Possible applications of a new implant system

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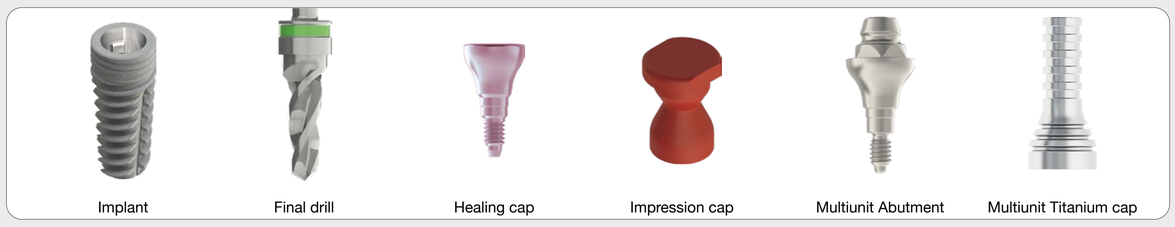
Praxis für Zahnheilkunde

JÜRGEN DIETERICH ZAHNTECHNIK

Task definition

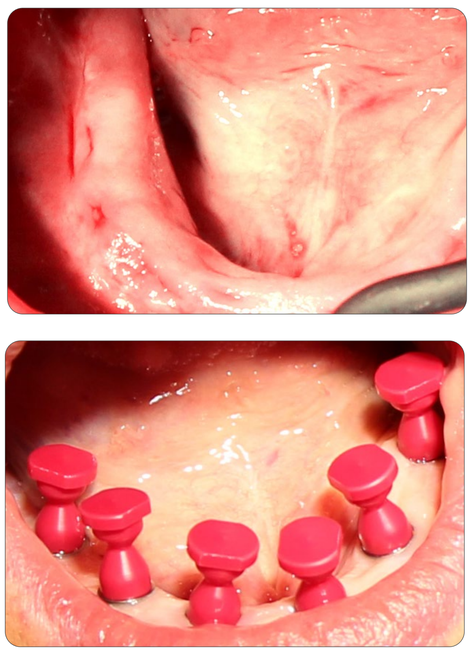
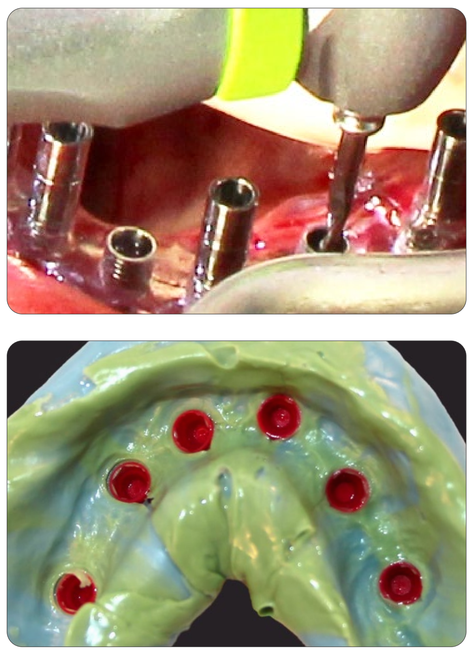
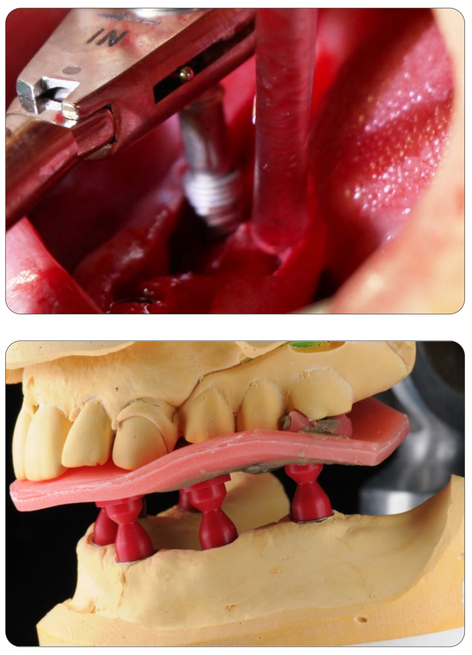
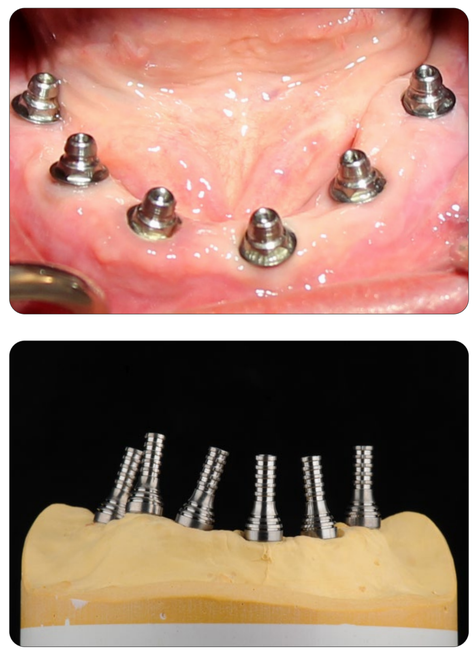
This evaluation is intended to demonstrate the use and suitability of a new endosseous implant system under clinical conditions. The implants are surgically placed in the partially edentulous or edentulous jaws of patients for functional and aesthetic oral rehabilitation. Subsequently, the prosthetic restoration with single crowns, bridges, partial or total dentures is carried out. The procedure was documented and evaluated in three phases, preoperative - intraoperative - postoperative. In the preoperative phase, the initial situation was recorded with radiological findings and a treatment plan was drawn up. Different indications, such as direct implantation after extraction, late implantation or in connection with direct or previous augmentation were considered in the patient selection. During the intraoperative phase, the implants were placed in a first step and subsequently left in the patient‘s mouth for several months for osseointegration. In the second step, the treated region was opened up again in order to subsequently shape the soft tissue with healing caps. Finally, the patients received prosthetic treatment in the post-operative phase. As a result, the prosthesis was complete and the treatment was successfully completed. All steps had to be documented in writing, radiologically and photographically. In addition, the cases included were accompanied and documented over the following period.



