

# GTR and recession coverage in immediate implantation

**Authors**\_Dr N. Papagiannoulis, Dr E. Sandberg & Dr M. Steigmann, Germany



Fig. 1



Fig. 2



Fig. 3

**Fig. 1**\_Initial situation.

**Fig. 2**\_Preoperative panoramic radiograph.

**Fig. 3**\_Tooth 11 post-op.

## \_Introduction

Among the difficulties and challenges in immediate implantation, local inflammations of the hard or soft tissue are major criteria on how we implant. The behaviour after implantation, especially of the soft tissue, is only predictable when the diagnosis and the treatment concept are correct. Gum recessions are potential contra-indications for immediate implant placement.

Nevertheless, we have to take into consideration that soft tissue and recession coverage techniques function differently when applied to implants. A calculated risk is acceptable if the procedure prevents soft and hard tissue from absorbing, which can lead to compromised aesthetics and an unsatisfied patient.

## \_Clinical and radiological findings

The patient visited the practice complaining about compromised aesthetics of the anterior maxilla. The first examination showed a challenging situation of teeth 11 and 22. In the past years, the almost 30-year-old patient had experienced the whole range of dentistry, including endodontology, periodontology, and surgical crown extension.

Teeth 11 and 22 were insufficiently restored, with tooth 11 showing a soft tissue recession Miller class 2 and tooth 22 showing an apical inflammation. Bleeding on probing was positive in 11 (grade 4), so were percussion and mobility in 22. The crown in tooth 11 was overextended, probably to cover recession. Crown 22 was also overextended, leading to secondary caries. The periodontal screening index on 11 was grade 3 with

**Fig. 4**\_Tooth 22 post-op.

**Fig. 5**\_Implant insertion tooth 11.

**Fig. 6**\_Implant inserted in tooth 11.



Fig. 4



Fig. 5



Fig. 6

## Join us at EAO Dublin!

Attend the interesting lectures about hard- and soft-tissue augmentations

Thursday, 17 October 2013, 11:00 – 13:00



PD Dr. Ronald E. Jung, Switzerland

Hard- and soft-tissue  
concepts for alveolar ridge  
preservations



Dr. Daniele Cardaropoli, Italy

The management of soft tissues  
in post-extractive site and  
periodontal plastic surgery

More information:  
[www.geistlich-pharma.com/dublin2013](http://www.geistlich-pharma.com/dublin2013)

Visit us  
at our  
booth #G1!





**Fig. 7\_**Provisional crown and GTR.

**Fig. 8\_**Tooth 11 post-op.

**Fig. 9\_**Tooth 22 post-op.

**Fig. 10\_**Three weeks post-op.

**Fig. 11\_**Provisional crown on the modell.

**Fig. 12\_**Veneers, biscuit bake.

**Fig. 13\_**Completed provisional crown and veneers.

**Fig. 14\_**Four weeks after re-entry.

**Fig. 15\_**Try-in of zirconium abutment 11.

**Fig. 16\_**Try-in of zirconium abutment 22.

**Fig. 17\_**Zirconium caps in occlusion.

**Fig. 18\_**Tissue quality four weeks after provisional placement.

**Fig. 19\_**Provisional crown tooth 22 after re-entry.

**Fig. 20\_**Provisional crown tooth 11 after re-entry.

**Fig. 21\_**Veneers and provisional crown placed after re-entry.

**Fig. 22\_**Try-in of abutment tooth 11.

**Fig. 23\_**Try in of abutment tooth 22.

**Fig. 24\_**Abutments and completed crowns.

3.5 mm mesially and 4.0 mm distally. The radiological control (Figs. 1–4) also shows a discrepancy between preparation and crown modelling in tooth 11. This artificial undercut and the minimized biological width were the main reasons for the local inflammation.

### Planning

Teeth 11 and 22 were to be extracted. A new crown on 11 would not offer any better aesthetic and functional results. Due to the root screw, the root treatment on 22 was risky and its result was unpredictable. Larger composite fillings on 12 and 21 compromised aesthetics additionally.<sup>2-5</sup>

The treatment plan included the following steps:

1. Extraction of teeth 11 and 22 with immediate implantation and guided bone and tissue regeneration.
2. Maryland Bridge as a temporary restoration.
3. Veneers on teeth 12 and 21 after implant re-entry.
4. Full ceramic crowns on teeth 11 and 22.

