Taking care of our teeth is a fundamental part of good health

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By Neoss Ltd.

Taking care of our teeth is a fundamental part of good health. Dental problems can affect what we eat, and the aesthetics of our teeth has a major impact on how we see ourselves and others.

Dental implants replace the roots of teeth and can be used to anchor a single dental crown(s), a bridge or a denture. Neoss has an approach to dental implants that keeps both the patient and the practitioner in mind.

Intelligent Simplicity.

Neoss answers all these needs with patented technology, including the NeoLoc Implant-Abutment connection and the Neoos-ProActive surface. This creates one of the strongest implant bonds on the market and standardises surgical instruments so that practitioners don’t have to carry so much inventory.

Dr Katv Shab, Dental Surgeon and Specialist in Prosthodontics, says:

‘When we are working in a clinical environment on patients, the situations can sometimes be fairly tense, fairly stressful and highly pressured. A system that is simple, straightforward and easy to use minimises the risks throughout the clinical procedures, not only for us as dentists but also our assistants.’

implants

Neoss continues to innovate and invest in Research and Product Development - designing, manufacturing and selling products of the highest quality which offer market-leading functionality.

Its products are available internationally and the continuous business development programme has resulted in expanded geographical coverage - with reversals being developed in the major Asia markets including China and Japan - and the development of a significant presence within the MENA region.

Simplicity is something we work very hard to achieve for our customers,’ says Neoss’ Chief Operating Officer Ruth Keeling. ‘What we hear from patients is that they wish they had sorted their dental problems sooner.’

implants

By Dr Philippe Leclercq, France; Jean-François Martinez, France & Michael Bruich, Germany

When working with dental implants, a number of specific rules must be followed regarding both the implant surgery and the prosthetic itself (fixed prostheses tending to have a more favourable prognosis than overdentures). If these rules are not adhered to, the results are often unsatisfactory, requiring retreatment.

In such cases, and despite the patient’s desire to quickly forget the previous treatment, a very strict protocol must be followed, specifically concerning the length of healing periods. Despite an increase in the overall treatment duration, this will ensure success of each stage of treatment. The implant retreatment case outlined in this article will emphasise these different stages in this type of clinical situation.

Initial case

At the age of 28, the patient was involved in a traffic accident, which resulted in significant trauma to her maxilla, including the loss of her central and lateral incisors and left canine. The shock also led to the loss of alveolar bone in the same area. The first premolars were absent, probably owing to previous orthodontic treatment.

The original treatment consisted of placing two implants in the residual bone and an anchorage reinforcement screw retained bridge to maintain a removable prosthesis, which included five teeth and a large false gingiva (Fig. 1).

Dissatisfied with the treatment, the patient was re-examined three years after the initial treatment. The patient’s smile showed an infiltration at the right lateral incisal level. The tissue was hyperplastic, making hygiene difficult. The framework and hyperplastic tissue.

The right implant showed a problem of the site conducted, an extremely negative prognosis was determined for the implants (Fig. 3), which is often the case with maxillary overdentures. The right implant showed a loss of the majority of its vestibular bone, causing significant recession. The tissue was hyperplastic, making hygiene difficult. The framework was off-centre presumably because of the implants, which explained the off-centre axis of the prosthetic teeth.

Over the past several years, many authors have observed recurrent

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gingival inflammation as a reaction to using implants for this indication. Engquist noted a gingival increase in 25 per cent of the cases; Naert et al. showed that out of 86 overdentures (6 maxillary, 80 mandibular), 8 observed gingival hyperplasia, primarily in the maxilla (9.3 per cent); and Jemt et al. observed that after one year out of 92 maxillary overdentures, 19 patients showed gingival hyperplasia (20.9 per cent), 13 patients had one gingival correction and five had two corrections. In a 1993 study on maxillary overdentures, Smedberg et al. observed: “The results show that the prevalence (p < 0.05) for Lactobacillus, Prevotella (subspecies) and yeasts in the subjects with removable prostheses was significantly higher than in subjects with fixed prostheses. Removable prosthetics were accompanied by a more aggressive peri-implant plaque.” In view of our patient’s unsatisfactory treatment results, it was thus decided to restart treatment completely.

Retreatment
The retreatment followed an extremely precise protocol, especially regarding the length of the healing periods. To begin, dental impressions were taken to create a resin-based temporary removable prosthesis. The prosthesis included palatal support to relieve the vestibular gingival tissue as much as possible. An aesthetic fitting of the appliance was conducted to straighten the axis of the incisors.

