Innovative Digital Workflow for Implant supported prosthesis

Dr. Ricardo Velazquez

Dynamic Abutment Solutions has recently developed a universal guided surgery kit for implant placement that allows modification of the offset since the design of the guide; allowing the placement of the implants in the prosthetically planned position, thanks to the different lengths of the drills and the specific implant mounters.

The placement of implants at a depth where soft tissue or bone does not allow the entry of mounters with default lengths is a major limitation in the case of fully guided surgical placement.

This article describes in detail how the use of a surgical kit that allows modifications made during the planning offset to be taken to surgery is a very useful tool for fully guided and accurate implant placement and digital tools to further assist in the rehabilitation.

The use of SCAIS (Static Computed Implant Surgery) has become an everyday technique in implantology practice due to its many advantages that have been well documented over the last few years.

One of the main limitations in the case of guided surgery is the planning offset, which will indicate the position of the sleeves or limit as far as our drilling should go. Being the same sleeve the one that will indicate the final position of our mounter and, consequently, of our implant. This offset will be linked to the manufacture of the drills and conveyors of our surgical kit to be used.

However, in specific cases where soft tissues, teeth or the patient's own bone do not allow us to place the sleeve deeper due to a collision with these tissues, it becomes a real limitation that in some cases restricts the final position of the implant.

In some situations we can change the planning offset, and change the length of the drill as well; however, when it comes time to use the mounter to bring the implant into the final position, the mounter is usually only manufactured in a single length according to the original offset with which the system was created. This limits the restrictive guided placement of the implant significantly and the final position of the implant.

This article describes how the use of a universal surgical kit can solve this type of limitation and make the most of our guided surgery.

CLINICAL CASE

60 year old male patient visits the clinic with the desire to restore his oral health in a fully comprehensive manner.

Upon physical examination we found absence of teeth in both jaws and remaining teeth with recurrent caries, advanced periodontal disease and mobility; with a poor prognosis for function and aesthetics. We proceeded to take all the preparatory records such as: scans, photographs, x-rays, tomography and other diagnostic elements for the planning of rehabilitation by means of dental implants.

Fig. 3

Fig. 4

According to the prosthetic planning in the co diagnostix software, it is decided to extract the remaining upper teeth, leaving two teeth temporarily for stabilisation of the surgical guide and as a reference for the immediate scanning after the placement of 4 single-stage implants (Fixo. Oxy. Italy).

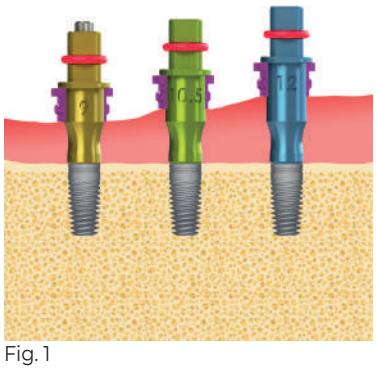

Fig. 1

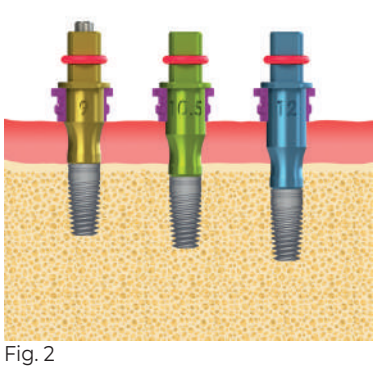

Fig. 2

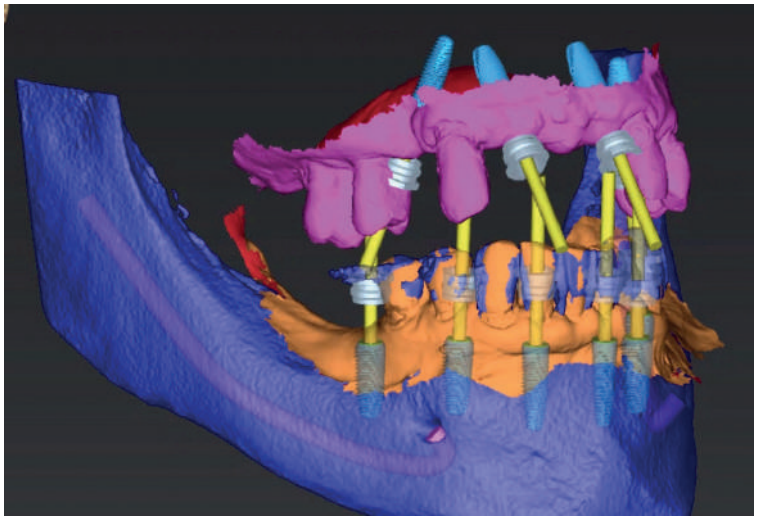

Fig. 5 Benjamin Mancilla (Lab.Trascendent)

In the lower part the extraction of the remaining teeth is planned and the immediate placement of 6 implants (dynamic hex. Cortex . Israel) and and the immediate placement of Multi Units Abutments (MUA. DAS. Dynamic Abutment Solutions. Spain).
However, when planning for the lower implants at the same level, there is a collision of the sleeves with the bone that prevents the placement of the implants at the same level (fig. 6), so the offset of the anterior implants is modified to ensure the correct position in the guide, avoiding interference with the bone and placing the implants at the same level (fig. 7).

