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Young Clinicians Clinical Case Competition at the 3rd MIS Global Conference, Barcelona 2016



Young Clinicians Clinical Case Competition

At the 3rd MIS Global Conference, Barcelona 2016

During the first day of the 3rd MIS Global Conference, more than 300 people attended the young clinicians' case competition session where 5 doctors were invited to present their cases.

Chairing the event was Professor Gabi Chaushu, head of the Department of Oral & Maxillofacial Surgery at the Rabin Medical Center in Israel.

Out of the 49 cases submitted for review, the scientific committee, which included Professor Stefen Koubi, Professor Nitzan Bichacho, Dr. Eric Van Dooren and Professor Moshe Goldstein, chose the finalists out of which these 3 winners were ultimately chosen.

First place winner, Dr. Sophie Velghe from Belgium, presented her case "Analog Protocol of Individualizing the Soft Tissue Support Using the Original Root Fragments – Case Report", where she concluded that "The critical contour of the restoration influences the gingival margin level and zenith position. Copying the critical and subcritical contour from the natural tooth can optimize the clinical outcome by creating a better soft tissue profile."

The second place winner of the competition was Dr. Maria Ramos, also from Belgium. In her case, Dr. Ramos focused on "First Steps Towards Digital Protocol of Individualizing

the Soft Tissue Support Using a Printed Root". In her case study, Dr. Ramos concluded that "Management of anterior implant restorations demands a highly esthetic approach in order to obtain successful outcomes. The use of the V3 implant can help obtain better esthetic and long term results for implant-supported restorations."

Dr. Nelson Leon from Venezuela was the third place winner with his study on "Aesthetic Zone Management – The Socket Shield Technique". Dr. Leon presented his conclusions that "This technique represents an alternative in aesthetics procedures, maintaining hard and soft tissue architecture."

The runners-up were with his case on 'Singe Unit Central Match' - Dr. Dioracy Vicioso Martínez from the Dominican Republic and Dr. Enrique Runzer Colmenares from Peru focusing on 'IIPIP With V3 Implant and Esthetic Rehabilitation In the Anterior Zone'.

We are proud to present the top five selected cases in this clinical case competition.

Analog Protocol of Individualizing the Soft Tissue Support Using the Original Root Fragments – Case Report.

Dr. Sofie Velghe Policlinic dental clinic, Belgium

Introduction

The impending loss of a tooth in the esthetic zone can be a distressing experience for the patient. The implant restoration should emulate the natural dentition in terms of shade, shape, structure and size, as well as the optical properties. A multidisciplinary approach plays a significant role in achieving predictable treatment results. Among the guidelines for achieving excellence in anterior implant restorations many focus on maintaining and enhancing the volume of soft and hard tissue.

Case report

In 2015, a 68-year-old woman, in good health, ASA1, was referred to the office because tooth 12 was broken. The tooth was endodontically treated before and showed a vertical root fracture on clinical examination. (Fig. 1)

Methods

This case report describes the reconstruction of a lateral incisor in the anterior maxilla, using a guided immediate loading protocol. To achieve optimal support of the soft tissue the original root of the tooth was used to copy the natural profile. The case was analyzed before the planning. A full anatomic wax up was done with respect for the primary morphology of the crown. (Fig. 2). The patient was sent to the CBCT and the models were scanned before and after wax up for digital planning to use MGUIDE. There were limited possibilities for implant placement. So we planned the position in the most favorable bone conditions, and accepted a buccal screw hole. The old crown was easily removed and the fractures were clearly visible. (Fig. 3) So in order to be able to use the broken root, it first had to be fixed again. Before removal of the root there was a



