First Clinical Experience With Stepped-cylinder-design Implants With High Temperature Etched Surface for Immediate Implant Placement and Early Loading

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SPECIAL REPRINT

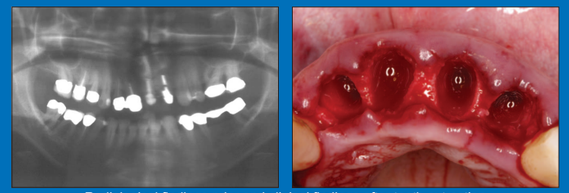
Introduction

The pre-requisite for de-novo-bone formation at the implant interface is the cell adhesion and proliferation. Recent studies have shown that the micro-morphology shows the most influence on the initial cell contact [1-3]. Grid-blasting and high temperature etching for surface preparation has shown the best results. Aim of the poster is to present the new handling during implant placement and the peri-implant bone parameters directly after reaching osseointegration and after 4 months recall. In 10 international implantological centers FRIALIT implants (DENTSPLY Friadent Mannheim, Germany) with the new FRIADENT high temperature etched implant surface were placed in order to collect relevant clinical data.

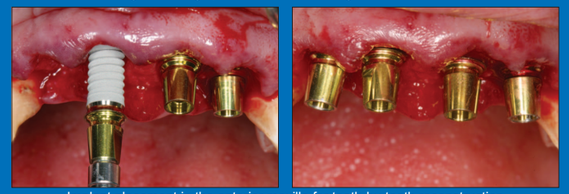
Material and Method

The surface is achieved by blasting with large grid (Al_2O_3), thermal etching process (BPS) and neutralization. The data of 77 patients and 140 (Fig.1) Stepped-screw type implants with the new surface design were collected and evaluated. The implants were placed in immediate extractions sides, for delayed implant placement and late implantation (Fig. 6). To enhance the clinical situation 29% of the patients underwent an augmentation procedure prior to the implant placement. In 49% of all cases an augmentation simultaneous to the implant placement was necessary. Concerning the medical history the patients in this investigation had not to meet special requirements, except the presence of absolute contraindications (Fig. 2). Consequently bigger diameter and longer implants were chosen in most of the cases (Fig. 7, 8). After an average healing period of 7.8 weeks the implants were recovered, followed by soft tissue adaptation and prosthetic restoration (Fig. 9).

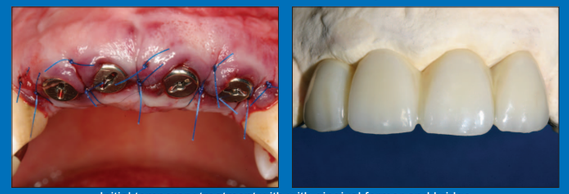
Multi Implantation in the Maxilla



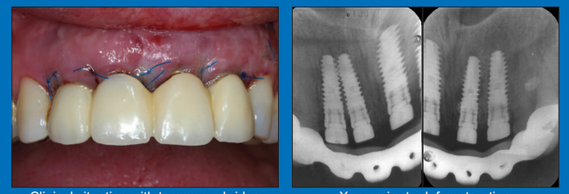
Radiological findings prior and clinical findings after tooth extraction



Implant placement in the anterior maxilla for tooth-by-tooth reconstruction



Initial temporary treatment with with gingival former and bridge



Clinical situation with temporary bridge

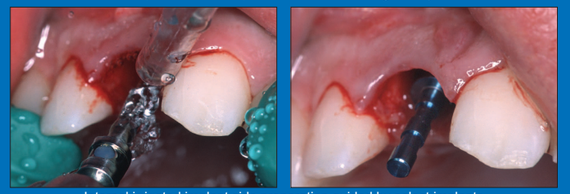
X-ray prior to def. restoration

Ideally shaped soft tissue

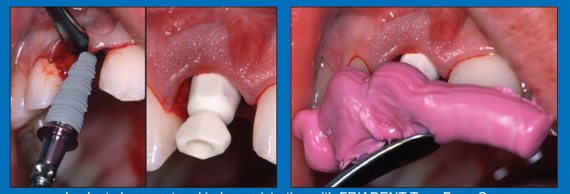
Early loading with single crowns

Single Tooth Replacement in the Maxilla

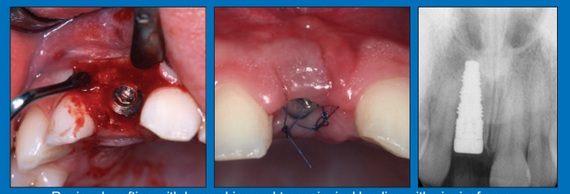
Interrupted root development after trauma at age of 6 years



Internal irrigated implant side preparation guided by select implants



Implant placement and index registration with FRIADENT TempBase Cap



Regional grafting with bone chips and transgingival healing with gingivaformer

Temporary treatment after six weeks and final restoration after three months

Statistics

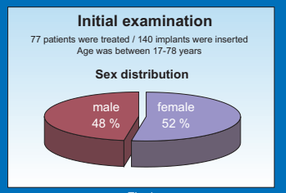


Fig.1

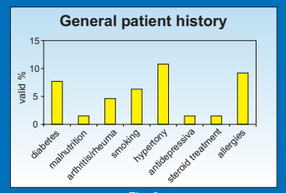


Fig. 2

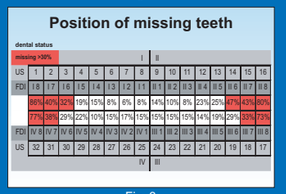


Fig. 3

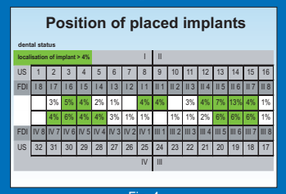


Fig. 4

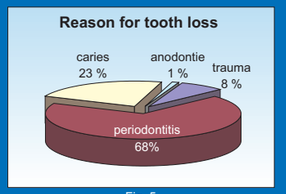


Fig. 5

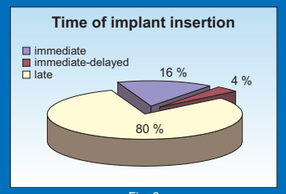


Fig. 6

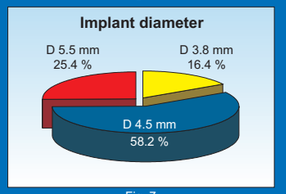


Fig. 7

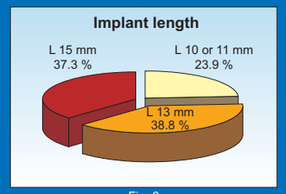


Fig. 8

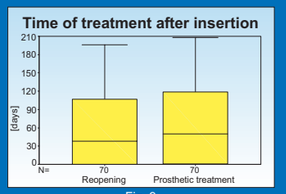


Fig. 9

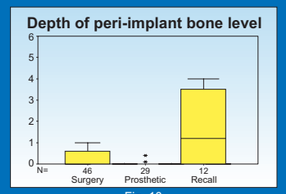


Fig. 10

Results

All implants showed an active wettability during the insertion procedure. Even if the surface seems to be rougher the insertion torque were similar to the standard implants with low temperature etching. All implants healed uneventful. 136 implants showed all signs of osseointegration after a prosthetic loading of 4 months only 3 implants out of 2 patients failed. The evaluation of the peri-implant soft tissue was also uneventful with an appropriate aesthetic result. The peri-implant parameters showed no signs of conspicuity.

Discussion

The insertion and the management of the implant with the new surface characteristics was not influenced by the new surface preparation. The initial results show a high confidence even in more critical indications like immediate extractions sides, early loading or after implant loss.

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