

## **Area 1 – Implantologia / Implant Dentistry**

### **MAXILLARY OSSEOUS RECONSTRUCTION IN PERIODONTALLY COMPROMISED AREAS**

*Autore– Author:*

**Jacopo Candiago, Canolich Vaamonde Perez, Vanessa Ruiz Magaz, Andres Pascual La Rocca, Jose Nart**  
*Universitat Internacional de Catalunya, Barcelona, Spain*

#### **Clinical evaluation/ Diagnosis**

A 52-years-old man attends the department of periodontology at the International University of Catalunya with the desire of improving the situation of his upper front teeth. The clinical examination revealed severe clinical attachment loss on teeth 1.1, 2.1 and 2.2 associated with fremitus, mobility type III. Radiographically these teeth presented a severe bone loss with an unfavorable crown/ root ratio. The patient was diagnosed as chronic generalized severe periodontitis, secondary trauma from occlusion and pathologic tooth migration. When extracting these teeth, it is important to consider the post- extraction hard and soft tissue changes related to the functional and aesthetic needs of the patient.

#### **Treatment goals**

To present the rehabilitation of teeth 1.1 to 2.1 with severe clinical attachment loss by means of ridge preservation and posterior implants placement.

#### **Description of clinical/surgical procedures**

The teeth number 1.1, 2.1 and 2.2 were considered hopeless according to the Lindhe classification and after the phase I therapy an atraumatic extraction with simultaneous guided bone regeneration/ridge preservation was performed. The vestibular flap was raised to the mucogingival junction and an allograft material with a collagen crosslink membrane were used. The flap was replaced and sutured with polypropylene 5/0 being part of the membrane exposed. After 5 month of healing, dental implants in position of 1.1 and 2.1 were placed. At the same time, a guided bone regeneration in conjunction with a connective tissue graft was performed in position 2.2. By using an incremental technique with ovoid pontics the emergence profile was created reaching to the implant connection in order to avoid a second surgical phase. The patient finally was definitely rehabilitated with a screwed prosthesis on implant 1.1 and 2.1 with a distal cantilever pontic in position 2.2.

#### **Clinical outcomes**

These findings suggest that ridge preservation technique with the use of allogenic graft and a cross linked collagen membrane left exposed, can minimize volume ridge alterations during the following 5 months of healing. The ideal implant position has been achieved minimizing surgical interventions and reducing the treatment time reaching the ideal aesthetics. The stability of soft and hard tissues was corroborated clinically and radiographically by 2D and 3D techniques 1 year after the rehabilitation and no differences have been observed.

## **Area 1 – Implantologia / Implant Dentistry**

### **TORONTO BRIDGES ALL-ON-4 IN UPPER AND LOWER JAW IN A PERIODONTALLY COMPROMISED PATIENT USING OT EQUATOR BIOLOGICAL ABUTMENT: A CASE REPORT**

*Autori-Authors:*

**Francesco Ciolino, Alberto Romaldi**

*Private Practice, Osimo, Italy*

#### **Clinical evaluation/ Diagnosis**

The 28<sup>th</sup>/5/2015 mister P.m. come into the office after a brief telephonic meeting with an administrative employee. The patient came in with chewing difficulties and aesthetic problems. The subject was classified as ASA 1 (Owens et al 1978). The periodontal diagnosis was conducted with PSR and every sextant was associated to a 4 codex with "\*" symbol. The Full Mouth Bleeding Score (FMBS) was 100% as well as the Full Mouth Plaque Score (FMPS), Periodontal probings, plaque index and bleeding index clearly showed a severe periodontitis, type III (aggressive, generalized). Finally, we got a tridimensional X-ray with our cone-beam-computed-tomography. From a psychological standpoint he belonged to the hysterical kind of patient. His request was to satisfy his wishes with minimal expense. In conclusion, in absence of local and systemic side effect, the subject had all the minimal qualifying requirements in order to sustain the operative phases of the treatment plan.

#### **Treatment goals**

Our main goal was to reactivate the masticatory, phonetic and aesthetic function previous the onset and progression of the periodontal disease. The chosen solution, upon informed consent, was an All on 4 rehabilitation (Malo et al 2003), on both the upper and lower jaw. For us, the ultimate goal is always to support the patient in his return to a satisfying and gratifying social life, with a remarkable positive psychological impact, especially regarding his self-esteem. The aim of this clinical case was especially to evaluate the opportunity to simplify and optimize the clinical procedures of the fixed implant rehabilitations using an innovative anchorage method, Universal Equator Biological Abutment. The main advantages are four: simplicity of use; passive fit of the prosthetic framework; retentive strength of the Seeger ring; respect for the biological width of the mucosal-implant barrier. On the other side, it's not indicated for a single unit or cemented rehabilitation.

#### **Description of clinical/surgical procedures**

After Full Mouth Disinfection all the remaining teeth were extracted. 1 month later, the complete healing of the bone occurred. During the surgery we found out a hard bone, type 1, in the mandible and a more trabecular one, type 3, in the maxilla. In addition to the absorbable autologous membranes the surgeon used the so called PRF, to promote the healing of the surgical wound. The resorbable suture material was removed 1 week later. Once we tested an optimal clotting of the surgical sites, the patient received a full arch-provisional prosthesis. 4 months later we made a clinical and radiological check-up: the osteointegration was completed. Therefore the implant uncovering was planned, along with the placement of the healing abutments. The prosthetic procedures went on as always: high precision key-impression with transfer and creation of fixed bars over the OT Equator. The last step was the substitution of the removable prosthetic device with resin Toronto Bridge prosthesis.

#### **Clinical outcomes**

In this case report, the technique adopted to provide two screw-retained fixed prosthesis allowed us to obtain excellent results with less effort, a gain of time and major ease of use than conventional procedures. After 1,5 years of function we had no loss of implants and no perimplantitis nor prosthetic complication occurred. The satisfaction degree of the patient was high, VAS=5. These results agree with a prospective study conducted in 2011 (Bortolini et al.) and with a 3 years clinical follow up study of 2014 (Bortolini et al.). In the last one, Equator Abutments, compared with Multi-Unit-Abutment (MUA), showed more versatility and ease of use in the management of prosthetic stages and implants with limited parallelism. The OT Equator method, in the light of the recent literature and of our clinical case, appears to be promising and seems to be reliable even in complex cases.