Implant removal
Owing to insufficient osseointegration, the removal of the implants was fairly easy (Fig. 4). Removal was accomplished with the aid of an implant removal tool. Immediately after implant removal, the temporary removable resin prosthesis with palatal support was inserted. To permit the rapid elimination of inflammatory residue, it was contraindicated to suture the recipient implant site.

Assessment after implant removal
Three months after implant removal, a clinical and radiographic assessment was performed.
assessment was conducted. The assessment showed further significant vertical bone loss and loss in bone volume (Fig. 5). Significant vertical bone loss is difficult to correct owing to random gingival recovery. It was thus decided to augment the bone volume by performing a chin bone graft.

Bone graft

Anaesthetic was administered in the maxillary and mandibular anterior region. For the mandible, the sample was taken from the cortical bone and a section of the cancellous bone by piezoelectric surgery. The grafts were harvested from the chin symphysis, as close as possible to the mandibular inferior ridge to avoid disturbing the incisor’s sensitive innervation, which can be a frequent complication of the procedure. The vestibular cortical bone scar was perforated with a small round bur, allowing for rapid revascularisation of the grafts. The grafts were then positioned and secured in place with mini-screws (Figs. 6 & 7).

To increase success, a blood sample was taken and centrifuged according to the Choukroun platelet-rich fibrin (PRF) technique5 in order to recuperate the fibrin clots. The clots...
were compressed between two com-
presses to evacuate the serum and to form the membranes which were then applied to the surgical site and in the mandibular harvesting sites (Figs. 8 & 9).

Pre-implant prosthetic study
After four months, according to ra-
diographic examination, the tissue had healed and the bone mass appeared stable (Fig. 10). New impres-
sions were taken to prepare for the next step in treatment: the implant drilling guide. After four months of healing, the increased vestibular bone volume allowed positioning the teeth at the crestal bone and re-
duction of the false gingiva using additional wax (Fig. 11). A key of the added wax was taken and fabricated in clear casting resin. The implant prototype was then loaded and re-
fi nalised by drilling placement holes, determining the exact position of the implants (Fig. 12). The correct po-
sitioning of implants in relation to the teeth at the crest, is an important prerequisite for aesthetic and func-
tional success.

Implant placement
Local anaesthesia was adminis-
tered and the bone site repositioned. The site showed correct integration of the graft, a notable increase in cortical bone and excellent vasculari-
ty around the site (Fig. 13). The sterilised surgical drilling guide was tested and showed that drilling would in fact be at the centre of the reconstructed bone ridge (Fig. 14). After removal of the screws stabilis-
ing the grafts, the guide was placed and drilling (using physiological sa-
line solution) completed. Five Aadvia (GC Tech.Europe) self-tapping Grade 5 titanium microscrew implants were inserted by slow drilling (Fig. 15). Aspiration with physiological saline solution was not used at this time so that the first contact with the ti-
itanium oxide would be the patient’s blood, thus promoting the implants’ osseointegration. This speci-

culation technique was validated by Brånemark et al. All of the implants were equipped with threaded cover screws and the surrounding tissue was sutured (Fig. 16).

To minimise risks, the implants were loaded using an apically posi-
tioned flap. The healing abutments were placed and the flap sutured around them (Fig. 17). Radiographic analysis and especially a percussion test showed the implants’ perfect osseointegration. After 15 days of gingival healing around the abut-
ments, they were removed and the impressions copings were placed and secured with a self-curing resin (Fig. 18). Impressions were taken and the healing screws were reinserted (Figs. 19 & 20).

Validation prosthesis
Rather than calling the appliance at
this stage a “temporary prosthesis” or “provisional prosthesis”, it is more appropriate to call this temporar-
dy placed prosthesis, a “validation prosthesis of the implanto-occlusal concept recommended to the patient”.

Over the course of several months, this prosthesis vali-
dates — the osseointegration of the
implants,
— the aesthetic aspect, especially for the anterior teeth,
— phonation, which is also impor-
tant for the maxillary anterior re-
gion,
— the patient’s ability to correctly
clean the prosthesis, and occlusion
and, in this case, the ability of the an-
terior to guide the discussion of the
canine groups in protrusion.

This prosthesis serves as a model for the maxillary anterior teeth, which are easily modifi able material like resin, but with a metal framework to guar-
tantee a certain level of rigidity. In the fi rst step, a model of the framework, which temporality included the ca-
nine to increase stability, was cast in
pattern resin (Fig. 21). The model was then scanned (Aadvia, GC Tech.Eu-
trope; two cameras, 2 MP, precision: 10 µm) before being transferred to a machining centre (Sono, GC Tech.Europe, Figs. 22-24). Once back from the “rasping bomb”, the titanium framework was worked on the work-

ing model and its stability was veri-
fied (Figs. 25 & 26).

