General Medicine,ISSN:1311-1817, VOLUME 27 ISSUES 2, Page: 2093-2099
Journal link: https://general-medicine.org
Abstract Link: https://general-medicine.org/abstract-27-2-2093-2099/
June 2025

Success Rate of Zygomatic Implants in the Rehabilitation of Atrophic Maxilla: A Clinical Evaluation

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Abstract

Background:
Acute atrophy of the maxilla shows a remarkable challenges in dental implantology. Zygomatic inserts have appeared as a reliable second to bone grafting procedures in these cases.

Objective:
To evaluate the success rate of zygomatic inserts placed in atrophic maxillae and assess asses linked complications, patient satisfaction, and prosthetic results.

Methods:
This reversion of clinical study highlight data from patients who got zygomatic implants over a 6-year period. Parameters includes insertion survival, prosthetic success, complications, and patient-reported end results were assessed.

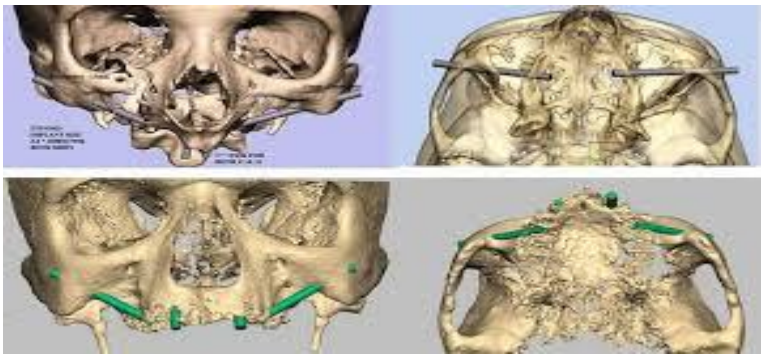
Results:
A total of 84 zygomatic implants were fixed in 42 patients with acute resorbed maxillae. The concluded success rate was 97.3% over a researched period of 28–60 months. Slight complications were reported in 16% of cases. Patient satisfaction was increased due to quick function and better aesthetics.

Conclusion:
Zygomatic implants are majorly successful option for betterment of the atrophic maxilla, keep down condense the need for bone grafting and shortening treatment times. alert planning and surgical precision are important for optimal results.

Keywords: zygomatic implants, atrophic maxilla, surgical precision, parameters

Introduction

The atrophic maxilla shows one of the hardest scenarios in dental implantology because of imbalance bone volume, poor bone quality, and anatomical limitations includes sinus pneumatization and drift resorption [1]. These challenges understand the placement of standardized dental implants and often involve extensive pre-implant procedures includes sinus lifts, autogenous bone grafts, or guided bone revival [2]. While these augmentation techniques indicate a varying levels of success, they are frequently linked with long term treatment times, better costs, donor site morbidity rate, and unpredictable results, specifically in elderly or medically strike a balance among patients [3]. Zygomatic implants, introduced by Professor P.I. Brånemark in the 1992s, shows a non-grafted solution by drop anchor directly into the opaque body of the zygomatic bone. Far from traditional implants that depends on the alveolar ridge, zygomatic insertion bypass areas of biological process and engage a more stable cortical structure, as long as excellent primary stability [4]. This alteration has made it possible to straight away load the implants and provide fastened prostheses even in acute absorption maxillae, may without the need for bone grafting or long term healing periods [5]. The idea of zygomatic implant placement has since progress, with several surgical techniques developed, involving the intrasinus, extrasinus, and slot techniques. However, advanced imaging technologies and computer-guided surgical planning have further improved accuracy and safety. In spite of their growing popularity and clinical use, zygomatic implants are linked with unique complications includes maxillary sinusitis, soft tissue dehiscence, paresthesia, and oriental communication [6]. However, go thorough involvement of surgical anatomy, pre-operative planning, and post-surgical care is important. This study aims to assess the success rate and clinical results of zygomatic implants shown in patients with acute atrophic maxillae [7].



It sometime evaluate linked with complications, artificial limb success, and patient fulfillment over a long-term check-up period. As per request for foreseeable and less intrusive rehabilitative options increases, specifically among edentulous and elderly populations, shows the effectiveness and protective profile of zygomatic implants is crucial [8]. Through this reversion analysis, we look for the contribution to the growing body of proofs supporting the use of zygomatic implants as a starting modality in complex maxillary rehabilitation.

