Case study

Sequential extractions and implantations

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Multiple immediate implants and extensive treatment in the maxilla. Stay in control and simplify therapy to prevent peri-implantitis.

A 38-year-old female presented during our consultation hours because she could not chew efficiently and was afraid of losing her upper right canine. Her medical history was uneventful. For several years she had been treated and maintained by her periodontist and her oral hygiene was good. However, several teeth showed increased mobility and tooth 13 was about to be lost. (Fig. A) Despite rather severe bone loss (Fig. B) and the malposition for tooth 13, tooth migration or diastemas were not present. Because of her periodontal condition, we informed the patient of her higher risk for peri-implantitis.[1] Indeed, although with good peri-implant maintenance therapy this type of patient could be treated successfully, the risk for peri-implantitis remains significant.[2]

The first phase of treatment was performed as if it were four single tooth extractions/implantations. Implants were placed as teeth were removed incrementally. This sequence allowed retention of anatomical landmarks during surgery. A surgical guide (basic vacuum-formed stent) was fabricated but not used extensively. Modified titanium fixture mounts were used as immediate provisional abutments, since they are stronger and easier to prepare than polyether ether ketone. (Fig. C, D)

A 9-unit methyl methacrylate temporary bridge was relined immediately, trimmed, finished and delivered within three hours. This bridge reproduced the shape and position of the patient's teeth. The esthetic result was obtained by combining two shades of resin (incisal and dentin, Unifast III, GC) and the use of chairside glaze with stains (Optiglaze™, GC, and Akzent®, VITA). The incisal embrasures were deep and could compromise strength and rigidity; therefore, we compensated by using thick pink acrylic gingiva. (Fig. E) The bridge was cemented and excess cement was removed carefully. (Fig. F)

A sinus graft was performed a few weeks later (Fig. G) and, after a six-month healing period, tooth 15 was removed and two posterior implants were placed. Remaining maxillary molars showed moderate bone loss and no mobility and, therefore, they were retained. (Fig. H) After healing, an indirect impression (closed tray) was taken. (Fig. I) A porcelain fused to metal bridge was fabricated in three parts and splinted with low-fusing solder joints (laboratory: Frédéric Briffaut and Philippe Amiach). (Fig. J) The final bridge combined screw-retained and cemented elements (RelyX™, 3M or Improv®). It was very stable, allowed ideal anatomy for the anterior units and ease of removal. Pink porcelain provided gingival embrasures around implants and allowed proper use of interdental brushes. (Fig. K) The patient was satisfied with the esthetic and functional outcomes. (Fig. L) Periodontal and peri-implant maintenance appointments were scheduled (four-month recalls).

All-on-4 or sinus grafts and six implants?

When teeth remain in the maxilla, oblique implant placement with an All-on-4 approach should be questioned. The oblique implant has to cross several extraction sockets, and healing may not be predictable. If primary stability is not optimal, the prognosis may also be poor. Many All-on-4 cases are described for fully edentulous patients with healed crestal bone. Our patient's sinuses were healthy and presented with a favorable anatomy, so sinus grafts provided an excellent prognosis.[3] In this case placement of two long and wide posterior implants was possible.

References

1 Chrcanovic BR, et al.: J Dent 2014; 42(12): 1509-27.
2 Monje A, et al.: J Dent Res 2016; 95(4): 372-9.
3 Esposito M, et al.: Eur J Oral Implantol 2010; 3(1): 7-26.

FIG. 1: CASE STUDY OF AN IMMEDIATE IMPLANT PLACEMENT WITH AN EXTENSIVE TREATMENT IN THE MAXILLA.

| **A** Initial clinical situation. | **B** Significant bone resorption in the maxilla. | **C** Four single tooth extractions/ implantations. | **D** Panoramic radiograph after the first treatment phase. | **E** Pink acrylic resin provides added strength and rigidity. | **F** Immediate esthetic outcome. | **G** Sinus graft procedure. | **H** Radiograph at six-months follow-up: two more implants are placed. | **I** Closed tray impression copings. | **J** 11-unit PFM bridge on six maxillary implants. | **K** Final positioning of the bridge. Porcelain allows the use of interdental brushes. | **L** Final panoramic radiograph.