The severely atrophied Maxilla – Augmentation, med 3D-Planning, immediate Implant Prosthesis, full ceramic Restoration – A Case Report
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Initial findings

The very attractive 40 years old female patient had lost the teeth in her upper jaw as a result of aggressive periodontitis and exhibited extreme alveolar ridge atrophy with a high laugh line. In the lower jaw, the situation had been stabilised for the medium term following periodontal treatment. In the upper jaw, the patient was given a total prosthesis as an interim solution. The patient requested a fixed implant prosthesis in the upper jaw, as soon as possible in the case of implantation. We planned an external bilateral sinus lift, the insertion of 8 XiVE®-Implants and an immediate prosthetic treatment with a fixed bridge, according to the motto “Beauty and Speed”.

Augmentation

As a first step, an extensive external bilateral sinus lift was performed under local anaesthesia. After piezo-surgical preparation, the thin sinus mucosa was reinforced on both sides by means of a BioGide® membrane. A mixture of autologous bone chips, Cerasite® and PRF (platelet rich plasma) was deposited in the sinus floor, and the facial sinus wall was reconstructed, also using a BioGide® membrane. The autologous bone chips had been harvested in a stress-free process by means of clustered blind-end drilling in the right-hand angle of the lower jaw.

med 3 D-Planning

2 ½ month after the sinus lift, a med 3D x-ray template was produced analogous to the upper-jaw prosthesis worn by the patient. In order to ensure that it was fixed in the toothless upper jaw, it was secured palatally with 2 titanium mini-screws and a CT was carried out.

Using med 3D planning software, 8 XiVE® implants were planned in the positions required for the prosthesis in an on-line dialogue between surgeon, prosthodontist and dental technician.

A drilling template with guide sleeves for the planned implant positions was constructed using hexapod technology and the x-ray template. The correct position of the drilling guides was checked by means of a control sheet.

In addition to converting the data into a drilling template, a plastic bridge with the planned implant positions was prepared as a long-term interim measure for immediate prosthetic treatment to be implemented intraoperatively on the Temp-Base®.

Implantation and immediate treatment

The implantation was also performed under local anaesthesia 4 month after the bilateral sinus lift. In order to be able to check the planning, it was decided not to use flapless surgery, which could easily have been done otherwise. The drilling template was secured analogously to the x-ray template using 2 titanium mini-screws and drilling was carried out to the planned depth with the aid of the guide sleeves. The subsequent steps to prepare the implant bed and insert the implants with the planned length and diameter conformed to the standard protocol for XiVE® implants.

After suturing, the prepared plastic bridge was fitted over the Temp-Base® caps, optimised and provisionally cemented into place.

6 weeks later, the long-term temporary prosthesis was re-worked in accordance with the patient’s aesthetic wishes.

Definitive prosthetic treatment

Definitive prosthetic treatment was carried out 5 month after implant insertion. After taking an impression with an individually prepared tray and subsequent bite registration, individual full ceramic zirconium oxide abutments were made, as were galvanoforming passive-fit parts and on top of them a cementable bridge made of zirconium oxide with ceramic veneer.

For achieving the passive-fit, the galvano caps were bonded to the prepared bridge construction intraorally.

The cemented definitive fixed bridge satisfies the patient’s high aesthetic demands as an imitation of the original appearance of her own teeth with good hygienic capability and optimal function. Corresponding treatment in the lower jaw is also planned in the long term.


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