hydroxylapatite coated titanium endosteal implants (IMZ®) in the grafted sinuses was adopted. In the other three groups, a two stage procedure was adopted and implants were placed after a healing period of six months. After a healing period of six months implants were uncovered and dental prosthesis were applied. 17 patients were rehabilitated with unilateral partial implant-anchored bridges, 5 patients with a bilateral partial implant-anchored bridges, 2 patients received full bone-anchored bridges and 6 patients received implant-retained overdentures. Out of 124 implants inserted in the grafted sinuses, 8 failed, with a 93.5% success rate, whereas out of a total of 38 implants inserted in the anterior maxilla, 2 (5.3%) failed. The mean follow-up was 14.5 months.

Preliminary results from this series, despite a limited sample and a short follow-up, have shown the high reliability of this technique that provides the bony structure for insertion of endosseous implants in an otherwise prohibited area.

245. 3 Years Follow Up of Inserting Endosseous Implants in Severely Atrophic Maxillae

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A new method using a Le Fort I osteotomy, sinus and nasal floor bone inlay grafting with simultaneous placement of titanium screw implants and a modified submucous vestibuloplasty was introduced by Sailer (1989). Till present 38 patients have been operated using this protocol. To evaluate a homogenous group of patients the results achieved in 11 consecutive patients operated by one and the same surgeon are presented, 7 of these patients were females and 4 males. The youngest patient was 41, the oldest 66 years of age with an average of 54 years. Six or 9 Branemark fixtures were inserted into the maxilla, a total of 80 implants. 66 of these fixtures were inserted after pretapping, 14 were self tapping fixtures. 22 fixtures were used in combination with BMP (bone morphogenetic protein), 8 of these after pretapping, 14 were selftapping. 32 fixtures were placed in the front region and 48 fixtures were placed in the premolar and molar region. After an average observation time of 3 years (ranging from 1 year 8 months to 5 years and 6 months) 77 fixtures (= 96.25%) were still in place, 2 (= 2.5%) were lost, one firm and integrated fixture was removed 18 months postoperatively, because it was not used. The two losses occurred in female patients. It is important to state that these 2 fixtures were not totally firm when placed, but left as a trial. The presented method enables the surgeon to improve the intermaxillary relationship and to restore the original facial dimensions in a vertical and sagittal plane. It is an universal method for the treatment of the edentulous maxilla and to functionally and aesthetically restore these patients.

246. Simultaneous Placement of Endosseous Implants and Mandibular Onlay Grafting with a Mixture of Autogenous bone and Hydroxylapatite Granules

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This presentation deals with a method in which autogenous cortico-cancellous bone struts are used to augment the severely resorbed (class V–VI) mandible.

Two burr holes for implants are made 1 cm from the midline. A subperiosteal tunnel is then created as far as the molar area to insert the bone grafts. The space between two implants is packed with a mixture of cancellous bone and hydroxylapatite granules in a ratio of approximately 4:1.

16 patients (34 implants) with a follow-up ranging from 13–30 months (mean 1.5 yrs) are presented.

All implants are still in place though around 3 is pathological bone loss and they will be lost in the future (92.5% success). Because these patients wear overdentures, bone resorption in the molar area goes rather quickly. At the implant site and at the inter-implant space, however, the bone maintains its contour and volume.

Because there is a low morbidity associated with this technique it is especially recommended for the older patient with an extremely resorbed mandible.

247. Results after Mandibular Sandwich Procedures in Combination with Titanium Screw Implants

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The anterior mandibular sandwich procedure in combination with simultaneous placement of titanium endosseous implants and interpositioning of autologous bicortical iliac crest bone for augmentation of the atrophied mandible is described. The technique developed by Sailer (1987) is a modification of the interpositional procedure proposed by Schettler in 1967. The lingual pedicled cranial part of the mandible is positioned superiorly and a bicortical iliac bone graft is interpositioned. In the same session implants of maximal length are inserted into the pedicled cranial part through the interpositioned bone graft into the symphyseal cortex. Before the insertion bovine Bone Morphogenetic Protein (b-BMP) is put into the burr holes. The interforaminal procedure is combined with the classical onlay technique in the lateral part of the mandible, posterior to the mental foramina, in order to assure an adequate mandibular contour. Simultaneous sulcoplasties are possible. After six months of healing – in the meantime the patients existing mandibular denture is relined for temporary use – the abutment procedure is carried out, and the fabrication of a definitive fixed or detachable mandibular prosthesis is started. Depending on the number of implants a bar or precision attachments can be used to support the prosthesis. In a retrospective study 23 patients were evaluated . The method creates excellent recipient sites for maximum sized endosseous implants. The longest follow-up period was 5

