

index option meets elegant surgery

Bridge restoration with Ankylos C/X
| Dr. Krzysztof Chmielewski

Ankylos implants are predestined for subcrestal placement. The special connection design (bacteria-proof taper and PlatformShifting®) allows the bone to grow over the implant shoulder and to remain there for a long period. This fact, which has been repeatedly confirmed, and the tapered connection between the implant and abutment have made Ankylos a very popular implant system for many years. The taper allows the abutment to be positioned as desired and it is fully rotation-locked. This ensures that the abutment is always perfectly aligned in the dental arch. Indexing can be advantageous for larger restorations. Ankylos C/X now offers both types of positioning.



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1_ The clinical history of a 55-year-old patient showed stable periodontal conditions in spite of average oral hygiene

2_ The alveolar ridge was only moderately resorbed in the vertical plane

Particularly in the anterior region, abutments without indexing (Ankylos C/ abutments) allow unrestricted orientation, which means that the abutment can be aligned very accurately to the esthetic requirements of the final restoration. A customized key is required to transfer the implant position. The new C/X implants offer the option of selecting the infinitely adjustable mode or using an index. The index defines six options for the position of the abutment (Ankylos /X abutments). This can be very convenient for the dentist and the dental technician, for example when fabricating and delivering larger superstructures. The index makes it easier to reposition the abutments on the model or in the mouth.

THE CASE

It was necessary to extract all posterior teeth in the second quadrant of a 55-year-old patient as a result of caries and apical inflammation. The patient wanted an implant-supported bridge. In spite of only average oral hygiene, the periodontal status of the maxillary teeth was acceptable (Fig. 1). The alveolar ridge was well defined and provided good conditions for placement of implants without problems (Fig. 2 and 3). The x-ray image showed that a sinus lift would be necessary in the region of 27 (Fig. 4).

THE SURGICAL PROCEDURE

The maxillary sinus was augmented with plant-based bone replacement material (Frios Algapore, DENTSPLY Friadent) through a lateral access (Fig. 5) and covered with a collagen membrane. This was followed by preparation of the bone cavities. The bone was removed with the standard ascending sequence of Ankylos drills (Fig. 6). The tapered reamer was used in the final stage (Fig. 7). The relatively soft bone made it unnecessary to tap a thread. It was decided to place an Ankylos C/X implant at 24 and a standard Ankylos implant at 27 to demonstrate the differences between the old and the new type of Ankylos and the advantages of the new type.

NEWLY DESIGNED PLACEMENT HEADS

After opening the double-sterile blister package, the Ankylos C/X can be removed from the redesigned packaging (implant shuttle, Fig. 8 and 9). The Ankylos implant driver is inserted into the placement head (Fig. 10). The placement head for Ankylos C/X implants – unlike the standard Ankylos – is designed as an internally threaded abutment and grips the conical design directly.

In this case the implants were initially placed by machine at low speed. The ratchet was used to place the implant in its



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- 3_ The occlusal view also showed adequate bone volume
 4_ The bone is too thin in the region of 27. A sinus lift is required
 5_ After preparation of the buccal mucoperiosteal flap, the maxillary sinus is opened via a lateral window and augmented
 6_ The preparation of the implant site at 24 is started with a 2 mm twist drill. A direction gauge was placed in the hole at 27
 7_ The preparation of the implant site is completed with a tapered reamer for implants of 3.5 mm diameter
 8_ All implants from Friadent are now supplied in the newly developed implant shuttle



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final position (Fig. 11 and 12). The implant must be positioned so one of the marks on the insertion instrument – and therefore an index position – points in a buccal direction. This is important if, for example, angled abutments must be correctly aligned. An indexed or a non-indexed abutment can be inserted into every Ankylos C/X as required. This means that an indexed or non-indexed option can be selected even after placement of the implant.

