

Original Research

IMMEDIATE LOADING ON SWISS ZYGOMA IMPLANTS & ITS PREDICTABILITY- 20 CASES SUCCESSFUL FOLLOW UP

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ABSTRACT:

Tooth loss is very common and it can happen as a result of disease and trauma; therefore, the use of dental implants to provide support for replacement of missing teeth has a long and multifaceted history. Even with the great strides made in the techniques for placement of traditional dental implants, restoration of the dentition in patients with a severely resorbed or resected maxilla can prove challenging. However, zygomatic implants have been shown to provide a stable and predictable alternative for the restoration of the maxillary dentition.

Key words: Zygoma, Swiss, Implants

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INTRODUCTION

Tooth loss is very common and it can happen as a result of disease and trauma; therefore, the use of dental implants to provide support for replacement of missing teeth has a long and multifaceted history. Research on dental implant designs, materials and techniques has increased in the past few years and is expected to expand in the future due to the recent growth of the global market for dental implants and the rising in the demand for cosmetic dentistry. In patients with sufficient bone volume in the edentulous or semi-dentate maxilla, rehabilitation of masticatory function with dental implants can be achieved with predictable success and acceptable long-term results. However, due to mechanical and anatomical difficulties, rehabilitation of severely resorbed maxilla rehabilitation with endosseous implants remains a challenge.¹⁻³

Zygoma implants were first introduced in 1998 by Per Ingvar Branemark widely acknowledged as the "Father of Dental Implantology." After Branemark, Malevez et al. described zygomatic implants as self-tapping screws in commercially pure titanium with a well-defined machined surface available in length 30–52.5 mm and a unique 45° angulated head to compensate for

the angulation between maxilla and zygoma. Original technique was the two-stage delayed loading protocol, Chow et al., Bedrossian et al., and Miglioranza et al presented the favorable results and conclusions regarding the immediate loading of zygomatic implants.⁴⁻⁸ Hence; the present case series represents immediate loading on Swiss Zygoma implants & its predictability.

CASE SERIES

The present case series represents immediate loading on Swiss Zygoma implants & its predictability. The main advantage with zygomatic implant is the freedom of placement in respect to the abutment emergence for the desired prosthetic placement. Almost all the dental implant procedures in the zygomatic region are done under local anaesthesia. With flat anterior wall and moderately resorbed maxilla, the flapless approach is the easiest, but in the case of severe maxillary resorption or with profound concavity of anterior maxilla, this approach is very skillful demanding. Length of the zygomatic implant corresponds to the osteotomy drill marking from alveolar palatal crest to the exteriorized at zygomatic bone felt from the finger.

When the osteotomy is done at or distal to upper 1st molar, it is more than 50° angulated vertically, and it reaches close or at orbital floor, thus the care is utmost. It is advisable placement of zygomatic implant flapless with surgical guide, but the author believes more on the tactile perception and when the splint is at mucosal or bone level, a small change in orientation will lead the dramatic error in desired angulation leading to unwanted complication. In all the 20 patients, clinical satisfactory outcome was seen. Sequential description along with figures is presented as follows:



