone mass for osseointegration as well as helping to establish long term gingival-alveolar health.

- **Technical advances since 1996** in performing the sinus graft now involve using an alveolar approach instead of a lateral approach. Transcrestal osteotomes are used vertically to intrude the sinus floor, sometimes simultaneously alveolar splitting to gain alveolar width.

- **For the fully edentulous setting, with the advent of the “all-on-4” method,** sinus grafting is generally avoided even in the severely deficient patient. Implant angulation circumvents the sinus by gaining apical anchorage into pyriform, nasal crest, pterygoid or malar bone structure, thus avoiding the need for sinus floor bone augmentation, a significant change in treatment prerogative since 1996.

- **Almost iconoclastic is the resurgence of the use of short implants,** even ultra-short implants that avoid sinus penetration or are only minimally invasive, having been shown in three-year studies to be just as effective as sinus grafted implant sites using longer implants.

The overarching theme of the symposium is that ongoing clinical and basic science developments continue to strike a balance between biological efficacy and simplicity of treatment.

To view the full program guide and register to attend, visit http://meetings.osseo.org.

Research shows how smoking affects healing after dental implant treatment.

Research: Implant treatment plan should be adapted for smokers

By Dental Tribune International

Chinese study comparing implant stability and peri-implant tissue response in heavy smokers and non-smokers has found that smoking did not affect the overall success of implant surgery, as all implants achieved osseointegration without complications at least by the end of the twelfth week after placement. However, smoking did cause the bone around the implants to heal more slowly, thus, implants began to osseointegrate considerably later than in the non-smoking group.

Research has demonstrated that smoking can negatively affect implant and bone integration. In order to improve treatment outcomes and avoid implant failure, surgeons need to have a precise understanding of how the habit will affect the healing process.

In the current study, 45 ITI (Straumann) implants were placed in the partially edentulous posterior mandibles of 32 male patients, including 16 who were heavy smokers and 16 who did not smoke at all. Implant stability and peri-implant tissue response were assessed at three, four, six, eight and 12 months.

- **See RESEARCH, page B2**