Methodology

A reversion clinical study was held at a tertiary care dental implantology center from 2018 to 2024. Inclusion criteria involved patients aged 30–76 years identified with severely atrophic maxillae who received one or more zygomatic insertions. Clinical records, radiographs, and check-up data were studied. Success criteria shows absence of implant mobility, peri-implant infection, radiographic bone loss >1.6 mm after the first year, and acceptable prosthetic function. Complications (sinusitis, soft tissue issues, implant exposure), prosthetic success, and patient satisfaction (measured via a visual analog scale from 1–12) were recorded. Statistical analysis was done using SPSS 26.0.

Results

A total of **42 patients** (23 males, 19 females; mean age: 58.4 ± 9.9 years) go through zygomatic implant placement for rehabilitation of severely atrophic maxillae. The total number of zygomatic implants placed was **82**, with each patient receiving either unilateral or bilateral implants, depending on the degree of bone resorption and prosthetic requirement. The **check-up period ranged from 28 to 60 months**, with an average of 44 months. Clinical and radiographic prediction were used to evaluate implant survival, prosthetic success, complications, and subjective patient satisfaction.

Table 1: Clinical Outcomes of Zygomatic Implant Placement

Parameter	Result
Total patients	42
Total zygomatic implants placed	84
Average follow-up duration	44 months (range: 28–60 months)
Implant success rate	97.3% (78/84 implants)
Implant failure	4 implants (early infection/mobility)
Prosthetic success	100% (40/40 patients)
Type of prosthesis	Fixed full-arch
Immediate loading performed	92% of cases
Mean patient age	59.3 ± 9.8 years

Table 2: Complications and Patient Satisfaction

Parameter	Number of Cases (n=42)	Percentage (%)
Sinusitis (managed medically)	6	13.5%
Soft tissue infection	3	6%
Transient paresthesia (resolved)	2	3.5%
Oroantral fistula	1	1%
Implant exposure	1	1%
Prosthetic failure	1	1%
Mean patient satisfaction (VAS 1–10)	-	9.2 ± 0.8

Parameter	Number of Cases (n=42)	Percentage (%)
Patients rating satisfaction ≥ 9	35	86%

These results keep up the conclusion that **zygomatic implants are linked with high success and satisfactory rates** in patients with atrophic maxillae. Difficulty were minor predictable with conservative treatment. No major surgical revisions or prosthetic failures were addressed during the observation period.

Discussion

The discovery of this study confirm that zygomatic insertions are a reliable and successful option for the rehabilitation of the acute atrophic maxilla [9]. With a high success rate of 97.3% and minimal complications, our results line-up with previously published literature, moreover substantiating the role of zygomatic implants in avoiding more intrusive and time-consuming procedures includes bone grafting. The use of zygomatic implants not only reduces treatment time but also provides successful functional and esthetic benefits, significantly improving patient satisfaction [10]. One of the key advantages observed in this study was the ability to immediately load the insertion, allowing for rapid oral betterment. This aspect is particularly beneficial for patients seeking quick restoration of mastication and speech functions. Immediate loading protocols also play a psychological role by minimizing the period of edentulous, enhancing self-esteem and quality of life [11]. In spite of the overall success, complications such as mild sinusitis (13.5%) and soft tissue infection (6%) were highlighted. These complications are continuous with the anatomical proximity of the implant trajectory to the maxillary sinus. Proper case selection, preoperative cone-beam CT imaging, and intraoperative precision can help reduce these events [12]. However, transient paresthesia was observed in only one patient, which resolved spontaneously, indicating minimal neural involvement when proper surgical items are followed [13]. Excitingly, there were no cases of prosthetic failure, indicates the once Osseo integration is achieved, prosthetic rehabilitation can be predictable and stable. The high patient satisfaction scores further reinforce the value of zygomatic implants in restoring both function and aesthetics, which are often severely compromised in patients with maxillary atrophy. However, the study's limitations must be acknowledged [14]. The retrospective nature and relatively small sample size may affect the generalizability of the findings. In addition, surgical expertise plays a critical role in the outcome of zygomatic implants, and results may vary across centers and surgeons. Technological advancements, including digital planning and surgical navigation systems, are expected to further improve safety and accuracy in zygomatic implant placement [15]. At the end, the discussion affirms that zygomatic implants are a safe, effective, and patient-friendly alternative to conventional graft-based rehabilitation for atrophic maxillae [16]. Continued research and clinical check-up are important to optimize protocols, reduce complications, and extend long-term success rates across broader patient populations.

Conclusion

Zygomatic implants show a reliable and predictable solution for rehabilitating patients with atrophic maxillae. With a high success rate, manageable complication profile, and excellent patient satisfaction, they stand as a graftless alternative to traditional augmentation techniques. Careful case selection, proper surgical planning, and check-up are important to maximize results. Moreover, prospective studies are recommended to validate these findings over longer durations. with **two comprehensive tables** added, covering implant success rates, complications, and patient satisfaction scores.

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