

PRESS RELEASE

Three days full of information and inspiration Osteology Monaco will be fondly remembered for a long time

Osteology Monaco was a milestone. The diverse programme highlighted all aspects of regenerative dentistry. There were presentations on periodontal regeneration, simple and complex GBR measures, soft tissue management, medically compromised patients and many other topics.

Lucerne, 16 May 2013 – The International Osteology Symposium on 2-4 May 2013 in Monaco is sure to stay in the 2'700 participants' minds for a long time to come. Not only due to the many surprises in connection with the 10th anniversary of the Osteology Foundation, but also because of a pre-congress day with practical training on nearly 600 pig mandibles, an exhibition with 200 scientific posters, 60 presentations at the highest level, spectacular 3D operation videos and an industrial exhibition where in addition to the 8 gold partners almost 50 other companies were represented with a booth. Below is an overview of some of the topic highlights.

A topic in the spotlight: peri-implantitis

Prevention, diagnosis and therapy of peri-implantitis comprised a focal subject that filled two entire sessions. This difficult to treat infection surrounding the implant is currently causing great concern among practitioners. "The frequency of peri-implantitis is difficult to estimate," explained Björn Klinge from Sweden. That's because there have been differing definitions of the disease as well as contradictory data, to some extent, about prevalence published in the literature. A new, systematic literature analysis shows that after five to ten years 10% of implants and 20% of patients are affected by peri-implantitis.

The infection surrounding the implant does exhibit periodontitis in several respects; however, there are relevant differences. For example, the periodontal ligament acts like a natural barrier in periodontitis. The infection is encased with connective tissue and shielded from the bone. On the contrary, according to Tord Berglundh from Sweden peri-implantitis lesions are not sufficiently encapsulated, progress more aggressively and spread to the bone, which is then resorbed as a result.

Andrea Mombelli from Switzerland summarised which factors promote peri-implantitis: an insufficient quantity of keratinised mucosa, inadequate bone volume, a small distance between implants as well as an unfavourable three-dimensional implant position. Lisa Heitz-Mayfield from Australia also pointed out that with cemented reconstructions excess cement remnants represent a risk and can cause inflammation. In order to monitor the implant, the dentist should take periapical X-rays at the time of the definitive prosthetic treatment and then once per year within the scope of the mandatory follow-up. In addition to the X-rays, implant mobility, pocket depth and clinical signs of inflammation are also important parameters.

Which therapies have proven themselves?

Giovanni Salvi from Switzerland and Frank Schwarz from Germany presented the current state of scientific knowledge in regard to peri-implant therapy. After a preparatory phase, during which risk factors such as poor oral hygiene and difficult to clean reconstructions are eliminated, the non-surgical procedure takes place with biofilm removal and antimicrobial therapy. Systemic or local antibiotics, laser as well as photodynamic therapy can be successfully used.

One to two months later the defect is re-evaluated and, if needed, surgical therapy is conducted that entails removal of the granulation tissue and decontamination of the implant surface. Antibiotics can also be administered. Subsequent implantoplasty can prevent renewed colonisation of the implant surface. Frank Schwarz presented the procedure in more detail. The implant's screw relief is polished and the implant then integrates while covered. If one wants to replace lost tissue through regenerative measures, tried and true products should be used.

The fact that the development of peri-implantitis is promoted in periodontally compromised teeth is often an argument for keeping even teeth with major bone loss and furcation problems. Niklaus P. Lang from Switzerland therefore presented a decision tree for the decision preservation vs. extraction of periodontally compromised teeth in the first session of the symposium. The following speakers showed encouraging data on the management of intrabony defects and furcation problems.

Early intervention pays off

Optimal therapy begins early on. One of the presentation blocks in Monaco therefore dealt with the decisions that need to be made before or immediately after tooth extraction. What resorptions should one expect due to the collapse of the extraction socket? Can the volume be retained nevertheless? What does the dentist need to consider in the aesthetic zone? Mariano Sanz from Spain showed histologic data from a preclinical study on the early healing process after tooth extraction.

Lingually the bone ratios remained almost unchanged; however, the buccal bone lamella resorbed a good deal in the horizontal dimension. The results of the preclinical studies on bone resorption during spontaneous healing could be confirmed in a clinical study comprising 120 toothless patients. Jan Lindhe from Sweden showed unpublished data on this topic in his key note lecture. An immediate implantation can prevent bone resorptions in the mesial/distal dimension, but not in the buccal/palatinal dimension. A ridge preservation procedure with biomaterials can preserve the buccal/palatinal dimension to a great extent.

Ronald E. Jung from Switzerland discussed the advantages and disadvantages of the various options afterwards – immediate implantation, later implantation in combination with a ridge preservation or spontaneous healing. If the implant cannot be placed within three months after extraction, the extraction socket should be filled with biomaterial and covered with a membrane. But if the dentist wishes to improve the quality of the soft tissue, he/she can create a socket seal with a soft tissue punch from the palate or with a collagen matrix.