### Surgical phase

After extraction of teeth 11 and 22, the ridge was cleaned and disinfected. No injury or perforation of the buccal lamella was observed. The implant system used was tapered, with platform switching and high primary stability. The drill sequence was followed as provided by the manufacturer but with no irrigation and a low rotation of 50 to 70 rpm with maximum torque.<sup>10-14</sup>

Implants were placed slightly subcrestally so that the apical coronal position was 0.5 mm below bone level. In region 11, a 4.1 x 13 mm implant was inserted (Figs. 5-8) and an implant of 4.1 x 10 mm in region 22 (Fig. 9).<sup>6-8</sup> The gap to the buccal plate of 1 mm was augmented with a mix of  $\beta$ -TCP and HA 40%–60%.<sup>9,15</sup> No effort was made to manipulate the soft tissue recession or raise a flap. Cuts in this region would have led to major recessions because of the periodontal situation of the neighbouring teeth. For this reason, the recession in tooth 11 was left as it was. The crestal part of the extraction socket was covered with collagen tissue fleece. At last, a piece of dermis matrix was positioned crestally and slightly buccally to improve soft tissue quantity after healing.<sup>16-19</sup>

The provisional Maryland Bridge was manufactured with pontics on 11 and 22 for optimal soft tissue management (Figs. 10–13). Recall appointments were kept for one, three, seven, 14, 21 and 30 days and afterwards monthly.

### Provisional and healing phase

At four weeks postoperatively, the bridge was removed and teeth 12 and 21 were prepared to receive veneers. The soft tissue condition was optimal, without inflammation and with full epithelialisation of the wound. With a new temporary restoration, we forwarded soft tissue conditioning. Radiological controls were made after each cementation procedure to preclude cement rests and a risk of periimplantitis. Veneers were inserted before loading the implant for better colour adaptation of the supra-construction, but also after implant re-entry for an optimal emergence profile planning.

### Implant re-entry

The re-entry was performed three months postoperatively with a simple mucoperiosteal flap. The quality of the soft tissue was good so that a small crestal cut of 4 mm was enough to remove the healing screw. Instead of inserting a gingival former, we decided for a temporary abutment with a composite crown, resulting in a screw-retained provisional. No risk of cement rests was taken and the screw-retained temporary crown enabled us to manipulate soft tissue as desired for an excellent aesthetic outcome. The patient received this temporarily for four weeks and afterwards impressions were taken.

### Restorative phase

The veneers were retained four weeks after implant re-entry (Figs. 13 & 14, 19–21). At this time, we had optimal conditions for colour selection and impression of the implants with customised implant copies. At the first abutment try-in (Figs. 15–18, 22 & 23) we could see the soft tissue regeneration and forming around the zircon caps. Even the gingival surface texturing is evident.

**Fig. 25** Crowns completed.

**Fig. 26** Check-up of teeth 11 and 22 and crowns.

**Fig. 27** Three months after insertion of crowns.



Fig. 25



Fig. 26



Fig. 27

Fig. 28\_Occlusion.  
 Fig. 29\_Left.  
 Fig. 30\_Right.  
 Fig. 31\_Smile.



The correct abutment and crown insertion (Figs. 24 & 25) were controlled with X-rays (Fig. 26). Not only did the surgical part lead to such highly aesthetic results, but also the technical part played a crucial role in the aesthetic outcome (Figs. 27–31). The soft tissue situation showed a slight improvement of the papilla on tooth 11 four weeks after loading.

### Discussion

The decision to extract the teeth and place implants immediately is always a risk. This risk is lowered if we understand why the tooth had to be removed, how biology works and what we can or must not do. In this case, a flap raise or papilla raise would have been fatal with regard to aesthetics, resulting in unpredictable and major defects. The implant position slightly beneath the crestal bone level is correct, calculating the inevitable loss of crestal height through the former local inflammation. The grafting of the buccal plate gap is also appropriate and leads to a higher predictability when performed with a combination of fast and slow, or slow and non-resorbable biomaterials.