## **Area 1 – Implantologia / Implant Dentistry**

### **PERI-IMPLANT TISSUE REMODELLING AFTER GUIDED BONE REGENERATION AND LATE IMPLANT PLACEMENT IN AESTHETIC ZONE: 2-YEAR CLINICAL AND RADIOGRAPHIC OUTCOMES**

*Autori-Authors:*

**Davide Gugliemi, Roberto Castellano**

*Studio Dentistico Zemella, Solbiate Olona, Italy*

#### **Clinical evaluation/ Diagnosis**

The patient, a 48-year old female, came to visit aching in the right maxilla. No systemic pathology are reported. The clinical examination shows a fistula in the buccal mucosa of element 1.5. The Periodontal Screening Recordings (PSR) was less or equal to 2 in all the sextants and Bleeding on Probing (BOP) and Plaque index (PI) in sextant I was negative. Periapical RX shows a large radiolucency lesion around the third and apical middle of the root. This element was crowned for more than ten years, and hypermobile at the palpation. All these signs justify the vertical fracture diagnosis. According to the patient, the decision was to proceed with extraction and guided bone regeneration. After 7 months implant-prosthetic rehabilitation.

#### **Treatment goals**

Today the clinician has the possibility to choose between four different treatment options, for post-extraction implant placement as defined by the ITI Consensus Conferences (2003). In the anterior maxilla, the esthetic outcome and its long-term esthetic stability is one of the primary therapy's endpoint, obviously added to the proper function and phonetics. Late implant placement (type 4) is used when it is strictly necessary because from the patient's point of view, this is not an attractive treatment option, because of a long time healing period. However, there are indications for late implant placement because a large apical bone lesion. In this type of case it is strongly recommends to perform a post extraction socket grafting as a ridge preservation procedure or bone regeneration technique. There is ample evidence that socket grafting for ridge preservation is an effective surgical technique to significantly reduce ridge alterations like atrophy.

#### **Description of clinical/surgical procedures**

An intrasulcular flap was raised passing by a papilla preservation technique between 1.4 and 1.3. After removing the crown the root fracture was evident and the extraction was performed; after that the socket was carefully debrided and rinsed. The bone defect was filled with deproteinized bovine bone mineral (DBBM) particles. The augmentation material was covered with a resorbable bilayer collagen membrane. The surgery was then completed with a tension-free secondary wound closure with PTFE sutures, removed after 2 weeks. 7 months after, periapical RX was performed to define diameter and implant length. The 2nd surgical step passed by a crestal incision in the edentulous area. After implant site preparation a Prama Implant (Sweden&Martina) (3.8 mm diameter - 11.5 mm length) was positioned. The surgery was completed with a tension-free secondary wound closure with PTFE sutures, removed after two weeks. 4 months after implant surgery, the patient was passed to the prosthodontist attention.

#### **Clinical outcomes**

The success of implant-supported restorations depends on the interaction between a number of anatomical, technical, surgical and prosthetic factors. The restorative-driven implant placement allows the optimal support of the surrounding soft tissues and a satisfactory emergence profile of the final prosthesis. As told by the proceedings of the 4th Consensus Conference of the European Association for Osseointegration (EAO - 2015) the implant treatment outcomes ARE: - satisfactory primary stability; - absence of further ridge augmentation procedures during implant placement for the management of residual dehiscence or fenestration defects; - implant survival and implant success; - marginal bone levels; - BOP and PI negatives. In this case, it seems that we obtained all the primary and secondary goals at two years follow up.

## **Area 1** – Implantologia / *Implant Dentistry*

### **IMPLANTS PLACED IN AREA RECONSTRUCTED WITH AUTOGENOUS HORIZONTAL BONE GRAFT**

*Autore-Author:*

**Fulvio Gatti**

*Private Practive, Parabiago (Milano), Italy*

#### **Clinical evaluation/ Diagnosis**

Luisa is a 54 year-old woman, no-smoker patient with a good state of general health; she presented a partial edentulism of the upper and lower jaw. She lost some of her teeth due to a severe periodontal disease during the last 20 years and the upper prosthesis was modified many times. In the mandible the patient wore an overdenture prosthesis supported by 3 teeth. The patient's main complaint was the lack of stability and retention of the upper overdenture prosthesis supported by 5 compromised teeth. On clinical examination a severe horizontal atrophy of the right side of the upper jaw was noted; computer tomography revealed an extreme horizontal resorption of alveolar ridge that didn't permit a correct implants insertion.

#### **Treatment goals**

Periodontal treatment (SRP) on the residual teeth was performed in order to eliminate the active infections. To satisfy the patient's requests who asked for a new fixed prosthesis in the upper jaw for chewing properly, first of all the treatment plan consisted to perform a horizontal bone reconstruction using a bone graft harvested from the mandibular ramus. After 5 months, thanks to the new bone formation, 3 implants (Thommen medical) were placed in the reconstructed area and other 3 implants were placed in native bone (opposite side) of the upper jaw. During the prosthetic loading 4 months later, the residual compromised teeth of the maxilla were removed and 2 months later the treatment plan provided to insert 2 other implants to complete the surgery. That should permit to realize a final fixed prosthesis supported by implants. The residual teeth maintained during the healing period in the upper jaw were used to avoid a removable prosthesis that could stress the reconstructed ridge.

#### **Description of clinical/surgical procedures**

The first intervention was the reconstruction of the atrophic site using onlay bone graft harvested from mandibular ramus. The choice to use an intraoral site was dictated by the extent of the defect. A full-thickness flap was raised on the right mandibular ramus, with a piezoelectric device 4 osteotomy lines were designed to reach the cancellous bone and using a scalpel the bone block was detached; suture were applied. The reconstruction began with the elevation of a full-thickness flap to expose the area of defect, block was modeled and fixed to the basal bone with 2 micro-screws. Some resorbable biomaterials were laid over the graft and covered with collagen membrane to reduce the risk of bone resorption. Periosteal incision was performed to allow a tension-free closure of the flap. 5 months later was scheduled the screws removal and implants placement; a coronally positioned palatal sliding flap was performed to obtain a good quantity of keratinized mucosa around implants.

#### **Clinical outcomes**

In this clinical case the area reconstructed with autogenous cortical bone graft from mandibular ramus would seem to present a very limited bone resorption. The behavior of the 3 implants placed in the reconstructed bone was comparable with the other 5 implants placed in native bone. No significant differences were observed in terms of survival rate of implants and peri-implant bone resorption after 2 year of follow-up. The final prosthesis supported by implants satisfied the patient's requires.