Figure 1: Implantswiss zygoza

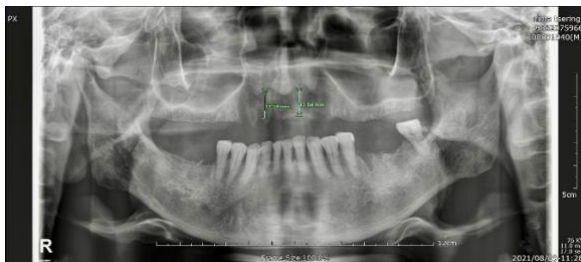


Figure 2: Preoperative Radiograph



Figure 3: Intraoperative view- Flap elevation



Figure 4: Seat preparation and orientation by lateral cut diamond bur

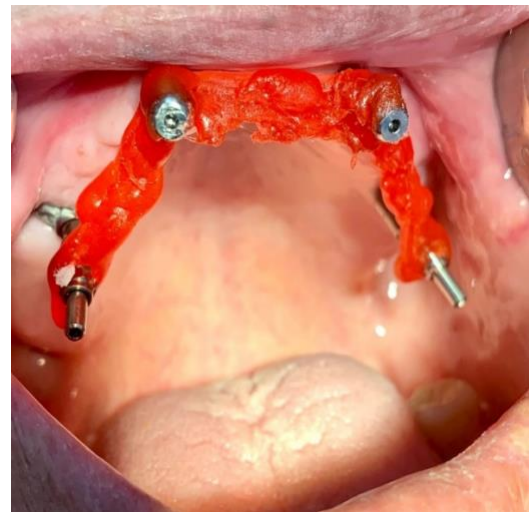


Figure 5: Prosthetic steps

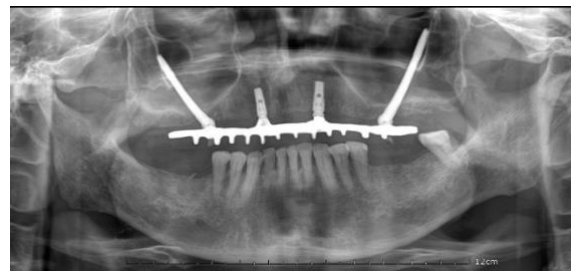


Figure 6: Post-op radiograph



Figure 8: Post-op clinical



Figure 9: Post-op clinical

DISCUSSION

Excessive bone resorption combined with poor bone quality and increased maxillary sinus pneumatization often making it impossible to place conventional dental implants in the posterior maxilla. Various bone augmentation techniques, such as sinus floor elevation and onlay bone grafting, have been described in order to increase the volume of load-bearing bone. Nevertheless, efforts have been made to pursue alternatives to grafting procedures and one of these, especially in the atrophic maxilla, is the use of zygomatic implants. This implant which was initially introduced for the prosthetic rehabilitation of patients with extensive defects of the maxilla caused by tumor resections, trauma or congenital defects was also used in patients with edentulous atrophic maxilla, enabling rehabilitation with sufficient function and improved esthetics. However, the placement of zygomatic implant is not deprived of risks, since it may involve delicate anatomical structures such as the orbit, and therefore surgical experience is required. Additionally, many complications have been reported in the literature, with sinusitis being the most common.⁸⁻¹¹ The present case series represents immediate loading on Swiss Zygoma implants & its predictability.

A total of 20 patients were treated with zygomatic implantswiss system. Significant favourable results were obtained among all of them which corresponds to past literature. In a previous study conducted by Davó R et al, authors evaluated implant survival associated with zygomatic implants placed according to the zygomatic anatomy-guided approach (ZAGA). This retrospective multicenter study reviewed data from the charts of 82 consecutive patients who had received 182 zygomatic implants. Patients were fully edentulous (62.2%), partially edentulous (22.0%), or had failing dentition (15.9%). Most patients (87.5%) did not have previous sinusitis and 11.3% had been previously treated for it. Additionally, about half of the patients (53.8%) did not present periodontal pathology, and one-third (36.3%) did, but were subsequently treated. Most implants (93.8%) were loaded immediately, i.e., within 48 h of placement. Implants were followed for 10.5 ± 7.2 months, and all were recorded as surviving and stable at last follow-up. Post-operative complications were infrequent and included sinusitis

(10.1%) and peri-implant hyperplasia (0.8%). The low complication rate and 100% implant survival and stability indicate that zygomatic implants offer a viable treatment option when performing graftless restoration of severely resorbed maxilla, including immediate loading protocols.¹¹ Ramezanzade S et al, in another research, evaluated systematic reviews assessing the clinical outcomes of zygomatic implants including survival/failure rate and complications. PubMed-MEDLINE, Google Scholar, LILACS, and the Cochrane Database were searched up to April 2020. Risk of bias assessment was conducted by the AMSTAR tool. Initial searches yielded 175 studies. These were assessed, and following title abstract and full-text evaluation, 7 studies (2 meta-analyses) were included in the final review. According to the AMSTAR tool, 1 was deemed high quality, 4 were classified as medium, and 2 as low quality. The mean AMSTAR score (\pm SD) was 5.28 of 9 (\pm 2.36) ranging from 2/9 to 9/9. The reported survival rates ranged from 95.2 to 100% except for resected maxillas, which established higher failure rates up to 21.43%. Concerning the complications with the zygomatic implants, various surgical and prosthetic complications were reported with sinusitis being the most frequently observed complication. Zygomatic implants appears to offer a promising alternative to formal bone grafting techniques with lower costs, less complications, less morbidity, shorter treatment times, and comparably high survival rates.¹²