Fig. 1 Initial situation with the old crown in place



Fig. 3 Fractured root



Fig. 5 Repositioning of the root in the impression



Fig. 2 Diagnostic full anatomic wax up



Fig. 4 Sequence of prosthetic and surgical steps



Fig. 6 Model with root



Fig. 7. Extraction of the root on the model



Fig. 9 Positioning the implant replica in the model



Fig. 11 Model with temporary cylinder



Fig. 13 Construction of the temporary crown



Fig. 15 New provisional in situ



Fig. 17 Cementation of the final crown



Fig. 19 10 days after placement, occlusal view



Fig. 8. MGUIDE



Fig. 10 Model with replica in situ



Fig. 12 Pretreatment of temporary cylinder



Fig. 14 Emergence profile of root and provisional is similar



Fig. 16 Zirconium abutment in situ



Fig. 18 10 days after placement, frontal and side view



Fig. 20 Outcome

build up done with a fiber post and resin. A little bur mark buccally facilitated the repositioning of the root. A provisional crown was made at this stage. (Fig. 4). An atraumatic extraction was carried out under local anesthesia, without elevating a flap. There was a loss of buccal bone, so a retraction of the gingiva could be expected during healing. After debridement of the socket, a tapered implant, MIS V3 3.3 x 13mm was placed in a palatal position with MGUIDE. The gap was filled with xenograft. An additional soft tissue graft was done to compensate the expected volume loss after implant placement. Because primary stability was achieved immediate loading was done to protect the blood clot, graft and soft tissue contours. For the provisional a special protocol was followed to copy the root form of the natural tooth. We did this in an analog way. In the future we hope to be able to use a printed or milled root from the STL file extracted from the CBCT scan, in order to reduce working time. Since the root was broken during the extraction, it had to be glued together again for the repositioning. (Fig. 5). After repositioning a stone cast with gingiva mask was made (Fig. 6). The root was extracted on the model for the implant replica to be placed with the resin key (Fig. 7). As planned before, the temporary cylinder is buccaly inclined with a facial screw hole for the temporary (Fig. 8). Therefore, the cylinder is masked with composite opaquer after conditioning with metal primer (Fig. 9). The running room is filled with flowable composite material to create a convex natural subcritical contour (Fig. 9). The provisional has the same shape and volume as the original root, since it was copied (Fig. 10). Both critical and subcritical contours are similar. The provisional was screwed in place. Occlusion and articulation were checked to relieve the provisional from any contacts, and instructions were given to avoid chewing on the restoration. The patient was prescribed with antibiotics and analgesics. Initial healing went well, but after 5 weeks the patient presented with symptoms of inflammation around the implant. Further investigation revealed the implant wasn't stable anymore and was lost. It was removed instantly and a new guided surgery was planned shortly after. The second implant, MIS V3 3.9 x 16mm was placed, this time without immediate loading. The healing was prosperous, the volume of the surrounding tissue was good, but as expected there was a loss of vertical height of the gingiva due to missing buccal bone. After 4 months, the implant was recovered and impressions were taken for the prosthetic rehabilitation. For strength and biocompatibility a hybrid zirconium titanium base abutment was chosen. The final crown was cemented under dental dam to control excessive luting cement and secure optimal placement. Ten day follow up shows a nice integration of the restoration in the smile and a natural appearance between the adjacent teeth.

Results & conclusions

Success of immediate implant placement and restoration depends on the surgical treatment, restorative procedures, patient factors and operator experience. Primary stability, presence of buccal plate, filling of the jumping distance, tissue biotype and implant design are key factors. Preserving soft and hard tissue is crucial. The intention of placing immediate implants is to preserve tissue contour and volume, as well as decrease treatment time. In order to compensate for the volume loss, GBR and soft tissue grafts are used. In addition Huan et al. stated that overcontouring the facial subcritical contour, within a physiologically acceptable range, provides support for the soft tissue without altering the gingival margin position. The critical contour of the restoration, on the other hand, influences the gingival margin level and zenith position. Copying the critical and subcritical contour from the natural tooth can optimize the clinical outcome by creating a better soft tissue profile.

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 Special thanks to Dr. Eric Van Dooren and his team to learn us about this technique.

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First Steps Towards Digital Protocol of Individualizing the Soft Tissue Support Using A Printed Root - Case Report

Dr. Maria Ramos

Policlinic dental clinic, Medipolis dental clinic, Belgium

Introduction

Aesthetic restoration of anterior teeth with implant supported restorations is one of the most difficult procedures to execute. Bone resorption following anterior tooth extraction often compromises gingival tissue levels for the implant restoration. To achieve a successful esthetic result and good patient satisfaction, implant placement in the esthetic zone demands a thorough understanding of anatomic, biologic, surgical, and prosthetic principles. The use of surgical quide templates achieves higher precision and accuracy in implant shoulder, apex and angulation, which is much more suitable for complicated procedures and conditions such as the flapless method, immediate loading, aesthetic restoration, and insufficient bone height. The aim of placing immediate implants using a printed root to individualizing the soft tissue support is to try to preserve tissue contour, dimension and also, decrease treatment time. This clinical case report describes the reconstruction of a central incisor in the anterior maxilla, using a guided immediate loading protocol. In order to achieve optimal support of the soft tissue, root of the tooth was printed, copying the natural profile. Temporary crown was performed according with the root