## **Area 1** – Implantologia / *Implant Dentistry*

### **THE SURGICAL RESTORATION OF A MISSING TOOTH**

*Autore-Author*

**Stefano Tinti**

*Studio Odontoiatrico Tinti, Flero (Brescia), Italy*

#### **Clinical evaluation/ Diagnosis**

Marco, 34, designer, wants to add element 46 removed 2 years before. No medical conditions present. Not a smoker. Good oral hygiene, He admits to be particularly aggressive when brushing teeth. Twice a year he has a professional session of oral hygiene. From the frontal view we can see the median line shifted to the right, lower incisors are mesio-rotated. We appreciate gingival recessions on 1.3,1.4,1.5,1.6,2.2,2.4,2.5,3.4,3.5,3.6,4.4,4.5. On the right side he presents a 2<sup>nd</sup> Angle Class, on the left a 1<sup>st</sup> Angle Class. Overjet and overbite are normal. Radiographic status and periodontal indices: No cavities. No endodontic nor periodontal lesions,. Good and well represented lamina dura around teeth. Amalgam restorations on elements 1.6,2.7,3.7. Resin restorations on 2.6,4.7,3.6. Presence of one wisdom tooth (2.8). The BOP index is 3.6%, the Plaque index is 0,2%. Periodontal health of the patient is good.

#### **Treatment goals**

The first goal is to teach the patient how to clean the teeth since he admitted to be rough with the toothbrush and since we have to do the implant surgery. All the recessions are completely not sensitive and the patient does not have any kind of esthetic request. The surgical aim is the placement of an implant in the area of 4.6 in a correct prosthetic position knowing that we are going to need a regenerative surgery in the buccal area due to the resorbed bone crest, as evaluated from the CBCT exam.

#### **Description of clinical/surgical procedures**

Incision starts mesial to the canine (hockey stick), papillae on premolars are cut at the base, then intracrestal on the empty area and then intrasulcular until the distal part of 4.7 with a releasing incision. Reason behind such an extended flap is because I will need to harvest bone from the retromolar area with a scraper and I need a tension free flap, and I want to visualize the alveolar nerve. I raise full thickness flap on both sides, place surgical mask and start with piezoelectric instrument to drill the bone. Then with calibrated burs I go on until I place the implant (more than 30 NW primary stability). With a scraper I harvest bone chips from retromolar area and cover the dehiscence buccal to the implant, place a resorbable collagen membrane and suture both with 6.0 resorbable suture (horizontal mattresses) and ptfе 4.0 suture (simple knots and anchored suture). At 2 weeks I remove the sutures and wait 9 months.

#### **Clinical outcomes**

At 9 months I reopen the implant for the second stage surgery. I open a full thickness flap in the implant area to check the new regenerated tissue and then apply the healing abutment and suture with 4.0 ptfе with simple knots. I do not consider necessary a connective tissue graft on the implant because from the vestibular mucogingival line to the lingual mucogingival line there are 4 mm of keratinized mucosa. After 1 month from the 2nd stage surgery I start with the prosthetic part, with the crown being made of lithium disilicate. As seen in the picture comparing before and after there is a good integration of the crown and the implant and recessions on premolars are completely covered.

## **Area 1** – Implantologia / *Implant Dentistry*

### **GBR AND IMPLANT REHABILITATION IN AESTHETIC AREA WITH MASSIVE BONE RESORPTION**

*Autore-Author:*

**Alfonso Coscarella**

*Private Practice, Grosseto, Italy*

#### **Clinical evaluation/ Diagnosis**

Clinical evaluation: Massive mobility of 1.1 with a fused metallic post and crown. Massive periodontal inflammation and pus. B.o.P 90%, P.I. 80%. Diagnosis= vertical root fracture of 1.1 and massive vestibule and palatine bone resorption.

#### **Treatment goals**

Reconstruction with GBR of vestibular and palatal bone and in second stage an implant insertion and after a prosthetic rehabilitation with an excellent white and pink score.

#### **Description of clinical/surgical procedures**

First day: One stage full-mouth disinfection, full thickness flap, gentle extraction of 1.1, accurate debridement, and GBR with a bone substitute (porcine bone) and a long term resorption collagen membrane. After 8 months re-entry, biopsy with a trephine bur (2,8 diameter), piezosurgery bone preparation and self tapping implant insertion. Covered healing. After 4 months second surgery, healing abutment and fibromucosa augmentation with connective tissue graft. After 2 months a screwed provisional and after 1 month a titanium stock abutment and a zirconia ceramic crown cemented.

#### **Clinical outcomes**

In histologic preparation after 8 months of healing is possible to appreciate the contact between the bone substitute and new bone in area where there was not bone in the first surgery. Not BOP, Isq rate 80%. Clinically and in X-ray you can appreciate a very good bone and fibromucosa healing after 12 months and an elevated pink and a good white score.

Slide

## **Area 1** – Implantologia / *Implant Dentistry*

### **MANAGEMENT OF SEVERE CHRONIC PERIODONTITIS IN A PATIENT AT ENDOCARDITIS RISK: 10-YEAR OUTCOMES IN THE MAXILLA AND 2-YEAR IN THE LOWER JAW**

*Autore-Author:*

**Vincenzo Foti**

*Private Practive, Genova, Italy*

#### **Clinical evaluation/ Diagnosis**

Woman 68 years old, non smoker. Mitral valve prosthesis. Family history of periodontitis. In March 2007 severe endocarditis treated in hospital for 1 month. Came to my observation: Plaque 95%, BOP 89%, Probing >6 mm in 55% of sites. In upper jaw mobility 3 of anterior teeth and pillar 1.6. Fracture of 2.4. Fracture of pillar teeth 1.4-2.5-2.6 for destructive caries. After non-surgical periodontal therapy, extracted maxillary teeth and placed 10 immediate implants with screwed provisional bridge. Cemented a metal-ceramic restoration 6 months later. After 6 years of periodontal maintenance, she changed dentist. In January 2015 the patient back to my office after extraction of 3.5-3.6 and suppuration in site 3.1-3.2. UPPER JAW: No Plaque, no BOP, MPD 1.7 mm. LOWER JAW: Plaque 70%, BOP 53%. Probing >6 mm in 32% of sites. Rupture of anterior splint. Mobility 3 of incisors and tooth 3.4. Crestal atrophy in site 3.5-3.6. DIAGNOSIS: Severe Chronic Periodontitis in Patient at Endocarditis Risk.

#### **Treatment goals**

Prevent a new endocarditis. Arrest the periodontal disease progression. Remove the compromised teeth with immediate post-extraction implants and soft-tissue conditioning. Implant with 3d bone augmentation in the third quadrant by a low-risk regenerative technique. Functional and aesthetic restoration by bridges on implants and crowns on residual teeth.