Dietmar Weng from Germany also discussed the advantages of ridge preservation after tooth extraction. The necessity of performing larger augmentations later on is

five times greater when the dentist does not carry out a ridge preservation. The biomaterial used should resorb very slowly so that the volume remains stable. This way one can give the bone sufficient time to heal before the implant placement. In order to counteract the inevitable resorption in the case of an immediate implantation, the speaker fills the gap between the implant and the buccal bone wall with biomaterial as well.

Clear guidelines for larger augmentations

In addition to “early regeneration” immediately after tooth extraction, classic bone regeneration was also a focus – in particular the question of how GBR techniques have changed over the course of time. Daniel Buser from Switzerland stressed the great progress that resorbable membranes in combination with bone replacement material mean for daily practice. The best tried-and-true protocol is early implant placement (after 4-8 weeks) in combination with a simultaneous contour augmentation, for which biomaterial and autologous bone chips are used. Scientifically proven biomaterials represent a significant factor for therapy success for Daniel Buser. Massimo Simion from Italy described the development of horizontal and vertical ridge augmentation techniques over the years. According to his explanations, the aim now is to simplify the established procedures. Nevertheless, technically demanding augmentations should continue to only be performed by specialists.

Soft tissue management – increasingly important for aesthetics and functionality

It is not only the increased aesthetic demands of patients that make soft tissue management such an important topic. Sufficiently keratinised mucosa surrounding implants also appears to act as protection from peri-implantitis. Therefore, the speakers presented various methods of soft tissue augmentation at the Osteology Symposium in Monaco.

One focus was on the question regarding in which cases biomaterials can be used instead of connective tissue grafts or free gingival grafts. The “soft tissue out of the box” decreases both operating time as well as pain because no tissue needs to be harvested from the patient’s palate. When measuring patient satisfaction, or “patient reported outcome,” this advantage is reflected in greater patient satisfaction, as Todd Scheyer from the USA showed in a study.

Anton Sculean from Switzerland and Giovanni Zucchelli from Italy focused on recession coverage in their presentations. If only a coronally advanced flap is formed for this, then complete root coverage is less frequent than when a connective tissue graft or Emdogain is used additionally. An alternative to the coronally advanced flap is the modified tunnel. With this method, a connective tissue graft from the palate or comparable biomaterial is pulled under the gingiva in a tunnel and is sutured there. The advantages of this technically demanding procedures are almost no scarring, improved blood circulation and perfect colour matching. The procedure is especially suitable for multiple recessions of Miller class 1 and 2.

Oral regeneration in medically compromised patients

A session lead by Friedrich W. Neukam from Germany dealt with oral regeneration in compromised patients. For example, diabetes mellitus is associated with decreased bone density, delayed bone and wound healing and increased risk of complication. When it is well-controlled, the disease does not present a contraindication for regenerative measures or implant placements. Because the healing takes longer, one should wait at least two months longer than normal after GBR measures before an implant is placed, said Nikos Donos from the UK. Wilfried Wagner from Germany discussed a serious disease: osteonecrosis of the jaw. This disease occurs mostly after dental procedures in patients who are being treated intravenously with bisphosphonates within the scope of tumour therapy. Patients with prostate cancer are affected more frequently than patients with multiple myeloma or breast cancer. "The risk is not losing an implant but rather a part of the jaw," the speaker said, clarifying the danger. Augmentations and implant placements should therefore be avoided with a malignant primary disease, intravenously applied, highly potent bisphosphonates for a longer period of time and additional chemotherapy or cortisone therapy. Even if the risk is significantly smaller, also oral bisphosphonate administration can result in osteonecrosis of the jaw.

Science at the congress provided a glimpse into the future

Promoting regeneration research and bringing research and clinical practice closer together are key concerns of the Osteology Foundation. Correspondingly, there was not only a large poster exhibition in Monaco, but also two well-attended workshops for scientists and an all-day Research Forum with presentations of current works. The Osteology Research Prize was awarded at the end of the congress. In the preclinical research area, the prize went to Elena Martinez-Sanz from Spain and her work: "Minimally invasive cleft palate repair using injectable hydrogels." In the clinical research area, Mario Rocuzzo from Italy won the prize with his work: "Long-term (10 year) stability of soft tissues around implants following ridge preservation technique by means of collagen-coated bovine bone."

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About the Osteology Foundation

The Osteology Foundation's motto is „Linking Science with Practice in Regeneration“. The Foundation was established in 2003 and its core activities include funding research projects and organising National and International Symposia. Additionally, the foundation launched the Osteology Research Academy, an intensive course on research methodology, and publishes the book series *Osteology Guidelines for Oral & Maxillofacial Regeneration* together with Quintessence. The Foundation Board, comprising internationally renowned periodontists and oral and maxillofacial surgeons, supervises all activities.