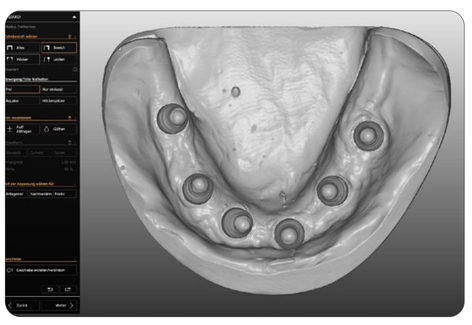
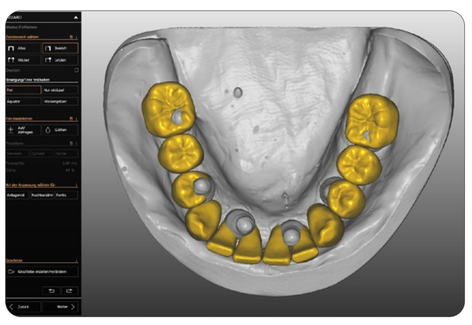
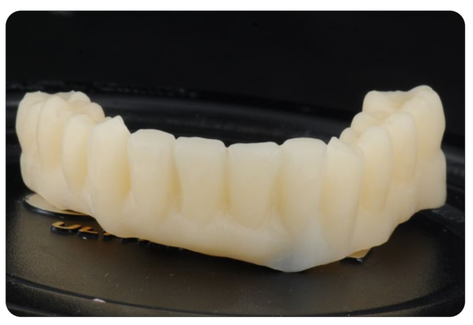
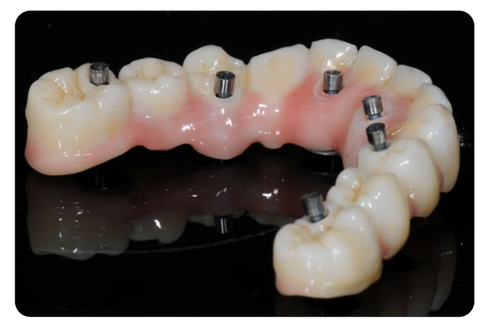
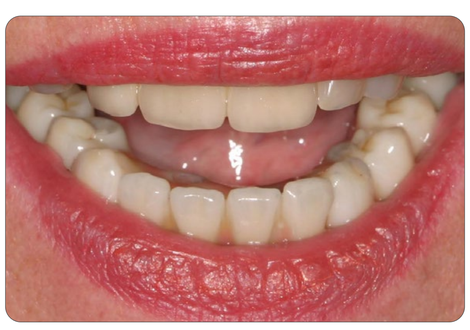
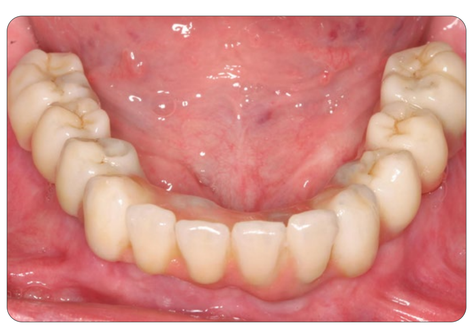
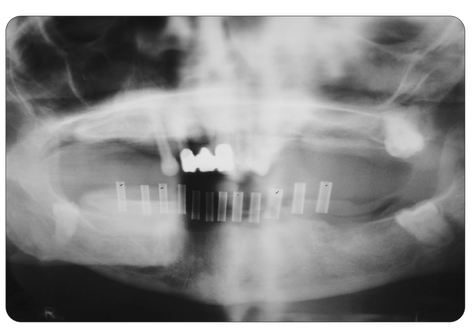
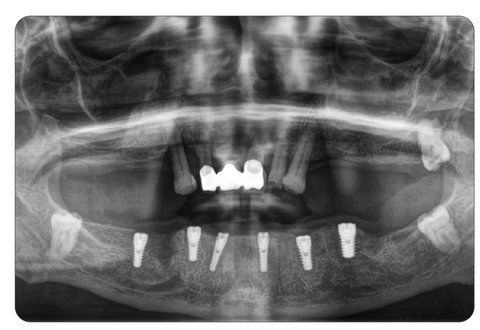
Implementation