#### **Description of clinical/surgical procedures**

Non-surgical periodontal therapy combined with systemic therapy: Amoxicillin & Metronidazole for 1 week. AFTER 1 MONTH: Surgical treatments. Amoxicillin 2 g 1 hour before, Chlorhexidine 0.12% for 1 min, Midazolam 0.15 mg/kg i.v. (Conscious Sedation) by consultant anesthetist. Extraction of teeth 4.2-4.1-3.1-3.2-3.4. Immediate implants 3.3x16 mm in site 4.2-3.2 with "One Abutment-One Time" concept. Immediate implant 4.1x13 mm in site 3.4. Implant 4.1x11 mm in site 3.6, with platform 5 mm out ridge, and 3d bone augmentation by fibrin sealant (Tisseel, Baxter) mixed with autologous/equine graft. Tisseel membrane intraoral performed (personal technique). No conventional barrier to prevent early exposure and infection risk. Immediate provisional bridge on implants 4.2-3.2. Provisional crowns on residual teeth 4.6-4.5-4.4-4.3-3.3. AFTER 8 MONTHS: Reentry on 3.4-3.6. AFTER 2 MONTHS: Final restoration by titanium abutments on 3.4-3.6, zirconia bridges on implants and zirconia crowns on teeth.

#### **Clinical outcomes**

UPPER JAW. After 10 years: Keratinized tissue stability around implants. Papillae preserved. Soft-tissue creeping in site 1.4-1.3-1.2-2.1 compared to initial status. Small vestibular recession on abutment 2.3. No Plaque, no BOP. Mean probing depth 1.7 mm. Intraoral x-rays: 10-year functional remodeling of marginal bone around implants. No peri-implantitis. LOWER JAW. 8 month-CBCT from 3d GBR in site 3.6: Horizontal Gain +11 mm, Mean Vertical Gain +4.5 mm. After 2 years: Keratinized tissue stability around teeth and implants. Papillae preserved. Soft-tissue creeping in implant site 4.2-3.2 compared to initial status. Intraoral x-rays: 2-year stability of the marginal bone around implants 4.2-3.2-3.4. Marginal bone loss 1 mm around implant 3.6 compared to bone level achieved 8 months after GBR. UPPER AND LOWER JAW. Periodontal index and probing after 10 years versus initial exam: Plaque 4% vs 95%, BOP 2% vs 89%, Mean Probing Depth 1.7 mm vs 5.5 mm, Mean Attachment Level -2 mm vs -5.9 mm.

## **Area 2** – **Trattamento interdisciplinare / Interdisciplinary Treatment**

### **CASE REPORT: TREATMENT OF THE ENDODONTIC-PERIODONTAL LESION**

*Autori-Authors:*

**Giovanni Maino, Andres Pascual, Rosario Puglisi, Antonio Santos, Jose Nart**

*Universidad Internacional de Catalunya, Barcelona, Spain*

#### **Clinical evaluation/ Diagnosis**

A 46-year-old woman attends the Department of Periodontology of the University. After the clinical examination, a vertical defect with a depth of 12 mm was observed at level 2.3. Radiographically presents endodontic treatment and a periapical lesion combined with a vertical 1, 2 and 3 walls combined intrabony defect. In combined Endodontic - Periodontal (EP) lesions, teamwork is essential to make a correct differential diagnosis and to establish an adequate treatment plan. Interdisciplinary work should be done with the aim of improving the prognosis of the affected tooth.

#### **Treatment goals**

To present a case of EP lesion treated through a multidisciplinary periodontal and endodontic approach, improving tooth prognosis and maintenance.

#### **Description of clinical/surgical procedures**

The lesion was treated interdisciplinarily by the Departments of Periodontics and Endodontics. First, scaling and root planing followed by an initial re-endodontic phase (crown lift, post removal, instrumentation, and provisional calcium hydroxide application) were performed. One month after, Guided tissue regeneration (GTR) was performed using demineralized allograft and cross-linked collagen membrane. At two weeks, the canal obturation was performed with the technique of vertical condensation with thermoinjected gutta-percha. Clinical assessments such as probing depth, clinical attachment level, bleeding on probing, plaque index were performed at 6 and 12 months post-op. Radiographic assessments were taken with 2D and 3D techniques.

#### **Clinical outcomes**

The efficacy and stability of the treatment were evaluated clinically and radiographically at the reassessment at 6 and 12 months post treatment. At the last evaluation insertion gain of 8 mm was recorded associated to a decrease in probing depth of 9 mm. These findings improved the prognosis of the tooth and facilitated its maintenance. The protocol used has proven to be an adequate and stable treatment plan for the management of EP lesions. However, the long-term prognosis will depend on plaque index and patient compliance in the periodontal maintenance program.





## **Area 2** – **Treatment interdisciplinare / Interdisciplinary Treatment**

# **9 YEAR FOLLOW UP OF A MULTIDISCIPLINARY TREATMENT OF A SEVERE GENERALIZED AGGRESSIVE PERIODONTITIS CASE**

*Autori-Authors:*

**Darko Božić \***, **Aleksandar Gulin<sup>o</sup>**

*\*Assistant prof., Department of Periodontology, School of Dental Medicine, Zagreb, Croatia*

*<sup>o</sup>Orthodontist, private practice, Zagreb, Croatia*

### **Clinical evaluation/ Diagnosis**

At the end of 2007 a 36y non-smoking female patient first presented herself together with an old panoramic radiograph. Following initial clinical examination it was decided to extract teeth number 26 and 46 with severe class III furcation involvement. In February 2008 she returned for initial periodontal treatment at which time periodontal charting was done and clinical photos were taken. A diagnosis of severe generalized aggressive periodontitis was given. The patient had FMPS and FMBS were 35-40%, radiographic evaluation showed more than 50% bone loss on almost all teeth in the upper jaw, and in the majority of teeth in the lower. Diastemas and protrusion of the upper and lower frontal teeth was seen.

### **Treatment goals**

1. Initial treatment with at least one year follow-up prior to surgical treatments. 2. Regenerative periodontal therapy on remaining periodontal pockets. 3. One year following surgical procedures orthodontic therapy 3. Implant placement in position 26 and 46 4. Prosthodontic rehabilitation of tooth 22 and implants

### **Description of clinical/surgical procedures**

Following initial periodontal therapy the patient was recalled every month for the first year. One year after the onset of treatment the pockets were probed again and active pockets were retreated. Patient was put again on a frequent recall program. In 2011 it was decided to begin with regenerative periodontal surgery on several teeth, minimally invasive surgery with only a blood clot was done on teeth 14,35,36,37. On tooth 47 a regenerative procedure utilizing Bio-oss and Bio-guide was done with simultaneous GBR in position 46. One year after the procedures, lingual orthodontic treatment started, maintaining space in the area 26 & 46 for future implant placement. A few months before the end of the orthodontic treatment implants were placed. Two single crowns were cement-retained on implants, and an emax crown on 22. In 2015 PPD showed a 6mm pocket on the mesio-palatal site of tooth 27, it was decided to make a minimally invasive regenerative procedure with EMD and allogenic bone.