Methods

A 50-year-old woman, in good health, ASA I, was referred for implant evaluation for a failing upper left central incisor, where she previously had endodontic treatment. She had no periodontal disease or gingival recession. (Fig. 1). Clinical evaluation, periapical radiographies and a CBCT were studied (Fig. 2-6), and it was determined that she was a candidate for immediate implant placement because she had no facial plate perforation or dehiscence. The procedure was explained to the patient, and she agreed to continue. MGUIDE surgery was planned in order to achieve the perfect tridimensional approach



Fig. 1 Intitial situation with the old crown in place.



Fig. 3 Intraoral Analysis

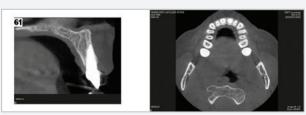


Fig. 5 CT Scan #2.1: Sagital and Transversal



Fig. 2 Extraoral pictures



Fig. 4 Initial Rx and OPG.



Fig. 6 MGUIDE (MIS, Israel) planning.

(Fig. 7). An atraumatic extraction was carried out under local anesthesia, without elevating a flap, thus maintaining the buccal plate's periosteal blood supply. (Fig. 8). A fracture was visible along the extracted root (Fig. 9), however, the walls of the alveolus demonstrated to be intact. Gingival biotype was measured using a calibre (W130, Werden®, Germany). (Fig. 10). Due the gingival thickness of ≥2 mm was considered as thick tissue biotype, connective tissue graft wasn't executed. The socket was debrided, and osteotomy was performed to place a V3 MIS® implant Ø3,90 x 16mm (MIS, Israel) in a palatal position using MGUIDE protocol (MIS®, Israel). (Fig. 11-13). Since a gap was present between the implant and the labial plate, it was filled with small particle Bio-Oss® (Geistlich Pharma (Fig. 14). Furthermore, because primary stability was achieved (35Ncm), immediate provisionalization was done in order to help to protect the blood clot, graft particles, and soft tissue contours. To carry out this procedure, a temporary crown was made following the root contour (Fig. 15). A temporary abutment was screwed (MIS®, Israel), and the crown was luted in place using flowable light-cured composite. Due to the lack of accurating of the printed root, we modified it to achieve appropiate subgingival contours. (Fig. 16). Occlusion was checked to relieve the provisional from centric and lateral-protrusive contacts. (Fig. 17). The patient was prescribed with antibiotics up to 7 days with the use of analgesics for 2-3 days. 1 week after surgery, soft tissue profile was stable within any inflamation sign (Figures 18-19). After 5 months, impressions were taken using an individual impression coping and the patient's central incisor was prosthetically rehabilitated using a hybrid zirconium titanium base abutment due the strength and biocompatibility. The final crown was cemented under dental dam to control excessive lutingcement and secure optimal placement. (Fig. 20) 1 week follow up shows a nice integration of the restoration in the smile and a natural appearance between the adjacent teeth. (Fig. 21).

Results & conclusions

Management of anterior implant restorations demands a highly esthetic approach in order to obtain successful outcomes. Multiple interrelated factors as primary stability, presence of buccal plate, filling of the jumping distance, tissue biotype and implant design influence the relationship between the white esthetics of the restoration and the pink esthetics of the surrounding gingival tissue. None of these factors should be considered in isolation. Digital workflow protocols of guided and computerassisted implant surgery improve accuracy of implant positioning. The intention of placing immediate implants is to preserve tissue contour and volume, as well as decrease treatment

time. In order to compensate for the volume loss, GBR was used and minimally invasive techniques were applied to achieve successful esthetic results. The use of the V3 MIS® implant can help obtain better esthetic and lond term results for implant-supported restorations. The critical contour of the restoration, on the other hand, influences the gingival margin level and zenith position. Copying the critical and subcritical contour from the natural tooth can optimize the clinical outcome by creating a better soft tissue profile.