CONCLUSION

Even with the great strides made in the techniques for placement of traditional dental implants, restoration of the dentition in patients with a severely resorbed or resected maxilla can prove challenging. However, zygomatic implants have been shown to provide a stable and predictable alternative for the restoration of the maxillary dentition.

REFERENCES

1. Shea BJ, Reeves BC, Wells G, Thuku M, Hamel C, Moran J, et al. AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both. *BMJ*. 2017;358:j4008.
2. Tuminelli FJ, Walter LR, Neugarten J, Bedrossian E. Immediate loading of zygomatic implants: a systematic review of implant survival, prosthesis survival and potential complications. *Eur J Oral Implantol*. 2017;10(Suppl 1):79–87.
3. Neugarten J, Tuminelli FJ, Walter L. Two bilateral zygomatic implants placed and immediately loaded: a retrospective chart review with up-to-54-month follow-up. *Int J Oral Maxillofac Implants*. 2017;32:1399–1403.
4. Brånemark PI. *Surgery and Fixture Installation: Zygomaticus Fixture Clinical Procedures*. 1st ed. Goteborg, Sweden: Nobel Biocare AB; 1998. p. 1.
5. Malevez C, Daelemans P, Adriaenssens P, Durdu F. Use of zygomatic implants to deal with resorbed posterior maxillae. *Periodontol*. 2000;2003;33:82–9.

6. Chow J, Hui E, Lee PK, Li W. Zygomatic implants – Protocol for immediate occlusal loading: A preliminary report. *J Oral Maxillofac Surg.* 2006;64:804–11.
7. Bedrossian E, Rangert B, Stumpel L, Indresano T. Immediate function with the zygomatic implant: A graftless solution for the patient with mild to advanced atrophy of the maxilla. *Int J Oral Maxillofac Implants.* 2006;21:937–42.
8. Migliorança RM, Ilg JP, Mayo TM, Serrano AS, Funis LP, et al. Função imediata em fixações zigomáticas: Relato de dois casos com 18 e 30 meses de acompanhamento clínico. *Implant News.* 2006;3:243–7.
9. Coelho PG, Granjeiro JM, Romanos GE, Suzuki M, Silva NR, Cardaropoli G, et al. Basic research methods and current trends of dental implant surfaces. *J Biomed Mater Res B Appl Biomater.* 2009;88:579–596.
10. Dugaard H, Elmengaard B, Bechtold JE, Jensen T, Soballe K. The effect on bone growth enhancement of implant coatings with hydroxyapatite and collagen deposited electrochemically and by plasma spray. *J Biomed Mater Res A.* 2010;92:913–921.
11. Ong JL, Carnes DL, Bessho K. Evaluation of titanium plasma-sprayed and plasma-sprayed hydroxyapatite implants in vivo. *Biomaterials.* 2004;25:4601–4606.
12. Davó R, Bankauskas S, Laurincikas R, Koçyigit ID, Mate Sanchez de Val JE. Clinical Performance of Zygomatic Implants-Retrospective Multicenter Study. *J Clin Med.* 2020 Feb 9;9(2):480.
13. Ramezanzade S, Yates J, Tuminelli FJ, Keyhan SO, Yousefi P, Lopez-Lopez J. Zygomatic implants placed in atrophic maxilla: an overview of current systematic reviews and meta-analysis. *Maxillofac Plast Reconstr Surg.* 2021 Jan 6;43(1):1.