### **Clinical outcomes**

In the 9 years of follow-up of a severe generalized aggressive periodontitis case, only 2 teeth were extracted, which were deemed unmaintainable from the beginning. Many intrabony defects healed only on initial therapy, while combined surgical-orthodontic therapy successfully restored periodontal health, assessed by shallow PPD and radiographic evidence of bone gain. Implant therapy after a follow-up of 3.5years has shown stable bone levels with some radiographic evidence that on implant 46 there is even bone gain. In 2017 PPD revealed some loss of periodontal support compared to 2015 with several pockets with 5mm PPD. The 2017 panoramic radiograph showed maintenance of bone gains over the years. FMPS and FMBS were 20% and 16%, respectively.

**Area 3 – Chirurgia Mucogengivale / Mucogengival Surgery**

**POST ORTHODONTIC THERAPY RECESSION DEFECTS: COMPLETE ROOT COVERAGE OF A MILLER CLASS 3 RECESSION DEFECT BY MEANS OF FGG+LMCAF AND OF A MILLER CLASS 1 WITH CAF+CTG. 3 YEARS FOLLOW UP**

*Autore – Author:*

**Cristiano Littarru**

*UCSC Rome, Italy*

**Clinical evaluation/ Diagnosis**

*Clinical Evaluation:* presence of two recession defects in a healthy 36 yrs old woman (ASA PS 1) with no history of periodontal disease. Patient came to my attention referring hypersensitivity and progressive tissue recession on teeth 14 e 41 two years after completing Orthodontic therapy. At the visit time is the presence of a fixed retainer (round wire) in Sextant 5, a wide and deep recession defect with 1mm of interdental attachment loss on tooth 41 associated with vestibular root tilting and lack of keratinized tissue, and a recession defect on tooth 14 with lack of keratinized tissue and aberrant frenum. *Diagnosis:* Tooth41 Miller Class3 recession defect. Tooth 14: Miller Class I recession defect.

**Treatment goals**

1) To align displaced root by means of orthodontic correction, 2) To obtain complete roots coverage and give the patient enough keratinized tissue in the lacking sites and 3) Give the patient a better feeling concerning hypersensitivity.

**Description of clinical/surgical procedures**

After the removal of supragingival plaque and calculus, and having led the patient to maintain a suitable plaque control (in terms of PI and GI) giving her the correct Oral Hygiene Instructions, Orthodontic treatment of the only lower arch has allowed to carry the root, as much as possible, in the arch together with an alignment of the only crown of tooth 41. The orthodontic correction determined a 1 mm reduction in deep of the recession defect. Subsequently, in order to create a new band of keratinized tissue, a free gingival graft was performed in the area adjacent the recession and, awaited the maturation period, the same FGG has been used to go to cover the recession defect by means of a Laterally Moved Coronally Advanced Flap. Concerning tooth 14 the recession defect and the aberrant frenum were surgically treated by means of a single CAF with trapezoidal incision with the adjunct of a subepitelial CTG harvested from the palatal side of second premolar and first molar area.

**Clinical outcomes**

At 30 months control, patient demonstrates compliance with the supportive periodontal therapy and feels comfortable with hypersensitivity. Surgical treatment determined a complete root coverage and a very good integration with the surrounding tissues with an increased amount of keratinized gingiva of about 3mm for both teeth and an increased tissue thickness of about 2 mm for both teeth.



### **Area 3** – Chirurgia Mucogengivale / *Mucogingival Surgery*

## **A MUCOGINGIVAL ONE-STEP TECHNIQUE FOR THE TREATMENT MILLER CLASS III RECESSION DEFECTS AT MANDIBULAR ANTERIOR AREA IN PATIENTS WITH A SHALLOW VESTIBULE**

*Autore-Author:*

**Alina Martirosova**

*Msmsu named A.I. Evdokimov, Moscow, Russia*

### **Clinical evaluation/Diagnosis**

Multiple Miller class III Recession Defects

### **Treatment goals**

To perform a mucogingival technique for the predictable covering of multiple gingival recession Miller's class III at lower incisors and increasing the vestibular depth by one-step procedure.

### **Description of clinical/surgical procedures**

After a local anesthesia the initial horizontal incision was performed in the alveolar mucosa 5 mm apical from the gingival margin one tooth-width lateral from the gingival defects. Afterward, an intrasulcular incision was made through each recession from apical to coronal by using ophthalmic scalpel without severing the gingival papilla. Vertical releasing incisions were not made. A performed split-thickness flap was raised to cover recession defects area and stabilized by sling 6-0 Polypropylen suture. The free gingival graft was harvested from the palate and placed below the primary flap forming the adequate vestibule. The FGG was fixed using single and mattress sutures. The donor area was covered by hemostatic sponge and sutured using horizontal mattress sutures. Sutures were removed after 2 weeks. Recall appointments were scheduled weekly for the first month, through the 3 and 6 month after the surgery.

### **Clinical outcomes**

Postoperative healing was uneventful. The periodontal parameters at baseline together with 3,6 month outcomes are compared. The percentage of closure of gingival recession was more than 80%. Clinically significant increase in width of vestibule were obtained.

### **Area 3 – Chirurgia Mucogengivale / Mucogingival Surgery**

## **MUCOGINGIVAL SURGERY (TUNNEL TECHNIQUE)**

*Autore-Author:*

**Ziad Sijari**

*University of Turin, Turin, Italy*

### **Clinical evaluation/ Diagnosis**

The patient came to our department sent by her private dentist. She is a 25 years old nonsmoker healthy patient with nothing in the recent or past medical anamnesis. Sensitivity and Bleeding especially in the third and fourth quadrants due to gingivitis and recessions. At the clinical examination the patient presented diffuse plaque, calculus in the lingual aspect of the 5th sextant, and multiple recession class I,II and III of Miller in the 3rd and 4th quadrants with loss of attached gingiva and thin gingival biotype. Full mouth plaque score was ~ 40% and bleeding score was ~30% and all the site showed a probing depth  $\geq 4$  mm. No Furcation involvement and no mobility. The diagnosis was Gingivitis, according to the AAP classification.

### **Treatment goals**

The first phase (etiologic treatment) was to give correct instruction of oral home hygiene and to motivate the patient. Scaling and polishing was done on a quadrant protocol in 2 weeks, without the use of adjunctive therapies. During etiological therapy temporary filling were placed on decayed tooth (3.6). At re-evaluation the periodontal situation improved and the patient was ready to the second phase of the treatment (Surgical phase) to cover the recession, increase the attached gingiva and improve the gingival biotype.