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 Lth. Sophie Velghe, prosthodontics • Louis Wostein and Christian Hebbecker from Mcenter • Edris Rasta, ceramics
 Jan Van Agtmael, dental technician • Policlinic team

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Fig. 7 Surgical procedure: Initial, Crown extraction, root fracture, root extraction, alveolo, MGUIDE placement, implant placement (V3 MIS* 3,90 x 16mm, Israel), temporary crown.



Fig. 9 Measuring the biotype.



Fig. 11 Implant placement V3 MIS® implant 3.90 x 16mm. (Israel).



Fig. 8 Occlusal view, fractured root.

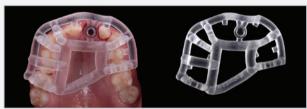


Fig. 10 MGUIDE template.



Fig. 12 GBR Bio-Oss® (Geistlich Pharma).



Fig. 13 Provisional Crown adjustment according with the root printed.



Fig. 15 Placement provisional crown.



Fig. 17 Clinical and rx's initial and 7 days after placement.



Fig. 19 7 days after placement.



Fig. 14 Emergence profile of root.



Fig. 16 7 days after placement. Frontal view



Fig. 18 #2.1 Placement of individual impression coping acording with the emergence profile. #1.1 veneer preparation.



Fig. 20 Outcome.

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Aesthetic Zone Management -The Socket Shield Technique

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Introduction

The aesthetic zone always represents a big challenge in implant dentistry in addition when we are looking for aesthetics we should replicate our natural anatomy, the main objective of The socket shield technique (SST) is to preserve buccal plate integrity, maintaining periodontal attachment tissues intact, avoiding bone loss during buccal plate remodelling associated to dental extraction.

Methods

A 28 year old female patient non-smoker with a non-contributory medical history with aesthetic discomfort in her upper central left incisor. The tooth had been treated with root canal 3 years ago, and it had a nonrestorable crown-root fracture later. The SST was done and a dental implant was placed in palatal position and buccal gap was filled with xenograft plus autologous bone graft mixed in equal proportions, the alveolus closure was made through platelet rich-fibrin clot. The implant was uncovered 4 months later with mucogingival esthetic surgery associated (roll technique) to improve buccal soft tissue. definitive restoration was placed 6 weeks after healing process with excellent results.

Results and conclusion

This technique represents an alternative in aesthetics procedures, maintaining hard and soft tissue architecture, this is a technique-sensitive procedure and should be performed by trained hands otherwise could cause much damage to the tissue. There is no long term evidence yet, however clinical reports have shown promising results so far.

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Fig. 1 Smile line evaluation



Fig. 3 Preoperative periapical X-ray with radiolucent image suggestive a non-restorable crown-root fracture



Fig. 5 Dental section with 702 surgical bur



Fig. 7 The tooth root fragment was reduced vertically with a Diamond bur



Fig. 9 Dental implant placement (MIS C1 3.75 x 13mm)



Fig. 2 Preoperative evaluation: note the pigmentation in the cervical area of tooth 2.1



Fig. 4 Preoperative CT scan



and then apical portion



Fig. 8 The Socet Shield was done protecting buccal wall resorpion except in the fracture zone



Fig. 10 Oclusal view: noted a buccal gap between dental implant and socket shield



Fig. 11 Bone graft placement (autologous plus xenograft mixed 50/50)



Fig. 13 Postoperative result after 2 weeks



Fig. 15 Evaluation after 4 months of healing. Slight collapse was observed due to an absence of root fragment in mesial zone.



Fig. 17 Uncovering implant through mucogingival esthetic surgery to improve buccal soft tissue in mesial zone



Fig. 19 Immediately after crown placement



Fig. 12 Alveolus clousure through Platelet rich-fibrin

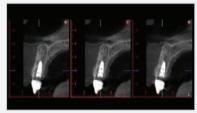


Fig. 14 Postoperative CT scan (before 4 months)



Fig. 16 Buccal wall has been preserved after 4 months of healing. Evaluation after 4 months of healing, slight collapse was obsereved due to an absence of root fragment in mesial zone.



Fig. 18 Postoperative result 6 weeks after mucogingival esthetic surgery



Fig. 20 Immediately after crown placement

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Single Unit Central Match

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Abstract

This is a case of a young 24 year old patient that came to our practice with a fracture of her upper central right incisor (#11). By CBCT we confirmed this clinical diagnosis, then, proceeded to explain to her the clinical options, opting for extraction, immediate placement and immediate provisionalization. After extraction, an MIS C1 implant was positioned in a palatal location with out compromising the clinical outcome, trying to protect the fine buccal plate, grafted the gap with allograft and performed a direct provisional with composite and acrylic resin.

