



Nobel-Active in severe case of periodontal disease

Transdental Guided-Implant-Planning (TdGIP) – deep shift implantation - Periobridging

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ABSTRACT

Anamnesis:

Due to severe periodontal diseases a 42-year old female translator [10] asked for help. Several periodontal-therapies had been already accomplished in the past. Other clinics had been recommended the removal of all teeth and an over-denture. By conversion on removable denture the female patient feared phonetic difficulties; thus in the long run an inability to work. We recommended an immediate implantation after tooth extraction based on Nobel-Guide Planning (Transdental Guided-Implant-Planning; TdGIP) using Nobel-Active-Implants.

Oral findings:

The clinical investigation showed reduced dentures of the upper jaw and prosthetic treated teeth. In the maxilla 2nd°-movement of the teeth was identified, in the lower jaw 1st°-movement. Left central and lateral incisors were rotated and labial protruded. The marginal gingiva was fibrotically thickened as indication of recurrend infections; (API: 65%, PBI between 3-4°; CPITN; [1a,b].







The radiological investigation (OPT; Orthopantomography) demonstrated a bimaxillary horizontal bone loss with vertical break-downs in region 15, 11-22, 24-26, 36-34 and 44. [2]

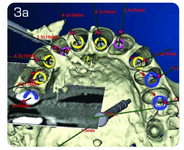
Diagnosis:

Chronical adult periodontitis (AP)

Planning:

First the maxilla was planned in arrangement with the patient needs as immediate implantation after tooth extraction with immediate function; En detail:

1. Periodontal pretreatment including antimicrobiotic Photodynamic Treatment (Photolase®)
2. Tooth extraction in the maxilla
3. Sinuslifting right
4. Transdental Nobel-Guide-Planning (TdGIP) with implantation [3a-c]
5. Immediate loading with "PerioBridge"
6. *3 weeks later* Transfer from "PerioBridge" to Procera® Crowns and Bridges



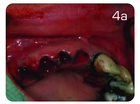




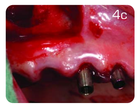
PROCEDURES

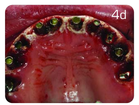
According to data conversion ten implants were planned in the three-dimensional data record. The radiological differentiation between tooth and bone substance could be accomplished using the Houndsfield-function. If possible the clinical tooth axle was imitated. Doing so, the implants could be placed in the X-Y-plane correctly. The vertical dimension (Z-axis) was extrapolated by following the clinical crown-height. After proving the Nobel-Guide-template intraorally, the laser-based periotreatment (Photolase®–procedure); [4a] were performed.

The tooth extraction in the Maxilla was followed by conditioning the cervical epithelium using Er, Cr:YSGG Laser [4d]. Right side sinus lifting was performed [4c]. Afterwards ten Nobel Active implants were deeply inserted (deep shift implantation with use of Nobel Guide Template) [4b]; (Rp 4.3x13mm in region 011, 022, 023, 014; Np 3.5x13mm in region 012, 022; Rp 5.0x13mm in region 015, 024, 025; Range of force between 45 and 65 Ncm). For loading via PerioBridge Narrow profile Abutments (Rp and/or NP 9mm) were used [4d].









Prosthetic rehabilitation:

An open casting was accomplished [5]. Narrow-profile-Abutments were placed on the implants and loaded by the PerioBridge. After this the provisional PerioBridge was integrated again [6a,b].







As final prosthetic restoration six Procera-Crowns were manufactured on Procera-Abutments in region 013-023 and inserted three weeks later [7a-c]. The remaining implants 014, 015, 024 and 25 were supplied by Procera-Bridges with distal extension on titanium abutments [8a-d].







RESULTS

Immediate implantation after tooth extraction in severe periodontal diseases represents a possibility to preserve the current bone situation. When combined with modern periotreatments like aPDT immediate function with provisional crowns or bridges secures the receipt of the periodental tissue. TdGIP improves the gingival heights after extraction and during the replacement of the PerioBridge by Procera-Crowns.











Discussion:

Due to missing physiological load the alveolar cavity leads to a decreased bone height after tooth extraction by alveolar atrophy. The result of each extraction are 40% to 60% bone loss in the first 2-3 years. Afterwards an absorption rate of 1% p.a. occurs to the end of life.
The supply of cover prostheses after extraction leads to the loss of the Papilla.
Late implantation and planning of single crowns can lead to a problem with the red/white aesthetic. Pretty often the Papilla must be replaced ceramically in these cases, which particularly means an aesthetic compromise with high laughter line.
Immediate implantation after tooth extraction represents a possibility to use current bone situation. Immediate function with provisional crowns or bridges secures the receipt of the periodental tissue. It is however a clearly bound defined criteria. In inflammation or chronic degenerative diseases causing vertical bone loss, augmentative possibilities (e.g. sinuslifting) must be used.

Immediate function of implant using Nobel Guide is not new. Since guided components are not yet available for the Nobel Active implant alternatives were choosen. As a check of the height and adjustment of the implants and abutments a Real-Axis-Verificator (RAV) was developed. This advice was fixed palatinal by using Guided-Anchor Pins in position of the befo-rehand used Nobel-Guide-template and in correct occlusion with the corresponding Mandibula. Necessary additional corrections of the implant-axle could be accomplished in such a way. Thus insertion of the PerioBridge in x-y-z-position was possible.

In the past Nobel-Guide-Templates were used and indicated for edentulous jaws or single tooth replacement. More advantages can now be obtained using Transdental Guided Implant Planning (TdGIP); By improving the prosthetic security (NobelGuide), decreasing surgical interventions and avoiding phonetic problems due to removable dentures.
In the long run this leads despite operation to a positive experience for the patient.

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ABBREVIATIONS

API	Modified Approximal-Plaque-Index
AP	Chronical Adult Periodontitis
CPITN	Community Periodontal Index of Treatment Needs
PBI	Papilla-Bleeding-Index
RAV	Real-Axis-Verificator
TdGIP	Transdental Nobel-Guide®-Implant-Planning

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