VERTICAL POSITION EASILY READABLE

The placement head has been redesigned. In contrast to the standard Ankylos system, there is an obvious step between implant and placement head (Fig. 13). The unobstructed view of the implant shoulder and the marks on the placement head make it easier than before to position the implant very accurately in relation to the alveolar ridge. This also applies in the event of hemorrhage during placement. The implant shoulder and the end of the taper on the placement head correspond to a distance of one millimeter. This means that the placement depth is clearly indicated for subcrestal placement. If it is necessary to place the implant transgingivally, for example in the course of a computer-

guided implant placement, the thickness of the mucosa can be easily estimated with a ring mark. It has a distance of three millimeters from the implant shoulder (Fig. 13). To remove the placement head from the implant, the screw is screwed out with the 1 mm hex screwdriver. When the adapter retaining screw is removed, two stages of resistance must be overcome: at the first stage the screw is released from the tightening torque, at the second the screw presses the placement head out of the implant from below (Fig. 15). The implant cover screw is packaged separately in the inner blister with the Ankylos C/X – unlike the standard Ankylos. It is only used with submerged healing. If transgingival healing is planned, a gingiva former or in the case of immediate restoration an abutment is placed immediately. Figures 16 to 18 show the two implants in place from the occlusal view, the sutured site and the control x-ray image. The special features of the prosthetic restoration of Ankylos C/X implants will be described in one of the following editions of iDENTity.



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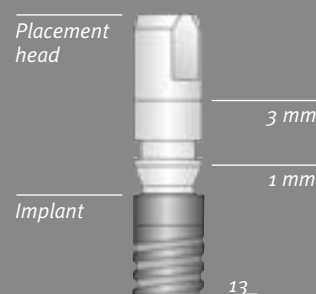


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- 9_ The indexing of the placement head can be seen in the occlusal view
 10_ The implant driver is inserted into the placement head
 11_ The Ankylos C/X implant at 24 is placed by machine. Marks on the placement head are used to assist alignment for the index position in the implant
 12_ Implant 24 has reached its final subcrestal position. The placement head was submerged almost to the top margin of the abutment cone.
 The placement head of a classical Ankylos implant can be seen at 27
 13_ Steps and transitions on the placement head make orientation easier when placing the implant
 14_ In the last step the placement head can be removed



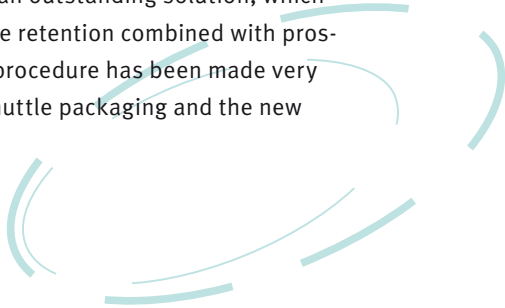
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CONCLUSION

More than 21 years of long-term clinical success rate with Ankylos offer unrestricted continuity with the new C/X technology. The new index option can be primarily of advantage with larger and more complex restorations in the posterior tooth region. However, it can also be used even if the free positionability of the abutments in the dental arch does not offer any specific advantages. From the author's point of view, the combination of the TissueCare tapered connection with the index is an outstanding solution, which offers the advantage of tissue retention combined with prosthetic comfort. The surgical procedure has been made very user-friendly with the new shuttle packaging and the new placement head. ■



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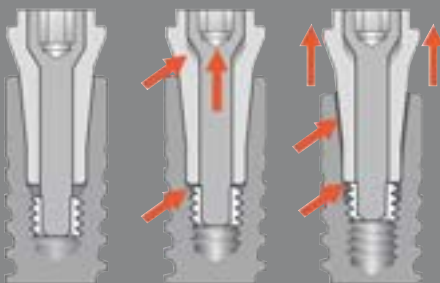
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15_ The new Ankylos C/X placement head is screwed into the implant like an abutment. The retaining screw presses against the abutment and releases it from the implant
 16_ At the classical Ankylos implant at 27 (A 14) the cover screw is already in position, implant 24 (Ankylos C/X) is not yet covered
 17_ The flap is sutured, the healing phase can now start
 18_ The panoramic tomographic image shows that the implants are perfectly positioned