Platform switching is a useful technique to offer soft tissue or hard tissue space to grow and a stable scaffold for support. When the system offers real platform switching, as seen here, hard tissue growing on the reversely bevelled implant neck prevents crestal bone resorption. Especially soft tissue growing and covering the implant neck will form a tissue ring around it, protecting the crestal bone from resorption as well. Prosthetics are as important as the surgical part. They encompass the final restoration with the emergence profile, the proximal contact and margin design, but the temporary restoration also is crucial for soft tissue

maintenance, management and long-term stability. As can be seen from the recall photos four weeks after loading, the soft tissue fills the proximal gaps if the conditions for it are fulfilled. The initial recession is gone and we created enough soft tissue for good aesthetic results. The tight interdisciplinary collaboration between surgeon, technician and restorative dentist finally guaranteed a satisfactory result and a happy patient.<sup>20-25</sup>

### \_contact

### implants

#### Dr N. Papagiannoulis

Proaesthetic Dental  
 Praxis für kosm. ZHK und Implantologie  
 Brückenkopfstr. 1/2  
 69120 Heidelberg, Germany

Tel.: 06221 9986482  
 Fax: 06221 9986484

[www.fsde.com.gr](http://www.fsde.com.gr)

#### Dr E. Sandberg

Zahnarztpraxis Dr Sandberg & Kollegen  
 Liebigstraße 11  
 60323 Frankfurt/Main, Germany

Tel.: 069 97097171  
 Fax: 069 97097272

[www.dr-sandberg.de](http://www.dr-sandberg.de)

#### Steigmann Institute

Bahnhofstraße 64  
 69151 Neckargemünd, Germany

**\_RITTER IMPLANTS SYSTEM  
\_Quality. Flexibility. Innovation.**



Founded in 1887 by the German Frank Ritter in New York, Ritter is one of the oldest prestige brands of finest dental equipment worldwide. Due to innovative ideas and a great entrepreneurial spirit, Ritter produced the first dental units already more than 125 years ago.

Today Ritter products are more than ever an essential element in dental practices worldwide. Users appreciate the Ritter product range for the high-quality aspects and the reliability - Made in Germany. Due to their functionality and user orientated construction, Ritter dental units contribute constantly to an optimized workflow of today's modern dental practices.

In the course of the last years, Ritter has started to write a new success story with the launch of an innovative, state of the art implant system. The Ritter Implant Ivory Line provides Two Piece Implants (Implant plus separate Abutment) as the QSI Spiral Implant and TFI Twin Fissure Implant as well as One Piece Implants (Implant and Abutment already connected) called Mono Compress Implant MCI. The system contains logically reduced and clearly arranged components of tools and abutments with the best features for all clinical cases. Due to the super Nano-Surface, a quick and reliable Os-



seo-Integration is guaranteed. Clever and easy handling is provided by self-tapping threads and a coloured system of drills and implants according to their diameters.

All Ritter Implants and Accessories are made by high modern CNC manufacturing machines. A combination of advanced machining and hand-finishing create the most accurate tools possible for the marking of ceramic drills.

The Ritter brand stands for high quality, state of the art technology and innovative products Made in Germany. The credo is to always provide customers and clients with the best services and prices combined with the most comprehensive dental solutions in the market.

More information:  
[www.ritterimplants.com](http://www.ritterimplants.com)

**NEW**  
...ask for your special start offer:  
Set price, incl. Implants, Analogs, Transfers  
Abutments, Healing Caps and Starter Tool Kit!

- Leipzig Fachdental, 06.-07. Sept.**  
Stand-Nr. 4A47
- Hamburg ID Nord, 21. Sept.**  
HalleA1, Stand-Nr. G43
- Stuttgart Fachdental Südwest,**  
11.-12. Okt. Stand-Nr. 4B44
- Frankfurt ID Mitte, 08.-09. Nov.**  
Stand-Nr. F34
- Implant Expo Frankfurt,**  
29.-30. Nov. Stand 107

**FAX VOUCHER**



YES, I want to save my benefit !  
Please contact us as soon as possible.  
I confirm with my address and signature / stamp

Number of Sets (max.10)	<input type="text"/>	NAME	<input type="text"/>
STREET	<input type="text"/>	VAT-NO.	<input type="text"/>
CITY / ZIP	<input type="text"/>	COUNTRY	<input type="text"/>
FON	<input type="text"/>	EMAIL	<input type="text"/>
DATE	<input type="text"/>	SIGNATURE	<input type="text"/>

**%**