example

Patient female, 75 years old, non-smoker. Lower jaw edentulous after removal of teeth not worth preserving. Bone quality (after mixing) D2.
After conduction anaesthesia, an incision was made in the alveolar ridge and a mucoperiosteal flap was formed, which was not mobilised beyond the mucogingival line. The pilot drillings (1.5mm) for the implants were carried out with the help of a drilling template. All further drilling was carried out with the drill belonging to the system according to the drilling protocol according to the implant diameters and lengths. Extension drillings with the final drills in ascending diameter, as well as the corresponding countersinks. With the inserter, the implants were placed slightly subcrestal (approx. 0.2mm) as intended. The primary stability was monitored by torque control during insertion. The cover screw loaded with Chlorhexidine-Gel at the coils was screwed in.

The implant shoulders located deeper in the vestibular region were covered with chips of the patient‘s own bone. These were obtained by collecting the drill chips produced during the milling of the implant gallery. No mobilisation of the soft tissue was required for wound closure, and an artificial membrane was not used. The radiological control shows a prosthetically ideal positioning of the implants. A healing period of at least 4 months was planned. For the period until the prosthetic treatment, the patient wears an interim replacement in the form of a total lower jaw prosthesis. The area of the implants was taken into consideration and left out during the production. The exposure was carried out 4.5 months after the implantation by exposing the soft tissue above the cover screws. Healing caps of size L were used in appropriate heights adequate to the thickness of the mucosa. Osseointegration was checked by means of a knock test after evaluation of a previous X-ray control. Subsequently, the mucosa was applied to the healing caps with middle sutures.
After a short regeneration period of the mucosa, the impression was taken. First the healing caps were unscrewed, removed and marked according to their position. Then the planned multi-unit abutments were screwed in with the inserter and the torque ratchet with a torque of 25Ncm. The impression copings for closed impressions could then be very easily put on with a click. The impression was taken using a standard impression tray and an impression material with high final hardness. After hardening, the impression was removed without any problems and the impression caps were securely anchored in it. Another set of impression caps was used for a bite registration and jaw relation determination.
The production of a master model was carried out with model implants belonging to the system on which the further work steps were implemented in the laboratory. To implement the planned zirconium bridge, titanium caps of the Multiunit abutment system were first screwed onto the model implants and a scan of the model was carried out. The planning through the digital setup already shows almost a good final result. To check the fit, bite position and aesthetics, a plastic template was first milled and tried in. It was found that the masticatory plane still had to be lowered by approx. 2 mm. Until the next trial appointment, a ceramic-veneered zirconium framework was then fabricated, in which the titanium caps were first provisionally fixed. After successful try-in, the complete bridge was then completed in the laboratory. At the final fitting appointment the patient‘s bridge was inserted and fixed with the prosthetic screws at a torque of 25Ncm. The screw channels were covered and closed with composite material.

Conclusion and Outlook

This case study shows a successful result even with large restorations. An attractive result was achieved in terms of aesthetics, function and oral hygiene. The RatioPlant® ConeCept implant system offers a selection of implants and prosthetic components for many situations. With the help of the clearly arranged and colour-coded RatioPlant® ConeCept instrument tray, the implants could be inserted in a time-saving and situation-specific way. The surface roughened up to the implant shoulder (blasted and etched) in combination with the bacteria-proof and mechanically stable internal tapered connection enables the subcrestal positioning of the implants.

The follow-up documentation of numerous ConeCept case studies prove the satisfactory application and underline the success of the well thought-out implant system.

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