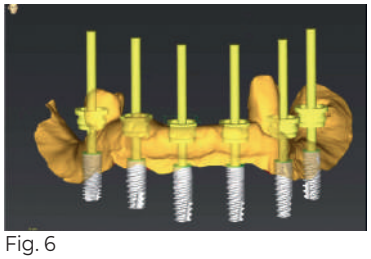

Fig. 6

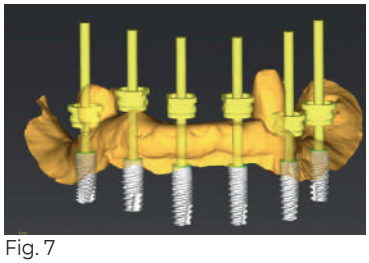

Fig. 7

Dental extractions are carried out, temporarily leaving some teeth that will help to stabilise the guide in a correct position at the moment of placing the implants, as well as being a reference at the moment of matching the scans for the immediate prosthesis.

Once the surgical guide is stabilised, the osteotomies and placement of the lower posterior implants are performed, while the length of the anterior implants is changed in the drilling sequence according to the modified offset, which corresponds to the mounter, colour-coded according to the length of the offset.

Fig. 8

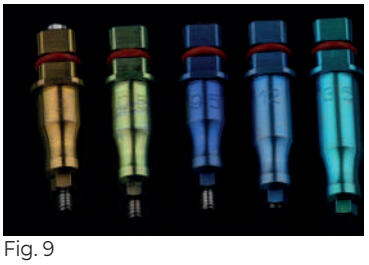

Fig. 9

Immediately after implant placement, the MUA Abutments are placed (Dynamic Abutment Solutions)

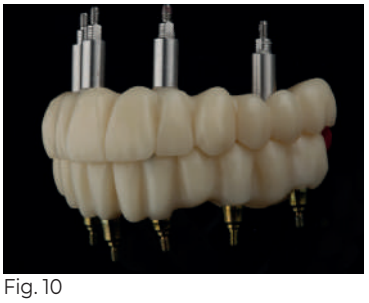

Fig. 10

In the maxillary case, the implants with integrated MUA Abutment (monoimplantes fixo . oxy italia) are placed and scanning is performed before extractions of the remaining teeth that will serve as a reference for the scan and the position reference in the design software.

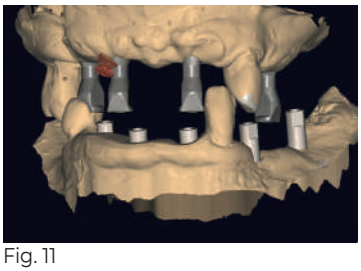

Fig. 11

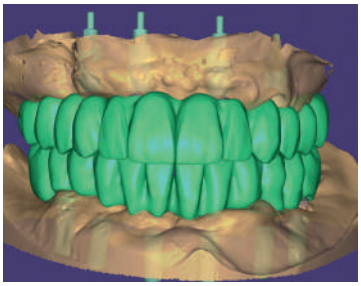

Fig. 12

Fig. 13 a-b

The immediate prostheses are milled in PMMA and fitted on their corresponding bases, adjusted and radiographically checked for proper seating.

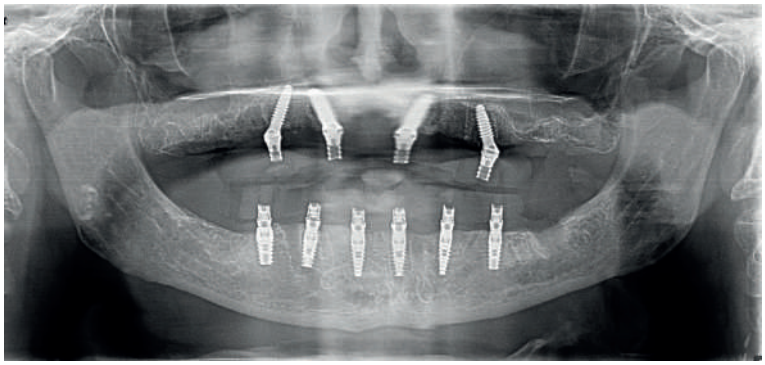

Fig. 14

Fig. 16 Lukas Wichnalek, Rafael Díaz (Soul Dental Arch)

Fig. 17

Fig. 15

Fig. 18

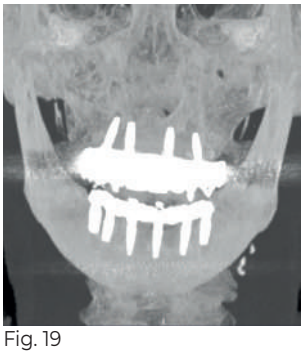

Fig. 19

After 6 months the patient returns and records are taken for the final prosthesis.
In this case the lower prosthesis is made of a titanium bar and a PMMA superstructure and the upper part is made of a titanium substructure and a zirconia structure.

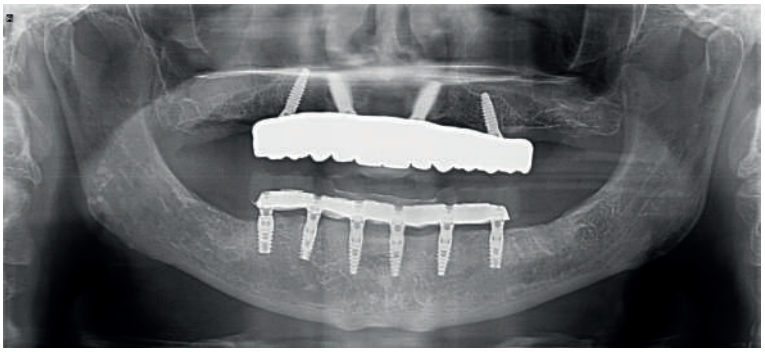

Fig. 20