### **Description of clinical/surgical procedures**

In 3<sup>rd</sup> and 4<sup>th</sup> quadrant, the clinical analysis showed multiple teeth recession (3.1 to 3.4 and 4.1 to 4.4) with class I,II,III of Miller and loss of attached gingiva, and we decided for a Tunnel technique (Zabalegui 1999, Zuhr 2007) with Connective tissue graft from the palate. Following initial sulcular incisions with a microsurgical blade, tunnelling knives were used to undermine the buccal gingiva by means of a split-thickness flap preparation and preserve the papilla, aiming for the preparation of a continuous tunnel in the buccal soft tissues of the recessed area and extended well into the mucosal tissues in order to gain sufficient flap mobility. CTG was harvested from the palate and then inserted into the tunnel. Suspended sutures in 6-0 Vicryl were performed, Small parts of the CTG were left uncovered to achieve a harmonious line of the gingival margin. Patients were instructed to avoid any mechanical trauma in the surgical sites for 2 weeks, Sutures were removed after 2 weeks.

### **Clinical outcomes**

Clinically we note a good root coverage, an increase of the attached gingiva and an improvement of the tissue thickness and this results are stable until now (6 month from the surgical procedure).

SIDP

## **Area 4** – *Rigenerazione Parodontale /Periodontal Regeneration*

### **MINIMALLY INVASIVE SURGICAL APPROACH: A CLINICAL CASE**

*Autore-Author:*

**Andrea Pandolfi**

*University of Rome "La Sapienza", Aprilia, Italy*

#### **Clinical evaluation/ Diagnosis**

A generally healthy patient, S.L., 60 years old female, presented a periodontally healthy condition with a family history of periodontal disease.

She has gastroesophageal reflux and she can not take anti-inflammatory drugs. She is a non smoker.

The patient has recently completed orthodontic treatment. She presented the clinical condition of a 4.1 tooth with 7 mm distal probing depth.

The periolontal defect, after probing and the periapical radiographs, presented a well-contained defect on the distal aspect.

The diagnosis is localized aggressive periodontitis.

#### **Treatment goals**

It was proposed to perform periodontal surgery in order to solve the periodontal defect with a tissue regeneration and minimal invasive approach.

The patient's goal was also to limit or avoid the use of anti-inflammatory drugs.

#### **Description of clinical/surgical procedures**

A minimal flap incision was performed with micro-blade in order to apply modified minimally invasive surgical techniques (M-MIST).

The granulation tissue was dissected with micro-blade and the periodontal defect was debrided carefully by means of mini-curettes in order to maintain the contained characteristics of the surgical site.

The root surface was gently scaled and planed by the combined action of mini-curettes and sonic/ ultrasonic instruments and then the application of EDTA for 2 minutes on the dried root surface was applied.

The regenerative approach was performed with the use of enamel matrix derivatives.

The modified internal mattress suture, 6-0 non-absorbable monofilament, was applied.

#### **Clinical outcomes**

The suture was removed after 1 week.

No pain was reported after surgery and no anti-inflammatory drug has been taken by the patient during the first week and for the entire period of healing.

Full healing and a reduction of periodontal defects was obtained and the outcome was maintained at 2 years follow-up.



## **Area 4** – Rigenerazione parodontale / *Periodontal Regeneration*

# **REGENERATIVE THERAPY AND CORONALLY POSITIONED FLAP TECHNIQUE IN THE MANAGEMENT OF FIRST UPPER MOLAR FURCATION DEFECTS**

*Autore – Author:*

**Adriano Fratini**

*University of Turin, Turin, Italy*

### **Clinical evaluation/ Diagnosis**

The patient 26 years old, female, Maghreb, in good health condition, came at our attention because of tooth mobility, tooth migration and gingival bleeding. She reported a low stress level, negative familial aggregation for periodontitis and none previous periodontal treatments. She didn't smoke and she brushed her teeth with medium manual toothbrush 2 times a day. She was doing orthodontic treatment in Morocco for the tooth migration of second sextant. At baseline examination she presented high periodontal indexes (FMPS 94%, FMBS 72%) and severe periodontal probing depths localized on molars and elements 1.2, 2.2. The furcation of elements 1.7, 1.6, 2.6, 3.6, 4.6 and 4.7 were involved. The element 3.8 was impacted with a severe probing depth distal the element 3.7. According to Armitage 1999 the diagnosis was Localized Aggressive Periodontitis (Type III A)

### **Treatment goals**

The treatment goals of the complete periodontal therapy were: control of the supra and sub gingival infection, FMPS/FMBS <20%, arrest of the progression of the periodontitis, bundle bone remineralization and radiographic presence of the lamina dura, furcations closure, reduction in probing depth and clinical attachment gain.

### **Description of clinical/surgical procedures**

An envelope-type flap was made from the mesial buccal aspect of the 1.6 to the distal surface of the 1.7. A modified papilla preservation technique was used in the interproximal space of the vertical bony defect. The interdental tissue mesial the element 1.6 was dissected split-thickness up to the level of the buccal bone crest; the buccal gingival tissue was elevated full-thickness to expose 3mm of buccal bone, whereas the most apical portion of the flap was elevated split-thickness to facilitate the coronal displacement of the buccal flap in order to cover the furcation. After the removal of the granulation tissue, deproteinized bone replacement material mixed with Amelogenine was applied to overfill the defects. A tension-free primary closure of the interdental papilla upon the bony defect was achieved using a apical internal horizontal mattress suture and a coronal modified mattress suture. The vertical releasing incisions were closed with interrupted sutures.

### **Clinical outcomes**

At 24 months of follow-up the patient has no more sites with PD  $\geq$  4 mm (Badersten et al. 1990; Claffey et al. 1990). Clinical attachment gain and complete closure of the furcation defects are registered. The periodontal indexes are under control: FMPS is 8% (Rosling et al. 1976; Axelsson & Lindhe 1981; Axelsson 2004; Eicholz 2008) and FMBS 8 % (Lang et al. 1990; Joss et al. 1994, Trombelli 2006). From the radiographic point of view we can appreciate the presence of lamina dura, the filling of vertical defects and the furcation. The patient has a high level of compliance. According to the periodontal risk assessment (Lang & Tonetti 2003) she has a medium level of risk and the suggested recall interval is every 6 months.

## **Area 4 – Rigenerazione parodontale / *Periodontal Regeneration***

### **PERIODONTAL REGENERATIVE SURGERY ON UPPER RIGHT CANINE**

*Autori-Authors:*

**Martina Audagna, Giacomo Gualini, Giulia Maria Mariani, Mario Aimetti**

*Department of Surgical Sciences, C.I.R. Dental School, University of Turin, Italy*

#### **Clinical evaluation/ Diagnosis**

The patient came to our attention to solve tooth mobility, gingival bleeding and pain. He is a middle age former smoker patient with diagnosis of type 2 diabetes 7 years ago. He controls this pathology with Metformin 1 g twice a day. Generalized gingival bleeding and tooth mobility in the 3rd sextant were the main periodontal symptoms and there was a supposed absence of familiarity. At the clinical examination the patient presented high quantities of plaque and calculus, edema, inflammation and bleeding on probing. FMPS and FMBS were around 55%, all teeth had sites with PD  $\geq$  4 mm, more than 50% of the sites had severe probing depths, mainly located in the posterior areas. Furcation involvement of III degree was present at 2.6 and II degree at 3.6, 4.6, 2.7. II degree mobility was present at 2.6 and 2.7. The patient was then diagnosed with Generalized Chronic Severe Periodontitis, according to the AAP classification, and Level I Periodontitis, according to the EFP classification.

