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DENTAL RATIO® CONICAL Implants

„The special feature of „DENTAL RATIO® Tissue Level CONICAL“ implants: regardless of bone density, always achieves good primary stability.

Furthermore, a conical implant is very stable directionally when being torqued in place, whereas cylindrical implants tend to follow the softer bone.

Last but not least, the conical implant has a significantly larger surface compared to a cylindrical implant of the same length and diameter.

This leads to a significantly larger osseointegration surface and to a significantly more loadable final stability of the osseointegrated implant.“



THE NARROW MANDIBULAR RIDGE — A CHALLENGE TO IMPLANT

INTRODUCTION

The narrow alveolar ridge often represents one of the limitations in dental implant dentistry. The lateral lower mandibula in particular is difficult to augment with conventional bone block techniques: it often consists only of cortical bone and has very poor blood circulation. An onlay graft will therefore have little chance of being supplied with blood and will resorb for the most part. The same also applies in the case of very narrow alveolar ridges for the technically very challenging augmentation techniques (e.g. with the Khoury cassette): if the recipient region features poor blood circulation and vitality, every augmentation will be risky. A further disadvantage of conventional techniques is invasiveness: the necessary large-scale periostomy and mobilisation of soft tissue with periosteal slits inevitably leads to swelling, bruising and postoperative pain.

During years of practical experience, the minimally invasive bone split modified with „Open Healing“¹ has turned out to be the technique of choice for me in such cases.

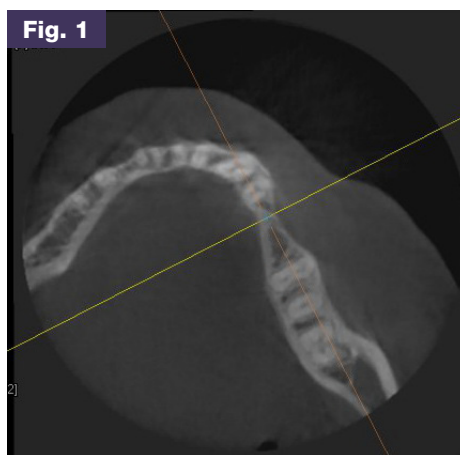


Fig. 1

This female patient came to us with the wish to have the missing tooth 35 replaced. The alveolar ridge was strongly resorbed in this area.

The CBCT provided clarity: despite sufficient bone height, the insertion of a sufficiently dimensioned implant would not be possible here without alveolar ridge augmentation (Fig. 2)!

The adjacent teeth were intact, the gingiva profile was harmonious. The patient has a “thin biotype”, in other words, a thin, sensitive mucosa that tends to create easily recessions.

A large flap is absolutely contraindicated and very risky in this tissue type.

We therefore opted for a limited, minimally invasive bone splitting.

We performed a crestal incision in the mucous membrane under local sedation.

The mucosa was detached from the bone about 1 mm lingual and vestibular from the alveolar ridge to gain access.

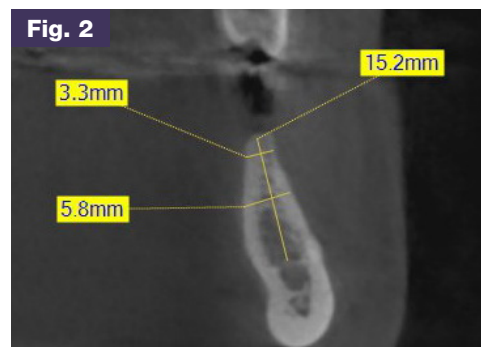


Fig. 2

Due to the small width of the interdental space, we could not use the diamond cutting disk we normally use for bone splitting. We prefer the cutting discs to the piezotome, as the discs are much thinner and we therefore lose considerably less bone crestally than when using a piezotome. This time there was no alternative.

The crestal 8 mm deep bone incision was extended from the inside mesially and distally in the vicinity of teeth 34, 36 with a fine bone cutter in outer direction, towards the vestibular cortical bone to create a predetermined breaking point.

Using a fine chisel from the Palti Bone-Splitting kit (Stoma), the vestibular cortical bone was carefully mobilised towards vestibular, the gap was widened to approximately 3 mm. Whether, what and where fracture takes place is actually irrelevant: the vestibular bone segment is shaped, completely attached to the periost and the mucosa, and will heal without problems via callus formation.



We carefully drill with the 2.2 mm diameter pilot drill without cooling to the desired 12 mm final depth of the implant.

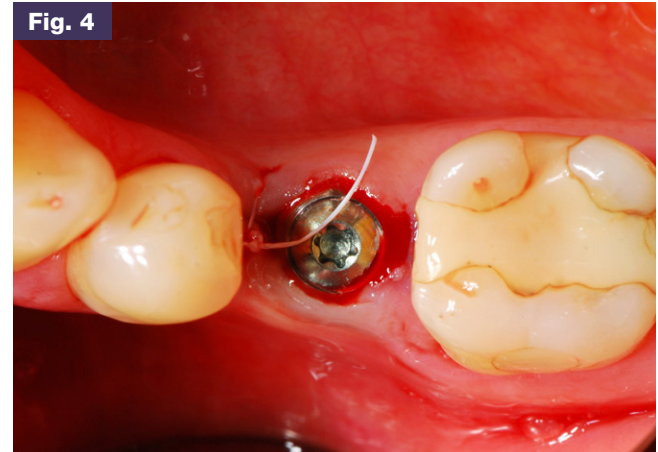
With the 2.8 we drill only to about 8-10 mm, depending on the type of bone the alveolar ridge has, harder (D1-D2) = deeper. The drill chips are “harvested” by the drill and stored in a sterile container.