After four (4) months of waiting time, we planned a gingivectomy and osteotomy to augmented de incisor-cervical dimensions only in the upper teeth, waiting again 1.5 months of healing time. Finishing the case with a personalized press ceramic abutment and a ceramic crown made with lithium disilicate (EMAX).

Materials and methods

After initial exam of patient our protocol is to confirm our diagnosis with a CBCT scan. We used a 1 mm spaced sagittal cuts for better view

of the buccal plate and planned to insert a MIS C1 3.7 x 13 mm implant in the palatal plate for better anchorage and initial stabilization. After getting 45 N. of progressive torque, used the PEEK provisional abutment, first to copy the emergency profile injecting flowable composite resin directly to the space between the soft tissue and then, by pepper and salt technic with acrylic resin, finished the final clinical crown. Polished everything very well with silicone tips and finished with the filling of the gap left between the implant and buccal plate using a bone particulated cortical-medular allograft



Fig. 1 Initial exam of patient showing displacement of right central incisor. This could indicate fracture of tooth.



Fig. 4 Atraumatic extraction of the incisor maintaining the biological aspect of the tooth.



Fig. 7 Coping the emergency profile with flowable resin.



Fig. 2 CBCT showing the fracture of the tooth an the marginal level and clearly identifying the presence of the buccal wall.



Fig. 5 Final parallel pin showing the correct mesio-Distal positioning of the future implant in the extraction socket.



Fig. 8 Using the C1 PEEK for the provisional restoration to copy the emergency profile of the tooth.



Fig. 3 CBCT showing the fracture of the tooth an the marginal level and clearly identifying the presence of the burgel wall.



Fig. 6 Final parallel pin showing the correct mesio-Distal positioning from a occlusal view.



Fig. 9 Ddirect provisional restoration put in place after first filling the gap with allograft to manage the emergency profile.



Fig. 10 4 month follow up. Here we see that we need to do a gingivectomy to correct the proportions of the teeth.



Fig. 11 Post up of 1 month from doing the gigivectomy and osteotomy to have a correct teeth proportion.



Fig. 12 a Personalized open tray transfer to perfectly copy the emergency profile done with pattern resin.



Fig. 12 b Personalized open tray transfer to perfectly copy the emergency profile done with pattern resin.



Personalized open tray transfer to perfectly copy the emergency profile done with pattern resin.



Fig. 13 Final Emax press personalized abutment over a C1 TI-BASE with a Emax coping and manually applied porcelain.



Fig. 14 Abutment and crown over a C1 implant demonstrating the perfect fit and anatomy of all the crown-abutment and implant complex.



Fig. 15 a Final emergency profile ready to receive the Emax personalized abutment.



Fig. 15 b Final emergency profile ready to receive the Emax personalized abutment.



Fig. 16 Torqued abutment sealed with teflon tape and flowable resin. Here we see a nice profile.



Fig. 17 Cementation of the crown over the abutment. Perfect integration of the crown and abutment. Healthy soft tissue around the implant.

(NonDermis 50-50 from Implandent). Left the screw retained provisional for at least 4 month to wait for hard and soft tissue to mature. After this waiting period, took the final impression with a personalized MIS C1 open tray transfer (modified with patter resin, GC America) and PVS silicone. Developed a personalized abutment with press lithium disilicate (EMAX) cemented to a C1 Ti-Base. Also press a lithium disilicate (EMAX) coping to stratify dental porcelain over it giving more life and vivacity to the final cemented crown.

Conclussion

The key to success in implant dentistry is the correct diagnosis. If we understand the biological principal and compensate using the correct materials our final outcome could be predictable. Having a moral compass and the correct training leads you to the path of success demonstrated in this clinical case. Almost perfect integration of the hole implant complex (implant, abutment and crown) with a mimetic transition from the abutment to the crown.