The cosmetic material (UNIFAST III resin, surface rendering, OPTILUX AZ
colour, GC Tech.Europe) was then placed on the framework (Fig. 27). The bone graft permitted a maxi-

mum reduction of the vestibular false gingiva.

In the following step, the prosthesis
was attached in the mouth with screws and the necessary occlusal verification was conducted, includ-
ing maximum inter occlusion, pro-
traction and lateral excision. The natural canine on the right was also equipped with a verification tooth. It should be noted, that in lateral excision on the left, with the an-
tagonist being the original tooth equipped with its periodontal liga-

dent, the canine function was retained; however the group function, which is usually preferred, was neurophysiologically inef
t (Figs. 28 & 29).

The patient’s smile showed that the
crowns were now well balanced and in line with the face’s sagittal plane. Lip support appeared to be correct and, as often is the case, this would all be validated by the patient’s sur-
rounding friends and family (Fig. 30).

After three months, the validation prosthesis was removed in order to check the areas where mucosa had been compressed and dental hy-

giene difficult. These areas were cor-
rected and the validation prosthesis reinstated (Fig. 31).

Final prosthesis
Final six months, all of the param-
ers were validated. The final prosthesis was then fabric-
ated as an exact copy of the valida-
tion prosthesis, but in a more durable,
material: zirconia for the framework and ce-
ramic for the aesthetic material. As with the titanium validation pro-
thesis, the framework and the coping for the right canine were scanned and transmitted to the machining centre. They were then tested on the working model (Figs. 32 & 33). After fi tting of the zirconia framework, the ceramic was cast using the exact parameters validated by the resin prosthesis (JM Dentaltech, Figs. 34 & 35).

In the following step, the fi nal prosthesis was installed and the correct occlusion verified: maximum in-
trusion, protrusion and lateral excision. The screw channels were filled with composite (Figs. 36 & 37).

The final cosmetic check-up, validat-
ed by the resin prosthesis, showed the lip support with the new ex-
tremely reduced false gingiva to be correct (Figs. 38 & 39). This was achieved owing to the bone graft.

Regular check-ups
Retreatment was regularly moni-
tored with patient check-ups (Figs. 40 & 41). All implant treatments, no mat-
ter of what type, must be rigorously monitored in all treatment phases, but a retreatment requires even more diligence. A patient affected by the failure of a previous treatment will not accept even the smallest problem. To this end, the role of healing periods is thus essential to retreatum suc-

cess.

By Vivek Gupta, UK
At EAO 2017, Dr Göran Urde present-
ed a paper titled “Evolution of surgi-
cal protocols in implant dentistry” at the International Symposium in Vienna. Dr Göran Urde, is the Program Lead for Tipton implant’s GC PC Certificate in Dental Implantology and is also the Director of the Futurum Clinic at Malmo University’s Faculty of Odon-
tology in Sweden. Extracts from his presentation are below.

In the good old days, as he put it, im-
plants were only placed by special-
ists in oral surgery and prosthodontics. One had to be thoroughly trained to even purchase implants. Compa-

nies kept records of the clinician’s success rates and if someone had a higher than normal failure rate, they showed up at their door! This obvi-
uously has changed now as technol-
yogy and consequently education of dental implants has evolved.

Over the years he has been involved in
developing concepts like “Till Now” or Immediate Loading, ac-
cording to which a tooth is extracted and immediately replaced with an implant and loaded with the fi nal abutment and a temporary crown, with extremely high success rates for both implant survival and aesthetic outcome. He appreciates the bene-

fits of Immediate loading, but warns that patient selection is very impor-
tant and often not appreciated.

Consider this, patients for decades have not taken care of their natural dentition and are now being treated in accordance with concepts like im-
mediate loading. Within an hour, any remaining decayed teeth are removed and replaced with implant-
supported crowns and bridges in the belief that the patients will start tak-
ing care of their new teeth. Unfortu-
nately, this is not realistic.

In his opinion, this is a ticking time bomb. It is just a matter of time be-
fore patients will come back with problems like peri-implantitis and failing implants. Who is going to sort that out? Think litigation! That is why training courses are so im-
portant. Placing implants is a great

skill and income generator; however, there is no substitute to Patient Se-
lection and Treatment Planning.