



Ceramic Replacement

Z-systems Z5c Ceramic Implant and simultaneous sinus elevation to rehabilitate a missing maxillary second premolar



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Initial Situation

The patient, a 47 year old female, had previously lost tooth #25 due to recurrent peri-apical infection following multiple attempts to retreat an endodontically treated tooth. Her medical history was characterized by controlled mild periodontal disease she was otherwise medically stable. A residual ridge of 7mm in height was visualized with adequate width.

After clinical and radiological examination a decision was made in favour of the placement of a Z-systems Z5c Zirkolith Ceramic Implant (10mm, Ø 4.0mm) and a simultaneous internal sinus lift.

Surgical Procedure

A mid-crestal incision was made and a full thickness flap was elevated and raised, with a marginal incision around the neighbouring teeth in order to sufficiently reveal the alveolar site and to expose the crestal bone. Drilling was performed utilizing Densah Osseodensification drills (Versah, Jackson, Michigan).

After the initial drill the subsequent drills were advanced in a counter-clockwise direction to densify the bone and raise the floor of the sinus. Each subsequent bur pushed the sinus floor up and laterally densified the osteotomy. The final drill was a 3.3mm drill pushing to a depth of 10 mm. Blood obtained from the patient was centrifuged and a-PRF membranes were isolated. These membranes were used to graft the sinus through the osteotomy. The implant was placed with reasonable fixation at tissue level. A healing cap made of PEEK was inserted to the top of the implant and two single monofilament sutures were placed. A PTV value was obtained using a Periotest M and that value was +1.5. Radiograph taken after implant placement shows the displacement of the sinus floor and the excellence implant orientation and the marginal bone in relation to the implant.



Z5c Zirkolith Implants are tissue level 2-piece implants with a cementable abutment.

Prosthetic Restoration

After three months of soft and bone tissue healing and a PTV value of -2.5, prosthetic steps were initiated. An abutment was cemented into the implant utilizing a specific manufacturer suggested protocol using resin cement (Gcem, GC America). After slight preparation of the abutment an intra-oral scan using an i-Tero Scanner (Cadent, NJ) was preformed and the digital model forwarded to the laboratory for the fabrication of a veneered full contour zirconia crown. The final crown was cemented with Fuji-cem (GC America), excess cement was meticulously cleaned.

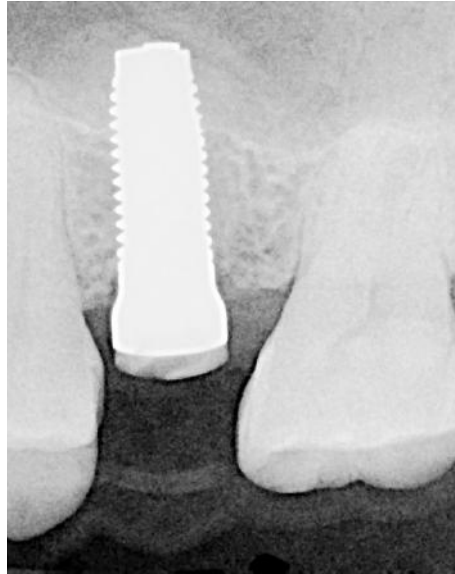
Conclusion

The use of a two piece tissue level ceramic implant by Z-systems with its macro- and micro-rough surface and optimal biocompatibility satisfies our treatment expectations and the patients desires to have a metal free treatment. The ability to take advantage of a two-piece design is beneficial in situations where initial stability in not ideal. The Z5c Zirkolith Ceramic Implant provides the clinician a solution for a variety of clinical applications.

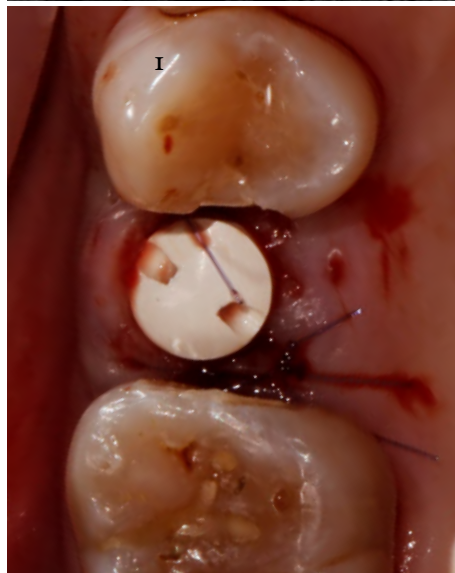
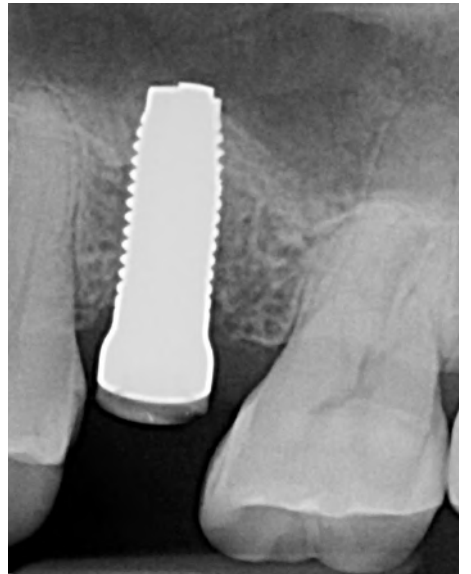
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Picture sequence of the treatment preformed.

Column 1 shows the pre-operative condition. Radiograph of the site shows the residual ridge. Width of ridge is visible from the occlusal and buccal views.

Middle column (2) shows the radiograph immediately post-operatively with the 3mm sinus lift. Occlusal and buccal views of the implant with the healing cap.

Last radiograph shows the implant after 3 months of healing showing the maintenance of the crystal bone level and integration of the implant as well as the bone that was formed apically.

