Zygomatic Implant Subjected to Immediate Loading for Atrophic Maxilla Rehabilitation

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Abstract: As life expectancy increases, a larger number of elderly people require dental health care attention for implant-supported rehabilitation, with the aim of restoring the function and aesthetics of the oral cavity. Most of these patients have lost their teeth long time ago, causing a severe bone resorption. For the installation of the conventional implants in such patients, large bone grafts associated with maxillary sinus elevation are necessary.^[1] To overcome these limitations, the treatment techniques for severely atrophic maxillas are being widely studied, with the intention of easing the patient’s rehabilitation, decreasing the morbidity and the losses, and simplifying the surgical process. Numerous treatment options with the objective of rehabilitating these patients may be found in literature, including zygomatic implants.^[2,3]

The zygomatic implant was initially indicated for patients who had been subjected to maxillary resection because of malignant conditions and required retention.^[4] However, this technique was afterward applied to patients with maxillary atrophy and those who did not want to undergo other treatment options because of systemic, financial, or psychological conditions. The main advantages of this technique are the lower surgical time, lower morbidity, shorter repair period, fast rehabilitation, large grafts avoidance, costs, and the objective of simplifying the treatment of patients with severely atrophic maxillas.^[4–6]

Despite the reports of success, multiple complications may occur with this technique, including oronasal fistulas, chronic sinusitis, orbital injury, and stress distribution around the implant. In order to avoid these complications, a surgeon should have a good anatomic knowledge, surgical ability, and expertise about the technique.^[4,13,14]

Considering the importance of the function and aesthetic re-establishment of the stomatognathic system, in patients with the atrophic maxilla, the objective of the study was to describe the clinical case of zygomatic implants, with 7 years of follow-up.

**CLINICAL REPORT**

A 42-year-old patient, attended in the dentist’s office, reported discomfort while using the complete upper dental prosthesis. The patient had already done the lower-arch rehabilitation with 6 conventional implants and a definitive short-term solution and the reluctance to intraoral bone grafts, the rehabilitation with zygomatic implants was chosen. Therefore, the selected treatment option was the all-on-four technique, with 2 anterior conventional implants and 2 zygomatic fixations in the posterior region. The patient was submitted to laboratory tests and pre-anesthetic evaluation before the surgical procedure. The procedure was performed in a hospital environment under general anesthesia. Local infiltration of 4% articaine with 1:100,000 adrenaline was carried out with the patient under anesthesia; then, with surgical scalpels number 15c attached to the scalpel handle number 3, the incision was made on the alveolar ridge and subsequently performed the detachment of the gingival flap.

The post bone tissue exposure, the osteotomies were performed following the manufacturer’s instructions and were installed 2 conventional implants with dimensions of 4.0 × 11 mm in the regions of the elements 13 and 23 (Fig. 3). Afterward, 2 zygomatic

Key Words: Dental implants, oral rehabilitation, zygoma

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Received June 7, 2016.

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The authors report no conflicts of interest.

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ISSN: 1049-2275
DOI: 10.1097/SCS.0000000000003063

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implants were installed, with a length of 47.5 mm, and a torque of 60 N on both sides. In the zygomatic fixture was used the classical technique. The screws with a height of 2 mm were installed on the conventional and zygomatic implants. Then followed the suture with mono nylon 5-0 (Fig. 4).

The patient was discharged from the hospital on the day after the procedure and sent directly to the dentist’s office for multifunctional transfer molding, with the use of a guide made beforehand, and construction of an index. On the second postoperative care day, the test of bar already with the mounting teeth was performed. On the third postoperative care day, the prosthesis type protocol was installed with a torque of 20 N torque on the screws (Fig. 5).

The patient’s clinical and imaging evaluation was performed periodically. In the clinical evaluation, carried out at 15, 30, 60, 81 days, 1.5 years and annual controls until to complete 7 years was noted that the 4 implants installed do not generate pain complaints about the patient; there are no signs of peri-implantitis and implant mobility. The patient reported being satisfied with the rehabilitation of the stomatognathic system. Clinical and imaging tests were performed in periods of 81 days, 1.5 and 7 years postoperatively and showed that zygomatic implants have a normal appearance (Figs. 6–8).