Now the DENTAL RATIO CONICAL implant with a length of 12 mm can display all its advantages: The small diameter apical part of the implant is inserted into the 2.8 mm hole, the implant draws itself deeper due to its pronounced thread and spreads the bone to the final dimension (Fig. 3).

The bone gap mesially and distally of the implant is grafted with the collected autologous bone.

This is followed by a fine positioning suture which fixates the papillae, in this specific case it's only necessary mesially, because the bone was thinner mesially (Figs. 1, 3).

The minimal mucosal gap is closed over the graft with a drop of Hystoacryl tissue adhesive without further mobilising the mucosa “Open Healing¹⁴”. (Figs. 4, 5).



The patient only suffers minimal discomfort.

As a “precaution” she takes a 250 mg tablet of paracetamol in the evening after surgery to allow her to sleep well.

She is free of complaints on the next day.



Two weeks later, the gingiva has healed perfectly without any irritation whatsoever (Fig. 7). The result is functional and aesthetically pleasing for everyone involved (Figs. 8, 9).

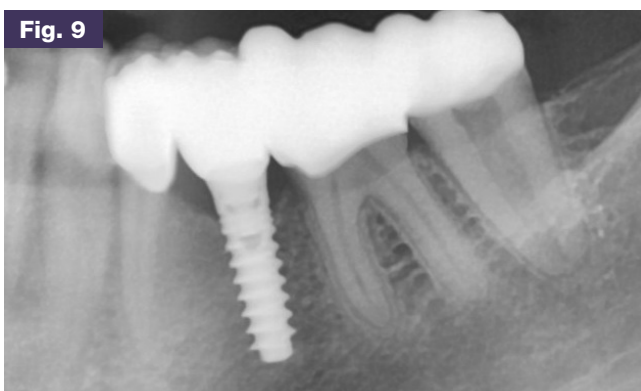
To sum up, it would be worth noting: the treatment was “fast and painless”. Only a minimally invasive surgical procedure was an option, healing was problem-free.

The conical implant supports the dentist considerably during the placement of an implant after bone splitting. The accomplished primary stability is also much higher with a conical implant such as the DENTAL RATIO Tissue Level CONICAL implant, than it would be with a cylindrical implant.

Prosthetic restoration was quick and simple. Several sessions, which are usual like second surgery, healing abutments, try-ins etc. are not necessary with the procedure according to the “Biological Width Protocol”².

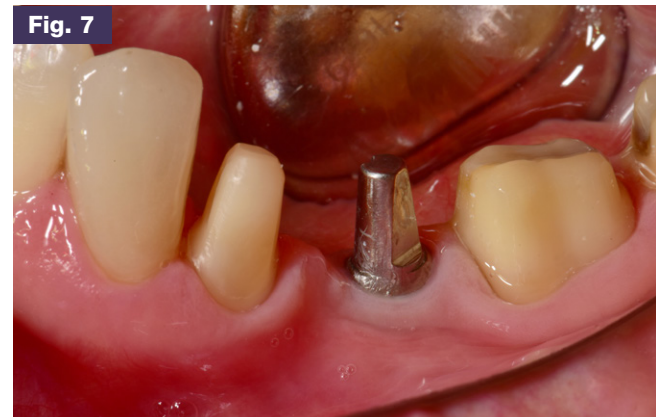
The long-term prognosis is excellent as the restoration is simple and easy to clean and there are no mobile unclosed subgingival gaps.

The crown is firmly and tightly bonded to the implant shoulder and abutment with composite adhesive. In other words, there are no cavities that could be colonised by bacteria.



Healing proceeded without any complications. Within 10 days the mucosa has granulated over the site.

6 months later, a solid abutment is screwed into the implant with 35 Ncm. The implant shoulder is prepared with a tungsten carbide instrument under good cooling in the shape of a garland as with a natural tooth. Retraction cords are placed and the classic impression is taken with hydrocolloid, the teeth and the implant stump are provided with temporary restorations. The model is fabricated in the classical manner (Fig. 6).



The conical implant from DENTAL RATIO has a larger osseointegration surface than a cylindrical implant of the same length/diameter due to its geometry and is therefore definitely more load-bearing in the long term.

REFERENCES

1. Dr. Georg Taffet, Gibt es einfachere, schnellere, billigere Wege, um ein für den Patienten und den Behandler befriedigendes Ergebnis zu erreichen?, Thesis (MSc.), Donau University Krems, Austria, source: www.drtaffet.com
2. Dr. Georg Taffet, Open-healing approach to avoid flap mobilization and subsequent morbidity, Journal of Oral Science & Rehabilitation Volume 2 - Issue 4/2016, pages 16-25.

Ask Smart!

*Thank you for your interest in DENTAL RATIO®.
We look forward to your questions and suggestions
and we would be happy to assist you in any way.*



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