IIPIP With V3 Implant and Esthetic Rehabilitation In the Anterior Zone

Dr. Enrique Runzer Colmenares Infinity dental clinic, Peru

Introduction

When placing implants in fresh extraction sockets, it would be of interest to know the anatomical dimensions of the socket walls and how often they actually meet what is considered to be the minimal requirement (2mm of buccal bone width). 45 year old male patient came to Inifinity dental Clinic Implant department for consultation appointment. Patient fractured a Porcelain fused to metal crown together with the cervical third of the buccal aspect of the root of tooth number 2.1. If this minimal requirement is not met, then the augmentation ridge procedure (before or at implant placement) should be performed to obtain this minimal dimension. The concept of immediate implant placement and immediate provisionalization (IIPIP) for the replacement of failing maxillary anterior teeth was introduced by Wohrle in 1998. Although IIPP procedures have demonstrated high success rates, an average of 1.0 mm of facial gingival recession has been reported following the first year of function. Recent studies have advocated the use of the sub epithelial connective tissue graft (SCTG) to increase the thickness and overall resistance of the implant facial gingiva to recession. However, studies evaluating the efficacy of SCTG at the time of the IIPP procedure have been limited.

Methods

50 year old male patient in good general health condition visits our clinic concerned about a frac-tured tooth and because he cannot see his teeth when he smiles. The clinical examination showed a fractured central incisor due to a failing crown and metal post.

- Atraumatic tooth extraction of tooth 2.1.
- Immediate implant placement of tooth 2.1 with a V3-MIS Implant 4.3x13mm
- Bone graft placement (Bio-oss Geistlich) on the buccal gap, between the buccal aspect of the implant and the inner wall of the buccal
- Palatal connective tissue graft placement on buccal side of the buccal plate.
- Immediate provisionalization of tooth 2.1.
- Screw retained implant crown and porcelain veneers in the esthetic zone.

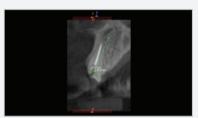


Fig. 1 Preoperative CT tooth 2.1



Fig. 3 Preoperative Intraoral Front view of anterior teeth



Fig. 5 Oclussal view of V3 implant placed with flat side





Fig. 9 Front view of connective tissue graft over recipient site



Fig. 2 Patients Preoperative Extraoral Frontal Picture showing missing tooth 2.1



Fig. 4 Front View of V3 Implant placement



Fig. 6 Front view showing placement of Bone Graft



Fig. 8 Connective tissue graft from palatal donor site



Fig. 10 Immediate provisional Crown of Composite resin



Fig. 11 Immediate Postoperative front view



Fig. 13 3 month Postoperative CT Scan showing optimal bone regeneration.



Fig. 15 Impression technique with customized transfer



Fig. 17 Great stability of peri-implant soft tissue



Fig. 19 Healthy soft tissue and in perfect harmony with the final restorations



Fig. 12 3 month Postoperative showing optimal healing of the soft tissues



Fig. 14 Front view, Mock up



Fig. 16 Titanium abutment and e-max coping and crown



Fig. 18 Front view. E-max veneers and screw retained implant crown



Fig. 20 Final photo. Patient very pleased with end result.

Treatment goal:

- · Return the patient's aesthetics
- Improve the patient's chewing function (anterior guide)
- Improve patient's phonation

Results and conclusion

Favorable results were achieved in this case. Immediate implant placement and provisionalization and bone graft in the socket can be considered to be a valuable treatment option for the failing tooth in the esthetic area. Due to the reduced thickness of the buccal wall (1mm) we considered necessary to perform a subepithelial connective tissue graft. Implant selection in the esthetic zone is vital for successful treatment.

In this case we used a V3 implant (by MIS) for the following reasons:

- The triangular arrangement at platform level allows us to have a greater gap between the buccal wall and the implant surface (significant gain of bone volume) and reduce cortical bone compression.
- The conical connection and switching platform assures stability of soft and hard tissues.
- Conical macrodesign: Minimal drilling sequence and high primary stability.
- Concave inter thread design improve attachment of blood clot to the implant surface
- Cutting apex facilitates immediate placement

As part of the diagnosis protocol in our clinic, we performed a thorough facial analysis with photos and videos so we can assess lip dynamic during speaking and smiling.

Screw retained crown and porcelain veneers were fabricated using Emax Press lithium disilicate.

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The MIS Quality System complies with International Quality Standards: ISO 13485:2003 - Quality Management System for Medical Devices, ISO 9001: 2008 - Quality Management System and CE Directive for Medical Devices 93/42/EEC. MIS products are cleared for marketing in the USA and CE approved.

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