#### **Treatment goals**

Treatment was developed according to the literature (Badersten 1984, Serino 2001, Axelsson 2004). The first phase was the instruction and the motivation of the patient in the domiciliar plaque control. Scaling and root planing was done on a quadrant protocol in 4 weeks, without adjunctive therapies. During etiological therapy 2.6 and 2.7 were extracted (hopeless teeth, Kwok 2007) and fillings were placed on decayed teeth. Occlusal contacts were adjusted throughout all the treatment period. Considering the bruxism of the patient, a night guard was realized. At reevaluation the periodontal situation improved, but the FMBS was still high, and residual pockets and furcation involvement were still present in the 2nd, 4th and 6th sextants. Therefore, we decided to go on with surgical treatment (Renvert 2001, Matulienė 2008), in order to eradicate the probing pocket depths  $\geq$  5 mm and to diminish the risk of periodontitis relapse after the active periodontal therapy (Lang & Tonetti 2003).

#### **Description of clinical/surgical procedures**

In the 2nd sextant, the overall clinical and radiographic analysis of the residual defect mesial to 1.3 led us to consider a regenerative approach as ideal therapy. The interproximal space wider than 2 mm permitted to perform a modified papilla preservation flap (Cortellini 1995). We decided to extend the incision in the interproximal space between 1.3 and 1.4 to have a complete access to the defect and to avoid vertical releasing incisions. After the degranulation, an infrabony 2 and 3 walls defect was present. Its depth was 5 mm. Giving this defect's morphology, containing, deep and narrow, the use of a membrane was not deemed necessary (Cortellini 2005) and the combination of amelogenins and bone substitute (Lekovic 2000, Sculean 2008) was chosen for the regeneration. Horizontal internal mattress and simple suture in 6-0 e-PTFE were used to obtain primary wound closure and stability. Controls with coronal polishing were done weekly for the first month and suture was removed after 2 weeks.

#### **Clinical outcomes**

It can be appreciate radiographically, by the periapical 12-months control x-ray, that the regenerative procedure seems to be resulted in a complete fill of the defect. Clinically the probing depth of the site decreased under the 4 mm threshold of the treatment goals.

## **Area 4** – Rigenerazione parodontale / *Periodontal Regeneration*

### **GTR OF AGGRESSIVE-PERIODONTITIS-ASSOCIATED INFRABONY AND FURCATION LESIONS: 1 YEAR RESULTS**

*Autore-Author:*

**Suzana Milavec, Rok Gašperšič**

*Health Centre Nova Gorica, Ljubljana, Slovenia*

*University of Ljubljana, Faculty of Medicine and University Medical Centre Ljubljana, Slovenia*

#### **Clinical evaluation/ Diagnosis**

A 45-year-old male patient was referred to the Department of Periodontology, UMC Ljubljana for treatment of generalized aggressive periodontitis (GAP). The initial examination revealed 26 sites with pocket depths up to 13 mm and bleeding on probing at upper premolar and upper and lower molar regions. Oral hygiene was excellent (PI = 0%, GI = 3,6%). The patient was in good general health, non-smoker, did not report any allergic reaction and did not take any medications. His mother lost her teeth in early adulthood period. Panoramic radiograph and periapical radiographs of molars and upper premolars were obtained and demonstrated lucent lesions at the furcations of teeth 27, 37, 46, 47 and severe periodontal bone loss at right lower molars and second left molar. GAP diagnosis (Armitage 1999) was confirmed on the basis of the pattern and severity of affected teeth, low plaque score, positive family history and attachment loss more than 1 mm/year.

#### **Treatment goals**

The primary goal was to improve overall periodontal health by reducing periodontal tissue inflammation with non-surgical mechanical debridement followed by systemic antibiotic therapy with amoxicillin 500mg and metronidazole 400mg for 10 days (van Winkelhoff et al., 1996). The secondary goal was to treat the angular bony and furcation defects in the lower right molar region with a guided tissue regeneration procedure (Karring et al., 1999, Tonetti et al., 2004).

#### **Description of clinical/surgical procedures**

Full mouth disinfection (Quirynen et al., 1995) was completed within 24hrs and systemic antibiotic prescribed empirically (metronidazole (400mg) and amoxicillin (500mg), both tid for 10 days). At 3 months re-evaluation, remaining pockets around teeth 27, 36, 37, 46, 47 were re-instrumented. Three months later, for teeth 46 and 47 guided tissue regeneration procedure started with sulcular incisions and vertical releasing incision on mesial aspect of 45. Simplified papilla preservation technique was used to release inter-dental papillas. Full-thickness mucoperiosteal flaps were reflected, defect thoroughly cleaned and exposed root surfaces conditioned with EDTA. Bone graft (Gen-Os®, OsteoBiol®, Tecnos) and barrier membrane (Evolution Std, OsteoBiol®, Tecnos) was used for bony defects and wound closed with horizontal and vertical internal mattress sutures. Sutures were removed after 14 days. Patient was instructed to rinse with 0.2% CHX and not to perform mechanical oral hygiene in the treated area for 4 weeks.

#### **Clinical outcomes**

Post-surgical visits were scheduled at regular intervals to check for clinical and radiographic changes. After non-surgical periodontal therapy and systemic antibiotics administration, the number of diseased sites (PPD > 4mm and BOP) (Mombelli et al., 2013), decreased from 26 to 4 diseased sites in the region of teeth 46 and 47. After regenerative surgical therapy, teeth 46 and 47 demonstrated distinct clinical improvements. Probing depth of the affected sites had decreased to a maximum of 5 mm at one site without increase in gingival recession. Bleeding on probing was absent. Radiographs obtained five and thirteen months after surgical therapy showed reduction of the bony and furcation defects.



