

# Screw-retained solutions for residual dentition not worth preserving

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In the past, treatment options for patients whose residual dentition was not worth preserving were frequently limited to removal or very complex and therefore costly restorations. These solutions were not always acceptable to patients, either for esthetic or financial reasons. For a number of years, demand has been increasing among patients for fixed restorations with immediate loading and a minimal number of implants. This has involved providing a fixed restoration both in the maxilla and the mandible with a minimum of four implants and without bone augmentation.

Relevant clinical experience has been gathered for this concept, an immediate restoration with at least four primarily stable implants that can withstand loading. To ensure optimal biomechanical support, the two rear implants are inserted at a slanting angle. This means that sinus augmentation in the maxilla can be avoided and a sufficiently long implant aligned with the premolar region can be inserted in front of the mental foramen in the mandible.

Thanks to the launch of the new Straumann abutments for screw-retained solutions with an angulation of 0.17° and 30°, this application is now also possible with Straumann® Bone Level Implants (with SLActive® surface). In the following section, we present two pertinent clinical cases (one maxilla and one mandible restoration).

## Case 1

A 55-year-old female patient with dental phobia was referred by her treating psychiatrist for the purpose of creating a maxilla restoration with masticatory function (Fig. 1, 2). We

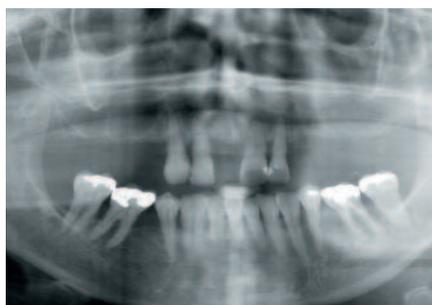


Figure 1



Figure 2



Figure 3

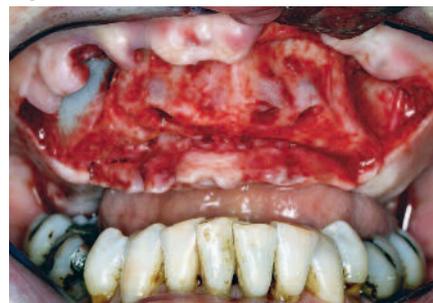


Figure 4

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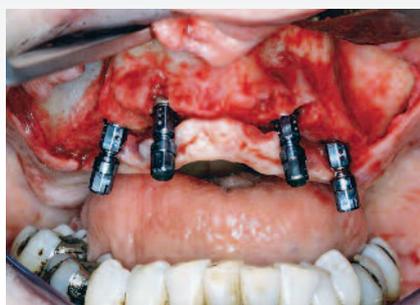


Figure 5

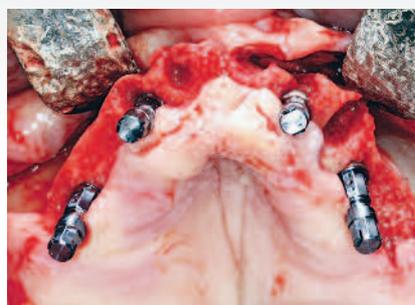


Figure 6

therefore planned a single-phase procedure with immediate restoration. Prior to the operation, an optimized tooth setup was transferred to a drill and impression template together with the technician and the patient. The template was used to determine the extent of and carry out the required bone height resection following the extraction of the patient's teeth (Fig. 3, 4).

Four Straumann® Bone Level Implants with SL Active® surface were inserted in positions 14, 12, 22 and 24, with the front implants straight and the implants in the number four positions slanting backwards (Fig. 5, 6). The abutments (angulation 30°, height 2.5 mm) were then screwed onto the number four implants. The titanium caps were screwed onto the abutments and fixed directly at implant level in the frontal area. After closure of the soft tissue, an impression was then taken with the template (Fig. 7, 8). The titanium-reinforced temporary restoration was then manufactured by the dental laboratory and screwed onto

the four implants within 12 hours (Fig. 9, 10). This temporary bridge will be worn by the patient for six months before the final suprastructure is fitted (Fig. 11).

### Case 2

After losing abutment tooth 43, a 62-year-old female patient with residual dentition in the mandible and a full denture in the maxilla no longer had sufficient anchoring possibilities for the removal mandible prosthesis. If the patient wishes to have a fixed restoration in the mandible, the situation is ideal for a solution with posterior angled implants (Fig. 12, 13).