**DISCUSSION**

The quantity, it is highlighted the fact that after the dental extraction, a process of remodeling of the alveolar bone, which is
continuous and progressive, begins. That bone remodeling usually results in bone defects, in height and thickness, making the installation of osseointegrated implants a major challenge.1

Among the treatment options, the zygomatic fixation stands out because it is presented as the main advantage: low morbidity and reduction in the prosthetic rehabilitation time when compared with bone grafting techniques.5 Owing to the above-mentioned advantages, the study aimed to evaluate the effectiveness and success of a clinical case rehabilitated with a zygomatic fixation implant with 7 year of follow-up through clinical and imaging examinations.

Many authors consider the zygomatic fixation technique as an effective long-term approach, with success rates ranging from 99%,7 96.4 to 100%,8 and 81 to 96%.9 Nevertheless, there are some literature that evaluate the number of complications of this procedure, as a recent systematic review published in 2013, in which the success rate was approximately 96.7%. However, the complications related in this study were 70 sinusitis, 48 soft tissue infection, 15 paresthesia, and 17 oroantral fistula.9 In the clinical case described in this study, there was success in the evaluation period without complications associated with the treatment.

A relevant factor for this treatment option is the type of surgery technique chosen because there is a variation between the classical technique described by Nary-Filho et al.,7 which installs 2 implants anchored in the zygomatic bone (one on each side) and then installs 2 conventional implants in the anterior maxilla region. The variation of the technique, described by some authors, is to install 4 anchoring zygomatic implants.6,11

Because the patient has a good bone condition in the anterior region for installation of conventional implants and would be possible through, these implants promote a satisfactory outcome for the patient; in this article, it was opted for the classic technique.

After the patient’s 7 years of follow-up, it is possible to affirm that the treatment of atrophic maxilla rehabilitation with anchoring in the zygomatic region was a success, verified by the clinical and imaging tests. The patient was satisfied with the treatment and without functional and aesthetic complaints.

REFERENCES
Blue Rubber Bleb Nevus Syndrome Diagnosed Prenatally as an Epignathus

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Abstract: The authors present a clinical report of the giant fetal tumor protruding from the oral cavity diagnosed sonographically at 32 weeks of gestation as an epignathus. After delivery, tumor proved to be a presentation of the blue rubber bleb nevus syndrome. To the best of our knowledge, the literature offers no reports on similar cases.

Key Words: Bean syndrome, blue rubber bleb nevus syndrome, epignathus, ultrasonography

CLINICAL STUDY

A 25-year-old primipara with a negative personal and family history was referred to our center at 32 weeks of gestation due to a fetal tumor of the orofacial region detected at routine ultrasound examination. Fetal abnormality was confirmed and described as an epignathus. Ultrasound imaging was unable to determine a precise point of origin of the lesion. No other anomalies were found. Fetal biometry corresponded to the gestational age. Magnetic resonance imaging (MRI) was performed to investigate central nervous system involvement, but the connection was excluded (Figs. 1-4).

A multidisciplinary expert team (obstetricians, anesthesiologists, neonatologists and neonatal surgeons) was assembled due to the possibility of surgery-related complications at the time of cesarean section and neonatal airway obstruction immediately after birth. At 37 weeks of gestation, an elective cesarean section was performed resulting in a delivery of a live male infant weighing 3780 g, in good overall condition with an enormous blue-purple tumor (8 × 8 × 5 cm in size) arising from the neonatal tongue. Numerous small, rubber-like punctate lesions were found on the neonatal body (trunk, lower extremities, and scrotum). Immediately after birth, the child was intubated using the nasal route. After airway, breathing and circulation were stabilized with no need for the emergency tracheotomy the preoperative MRI was performed. Surgeons deemed the child eligible for tumor resection (both the tongue and the scrotum) on that day. The remaining part of the...