years, and the success rate 98.7%. One implant of 78 failed to osseointegrate. The total resorption after a period of two years compared with the absolute height of the augmentation was 16% in the anterior region and 17% respectively in the lateral part of the mandible. Most of the patients were highly satisfied with their facial form and denture function. This sandwich technique is also indicated for post-traumatic reconstruction with loss of the anterior alveolar crest. In cases of extreme atrophy of the lateral aspects of the mandible, a posterior sandwich procedure can be performed.

248. Bonefit Implants and Retentive Anchors in the Atrophic Mandible

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The ITI Bonefit implant is a one-stage multifunctional implant. These two-part implants are pre-eminently suitable in the atrophic mandible as abutments for retentive anchors in elderly patients. Between 1988 and 1993 102 implants were inserted for this purpose in 51 patients. Evaluation took place in 1994, so the follow-up ranges from 16 months to 5 years.

The following parameters were recorded: implant survival, mobility, mandibular height, marginal bone loss, soft tissue reactions and patient satisfaction. The use of implants with retentive anchors has several advantages including: easy surgery, easy prosthetic treatment, less follow-up care, good stability and sufficient retention, easy to clean and inexpensive. The patients without exception were pleased with the functional result.

249. Preprosthetic Implants in Tumor Surgery

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The classic surgical treatment for malignant tumours consists of block resection with a safety distance of 1 cm. all around, leaving big defects. With the modern methods of tissue transfer, defects can be closed and good aesthetic results obtained.

In addition to functional and aesthetic reconstruction we place a great deal of importance on immediate prosthetic rehabilitation. Thanks to the progress made in modern implantology, oral rehabilitation can be performed very soon after surgery, even when the patient must undergo postoperative irradiation. If necessary, implants can be inserted during the resection in order to achieve immediate prosthetic rehabilitation. A temporary prosthesis is inserted until the implants have healed which not only facilitates normal function, but also allows for direct inspection of the critical area in relation to possible recurrences.

Based on our experience with more than 100 patients who were operated for tumour resection and immediate insertion of implants, we report on the procedure and results.

250. Chewing Function of Postoperative Tumor Patients Treated with Osseointegrated Implants

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Recent progress in reconstructive surgery and implantology has made it possible to restore the chewing function of patients that underwent ablative surgery for malignancy. This study evaluated the chewing function of these patients treated with osseointegrated implants using the low adhesive color developing chewing gum system. Fifteen natural dentate subjects and 30 patients treated with osseointegrated implants including 9 tumor patients served as subjects. The test utilises a phloxine-sodium bicarbonate reaction and measures a chromatic co-ordinate (a*) as a functional indicator. The a* ranged from 25.03 to 41.98 in the natural dentate subjects, from 7.13 to 37.79 in the non-tumor patients, and from 5.04 to 35.88 in the tumor patients. The a* values were especially low in patients who had undergone resections of the tongue or floor of the mouth. These results suggest that functional reconstruction of the tongue and floor of the mouth is essential for a better chewing function in these patients.

251. Functional and Aesthetic Reconstruction using Endosseous Implants and Bone Grafts in Patients with Traumatic Loss of Teeth and Alveolar Bone

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Traumatic loss of teeth is often combined with simultaneous loss of alveolar bone and gingival tissue. The subsequent rehabilitation of these patients is rather difficult and can often not be solved with implants alone.

Between 1980–1993, in the clinic for Oral and Maxillofacial Surgery Mainz, Germany, 70 more or less severely traumatised patients had implants inserted during complex operative procedures. Tübinger, IMZ, Branemark and Frialit 2-type implants were used. In this, compared to other patient groups, relatively young patient group the fixtures were mostly inserted in the anterior maxilla. In extremely severe cases, when alveolar tissue was lost, a new bony environment had to be provided using local or iliac crest bone grafts. Secure soft tissue coverage of these grafts is of major importance. Local flaps have often to be employed due to scarring or loss of soft tissue. In order to reach a good functional and aesthetic result after bone grafting, corrective soft tissue procedures such as vestibuloplasties are necessary in most cases, but can easily be combined with the exposure of the implants.