## **Area 4 – Rigenerazione parodontale / Periodontal Regeneration**

### **REGENERATION OF A VERTICAL DEFECT ON ELEMENT 2.6**

*Autore-Author:*

**Giacomo Gualini, Martina Audagna, Francesco Ferrarotti, Mario Aimetti**

*Department of Surgical Sciences, C.I.R. Dental School, University of Turin, Italy*

#### **Clinical evaluation/ Diagnosis**

The patient, a middle age non-smoker healthy patient with nothing to report in the recent medical anamnesis, came to our attention sent by her private practitioner. She suffered from a brain stroke and a subdural ematoma without sequelae. Bleeding and abscess in the first sextant were the main periodontal symptoms, familiarity seems to be absent. At the clinical examination the patient presented high quantities of plaque and calculus, with edema, inflammation and diffuse bleeding. Full mouth plaque score and bleeding score were high (~80%) and almost half of the site of showed a probing depth  $\geq 4$  mm, mainly in the posterior areas and in the second sextant. Furcation involvement of II degree was present at second upper molars and first right upper molar. II degree mobility was present at second upper molars. The patient was then diagnosed with Generalized Chronic Severe Periodontitis, according to the AAP classification, and Level II Periodontitis according to the EFP classification.

#### **Treatment goals**

Treatment was developed according to the literature (Badersten 1984, Cobb 2002, Axelsson 2004). The first phase was the instruction and the motivation of the patients in the domiciliar plaque control. Scaling and root planing was done on a quadrant protocol in 2 weeks, with no adjunctive therapies. During etiological therapy hopeless teeth were extracted (Kwok 2007) and fillings were placed on decayed teeth. Occlusal contacts were controlled and adjusted throughout all the treatment period. At reevaluation the periodontal situation improved but the residual pockets still present in the posterior sextants appeared in need of further surgical treatment (Matuliene 2008). According to the residual defects morphology and distribution, resective or regenerative periodontal therapy was chosen aiming the complete eradication of the probing depth  $\geq 5$  mm by short junctional epithelium and diminishing the risk of periodontitis relapse after the active periodontal therapy (Lang & Tonetti 2003).

#### **Description of clinical/surgical procedures**

In the third sextant, the clinical and radiographic analysis of the residual defect mesial to element 2.6 suggested a regenerative approach. The interproximal space wider than 2 mm permitted to perform a modified papilla preservation flap (Cortellini 1995). After the degranulation, an infrabony mainly 3 walls defect was present on the mesial vestibular root. It did not affect the mesial furcation area and its depth was 6 mm. Giving the morphology, containing, deep and narrow, the use of a membrane was not deemed necessary (Cortellini 2005) and the combination of amelogenin and bone substitute (Cortellini 2005, Sculean 2008, Silvestri 2011) was chosen for the regeneration. Internal mattress and simple suture in 6-0 e-PTFE were used to obtain primary wound closure and stability. Controls with coronal polishing were done weekly for the first month and suture was removed after 2 weeks.

#### **Clinical outcomes**

It can be appreciated radiographically, both by the periapical and the bitewing 18 months control x-rays, that the regenerative procedure resulted in an almost complete fill of the defect. Clinically the probing depth decreased under the 5 mm threshold of the treatment goals. The papilla lost some height but there was a soft tissue maturation with a slight coronal regrowth of the interproximal tissues.

## **Area 4** – Rigenerazione parodontale / *Periodontal Regeneration*

### **PERIODONTAL REGENERATION THERAPY IN LOCALIZED AGGRESSIVE PERIODONTITIS**

*Autore-Author:*

**Maurizio Mazzella, Carmine Porciello**

*Private Practice, Napoli, Italy*

---

#### **Clinical evaluation/ Diagnosis**

The patient S.R. 23 years old, was sent by her orthodontist for a periodontal consultation. The reason for the visit was the flaring and extrusion of 1.1 associated with swelling on the palatine site. After periodontal screening and recording (PSR ) we realized that due to several problems in almost all sextants it was necessary a more accurate diagnosis. A diagnosis of severe localized aggressive periodontitis was then evident. The patient has no systemic diseases, she does not smoke, brushes her teeth three times a day, undergoes professional scaling once a year, but her parents have gingival problems and she has never been submitted to periodontal treatment. After one session of supragingival scaling, periodontal probing showed a 43% FMPS and 30% FMBS. After the intraoral radiographic examination it was noticed a widespread horizontal moderate resorption associated with deep intrabony defects against 1.1, extrusion in the absence of mobility. Intrabony defects mesial 1.6-4.6 and mesial and distal 3.6 .

#### **Treatment goals**

After oral hygiene instruction, improvements of lifestyles, scaling and root planing, Amoxicillin 500mg+Metronidazole 250 mg (3 times for seven days) immediately after sc+rp, we waited a healing period of five months. The re-evaluation took place a value of 13% FMPS and 11% FMBS, limit but acceptable values for corrective phase of nine sites with the re-evaluation probing over 5 mm. Treatment goals will be the clinical attachment gain, after periodontal regeneration of intrabony defects, bone filling, pocket depth reduction and reduction of gingival recession. Periodontal regeneration is stable over the long term provided that the patient is inserted in a program of maintenance (STP). Literature data indicate that ,in patients participating in a STP, 96% of the teeth ,with deep intrabony defects undergoing a regenerative treatment is maintainable for a period of fifteen years.

#### **Description of clinical/surgical procedures**

At the 1.1 site was performed GTR technique with pericardium absorbable membrane associated with xenograft. Incision with simplified papilla preservation technique (SPPT). Exposed the bone crest ,removed the granulation tissue with manual and ultrasonic instrumentation. A scaffold is inserted into the defect because it is wide and deep, to prevent the collapse of the membrane that is fixed with pins over the interdental space. Finally it is sutured with modified internal horizontal mattress suture. The intrabony defect mesial to 1.6 was operated with modified papilla preservation technique (MPPT), to open the flap and expose the buccal bone crest. Removed the granulation tissue with manual and ultrasonic instrumentation, edta 24% for 2 min.it is applied to the exposed root and then rinsed before applying Emdogain combined with Bioass to better support the clot. Finally it is sutured with modified internal horizontal mattress suture (Laurell-Gottowl)

#### **Clinical outcomes**

The case has obtained results, after non-surgical periodontal treatment with minimally invasive approach, in line with what reported in the literature for anterior and posterior teeth. The goal of periodontal therapy is a state of health, pocket with a maximum deep of 4 mm, without bleeding on probing, to maintain stability over time. Also there was great satisfaction by the patient for reduction of morbidity due to minimally invasive treatment. Considering the young age of the patient and a few pockets with deep greater than 4 mm at the re-evaluation, it was chosen minimally invasive surgery of 1.6 with m-mist, emdogain and bioass, and GTR on bone defect of 1.1 because was large circumferential palatine. The control in two years shows an improvement of treatment effects for maturation and regrowth of tissue, and the integration of the biomaterial. Very interesting periodontal regeneration obtained with non-surgical periodontal treatment (NSPT) of mesial 4.6.