

How to Reconstruct the Smile –Osteology Congress in Monaco

“Linking Science with Practice” was the motto of the Osteology Foundation’s International Symposium held in Monaco from May 10th – 12th. Some 2500 participants from 61 countries learned the latest scientific results and clinical treatment options in bone and tissue regeneration.

Implant patients not only seek fixed tooth replacement, they also want a beautiful smile. For a perfect soft tissue contour around an implant, sufficient bone volume must be present. At the Osteology Congress in Monaco, 80 researchers and experienced clinicians from 16 countries presented strategies for preserving and regenerating bone, both for functional and aesthetic considerations. They also reported on today’s expectations in regenerative therapy, on clinical reality and on future trends.

Bone for aesthetics

Aesthetics was indeed a major issue at Osteology in Monaco. Mariano Sanz from Madrid discussed the phenomenon of attractiveness. While there is an innate sense of what is attractive and a similar perception of beauty has endured throughout the centuries and cultures, the 21st century is clearly the age of aesthetics. “Fortune favours the pretty and beauty is a market,” was his conclusion. Daniel Buser from Bern reported that in his clinic, one of his most frequently treated indication is single gap tooth replacement in the maxillary front region. In order to help maintain the augmented volume and therefore the aesthetic result on a long-term basis, several speakers at Osteology recommended that bone be augmented using a slow-resorbing bone substitute, either alone or mixed with autogenous bone.

“The facial bone wall is the key bone structure,” emphasized Daniel Buser in his lecture. Important questions addressed at the congress therefore included: How can the buccal bone wall be preserved after tooth extraction and how it can be built up

when buccal bone deficiencies are present? Jan Lindhe, Gothenborg, presented experimental data on a new approach: While the resorption of the so-called bundle bone¹ cannot be prevented, placement of a slow-resorbing bone substitute, such as Bio-Oss Collagen, into the extraction socket encourages bone formation, thereby largely compensating for the horizontal and vertical buccal bone loss. The tissue (hard and soft) volume in the coronal third part could thus be completely preserved.

News on membrane technique

Another exciting topic at Osteology was the subject of membranes. The groups of Jürgen Becker from Düsseldorf and Daniel Buser from Bern presented surprising results from preclinical and clinical studies that investigated cross-linked collagen membranes. These data indicate that a prolonged barrier function does not result in a relevant increase in bone formation. In contrast, when compared to native, non-cross linked membranes, soft tissue healing was reported to be impaired. This poses the question to science: How long is a barrier function actually needed? Christoph Hämmerle, Zürich, presented further results from his research in the field of membranes. He concluded that, at the current time, the positive tissue integration of native collagen membranes is advantageous for use in practice.

Augmentation in the maxillary sinus

Sinus floor augmentation was another important topic during these three days. Dr. Franck Renouard, Chairman of the Congress, pointed out that, despite all the positive results in the literature, sinus floor augmentation remains an indication that requires sufficient education and training. In his speech, he evaluated the various treatment aspects of sinus floor augmentation with results from the literature and from his own practical experience. Renouard and several other lecturers emphasized that, because premature resorption of the augmented volume is minimized, the use of slow-resorbing bone substitutes, either alone or in a mixture with autogenous bone, shows advantages over autogenous bone graft alone.

¹ Bundle bone: tooth related bone structure that houses the fibres of the periodontal ligament

Soft tissue management

How is soft tissue around teeth and implants best managed? Myron Nevins from Boston emphasized that the challenges for practitioners include achieving an adequate amount of keratinized gingiva, treating recessions and managing the soft tissue around implants. Several researchers and clinicians, including Massimo Simion, Milan, Co-chairman of the Congress, reported on surgical techniques as well as on new experimental approaches for soft tissue augmentation around implants. Simion also reported on his study examining an experimental collagen membrane: A preliminary evaluation of the membrane will only be possible next year. Likewise, Ronald Jung from Zurich presented promising results with collagen materials that may improve the quality of the gingiva. He believes that three-dimensional structures are needed to gain soft tissue thickness. In the future, such materials may replace connective tissue grafts.

Tissue Engineering

New technologies, such as growth factors and cell or gene technologies, were also intensely discussed, as for example, by William Giannobile, USA. Several speakers emphasized the importance of the carrier material and of the optimal growth factor dose. Data presented at the Congress indicated that in the future, the more complex and challenging cases will use tissue engineering techniques. Growth factors in particular were reported to have gained large strides towards market introduction. Hendrick Terheyden from Germany presented an overview of the different future methods and compared them with each other. According to his estimation, the future of tissue engineering will belong to growth factors. Nevertheless, some speakers did question whether these techniques will also offer an advantage for small to medium-sized defects.

Linking science with practice

In the poster session that included 80 posters, more unpublished research results from the field of regeneration were presented. Two poster research prizes were awarded: one to the group of Stefan Fickl from Germany for their experimental study on the extraction socket preservation, and one to the group of Ioannis Gissakis from

Greece for their histological clinical study on ridge augmentation using different techniques.

In addition to the scientific program, 20 workshops during the pre-congress program offered intensive practical and theoretical training.

The congress motto of Osteology in Monaco was “Linking science with practice.” In the beautiful atmosphere of the modern and impressive congress centre on the Mediterranean Sea, the 2500 participants enjoyed top-notch science as well as practical clinical presentations and workshops. And for those who attended the social program in the evening, the congress also offered great artists, a chance to dance at the entertaining Osteology party and even fireworks. So in addition to “linking science and practice,” the Osteology Symposium linked serious education with a pleasant sojourn.

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