After the extraction of the residual teeth in the mandible, the soft tissue was folded back and occlusal reduction carried out on the alveolar process bone to create sufficient space for the prosthesis and a broad bone level (Fig. 14, 15). The four Straumann® Bone Level implants were then inserted, once again

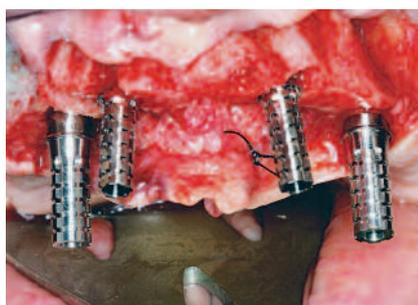


Figure 7

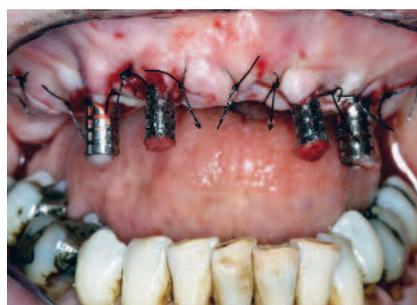


Figure 8



Figure 9



Figure 10

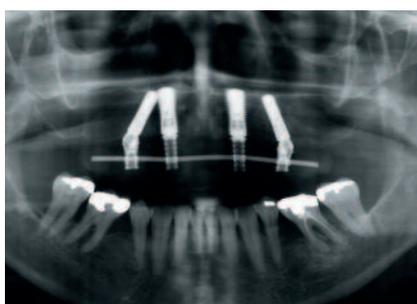


Figure 11

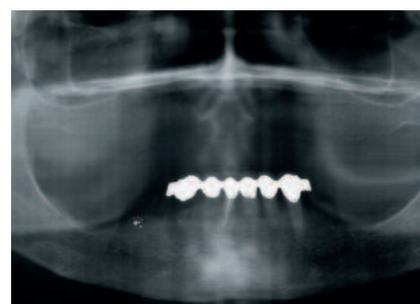


Figure 12



Figure 13

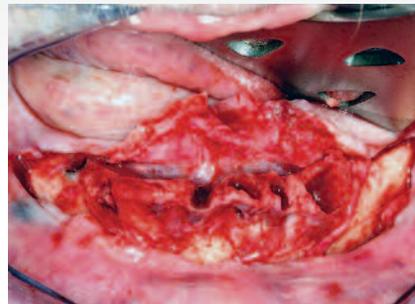


Figure 14

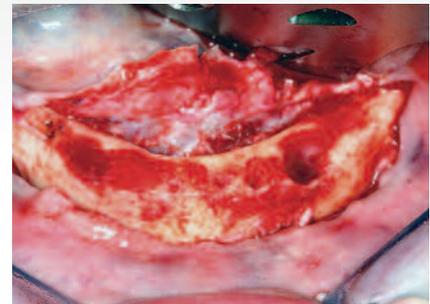


Figure 15

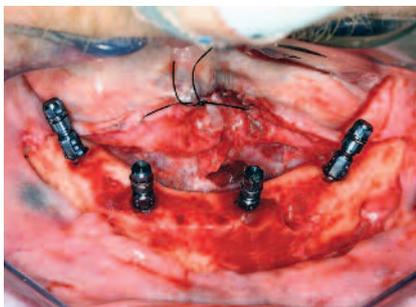


Figure 16

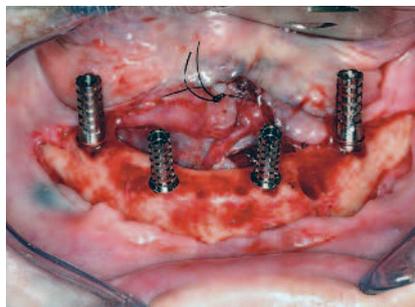


Figure 17



Figure 18

straight in the number two position and slanting in the number four position.

Abutments angled at 30° (height 4 mm) were screwed in the number four position and fixed to 35 Ncm. The abutments were then screwed onto the implants in the number two area and fitted onto the titanium caps (Fig. 16, 17). Using the prepared template, an impression was taken in correct occlusion – which was determined using an occlusal key – with Qu-resin.

The template was then sent together with the polymerized titanium caps to the laboratory, where the titanium-reinforced temporary bridge was manufactured. This was inserted within twelve hours and screwed. As a result, (limited) immediate loading is possible within the first four weeks (Fig. 18-20).

In the further course of treatment, the bridge will be unscrewed for the first time after two weeks to remove the threads and check the peri-implant soft tissue situation. The bridge will be fixed again

and left in position for three months. The patient will be instructed to eat soft foods for the first 4 – 6 weeks, after which she can switch to full loading. After three months, a control OPT will be carried out and the bridge removed again.

If no irregularities are discovered, the manufacture of the final suprastructure can be planned and carried out after a further three months, provided that the soft tissue and bone situation is stable.

### Conclusion

Initial experiences with the new angled components for applying the 'all-on-four' technique with Straumann® Bone Level Implants are extremely encouraging and show that the indication 'immediate restoration with four implants without bone augmentation for the maxilla and the mandible' has become a viable new option.

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Figure 19

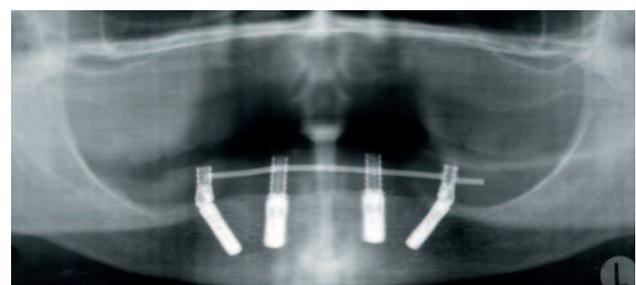


Figure 20