

The Zygomatic Angle

When grafting is not an option, consider the advantages of implant anchorage in the zygoma.

Patients with chronic periodontal disease (a.k.a. "terminal dentition patients") are often advised to remove their remaining teeth in order to improve their oral and overall health, but time after time, they do not follow this recommendation. One might ask, "How can this information be so plain to see, yet at the same time so hard to convey?"

By Dr. Edmond Bedrossian

I think the answer to the question posed above is obvious. The idea of losing all one's teeth is devastating to most people. Even more objectionable is the idea of wearing a denture.

If this is true, we as dental professionals have an obligation to formulate and execute treatment plans that address the social, psychological, cosmetic—as well as the biologic—needs of this patient group.

Implant dentistry is the best option for existing edentulous patients or for patients with terminal dentition for one major reason: Implant-supported prostheses internally load the edentulous alveolus and therefore maintain the residual volume of the alveolar bone.

But what about the maxilla?

Treatment planning for a fixed, implant-supported prosthesis is restricted by unique anatomical limitations in the maxilla.

The pneumatization of the maxillary sinuses bilaterally does not readi-

ly allow for the placement of implants in the posterior maxilla for the fabrication of implant-supported prostheses. Therefore, implants are usually placed in the *os incisivum* (Zone I), between the cuspid teeth. The placement of the implants in the *os incisivum* does not allow for adequate AP (anterior-posterior) distribution of the implants, and results in the fabrication of a tissue-supported implant overdenture that does not internally load the residual bone.

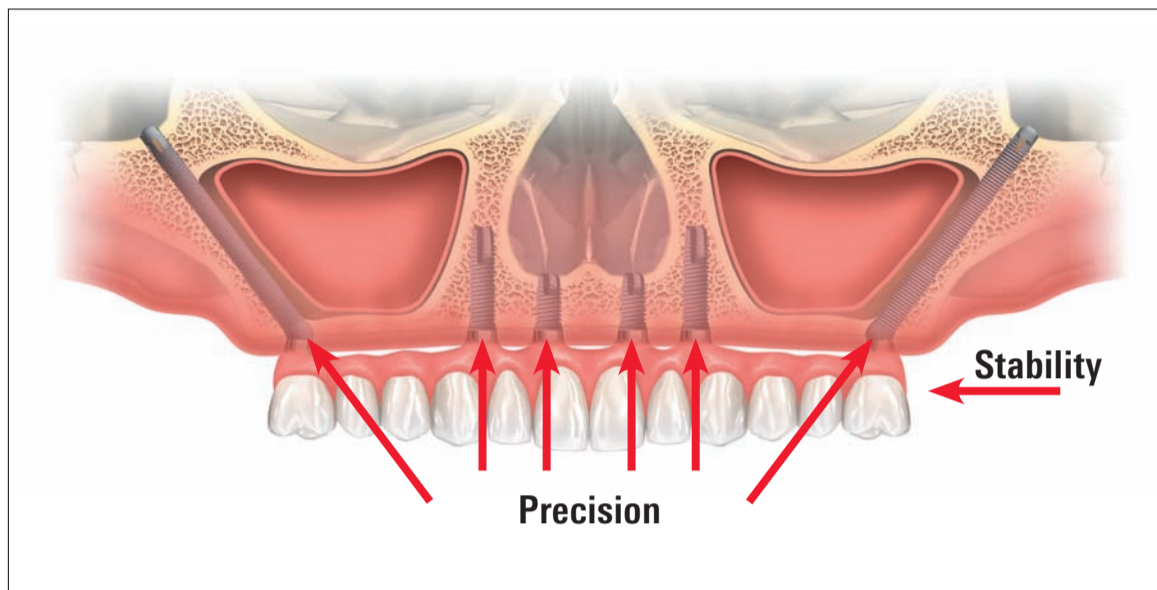
To physiologically load the residual alveolar bone with biomechanically stable implant-supported prostheses, grafting techniques such as the sinus lift procedure are often proposed. Although sinus grafting is a stable and predictable procedure, the multiple surgical interventions needed, as well as the inability to immediately load the implants, limit the number of patients who choose to proceed with this treatment option.

Zygomatic advantages

To address this objection, the use of zygomatic implants in the posterior maxilla in conjunction with two to four premaxillary implants has solved the various issues associated with establishing a predictable posterior support for implant-supported prostheses.

The use of zygomatic implants has many advantages over grafting the posterior maxilla; this surgical protocol allows for a graftless approach, a single surgical procedure and immediate loading. These advantages result in an increased rate of patient acceptance of the proposed treatment.

The zygomatic implant protocol addresses the needs of patients who are missing residual alveolar bone in



Precision and stability are key words in all full-arch restoration work, but especially when working with zygomatic implants. One should incorporate appropriate rigidity and precision in the restoration in order to decrease bending moments and to accommodate functional, esthetic, phonetic and hygiene requirements. Stability in the bridge framework and precision in the connecting screw joints bode well for achieving long-term success.

their premolar and molar regions; lack of bone in Zone II (the premolar region) and Zone III (the molar region), respectively. These groups of patients are sometimes referred to as having moderate to advanced resorbed maxillae.

The use of the zygomatic implant also addresses the "extremely" resorbed maxilla, patients lacking bone in Zones I, II and III; otherwise known as the "untreatable" maxilla. By placement of four zygomatic implants, even this group of patients can be treated with fixed implant-supported prostheses.

The zygomatic implant is sometimes called the "Rescue Implant." Many patients have had multiple grafting procedures to establish adequate bony volume for the placement of conventional implants. For various

reasons, however, such as resorption of the bone graft or infection of the grafted bone, the residual bony volume remains inadequate for the placement of implants. The Brånemark System Zygoma implant addresses the needs of this group, too. The zygomatic concept encompasses procedures that complete the implant surgeon's repertoire of surgical skills in treatment of the edentulous maxilla. Consider the following possibilities:

Two scenarios

In scenario one, the surgeon is placing tilted implants for the All-on-4 procedure. During installation of one or both of the posterior tilted implants, 35–40 Ncm of insertion torque is not reached. What should the surgeon do if immediate loading was the treatment plan proposed to the patient?

Scenario two: the All-on-4 procedure has been performed; the patient has been immediately loaded. After three months, the patient returns with a loose immediately loaded provisional prosthesis. After removal of the prosthesis, one of the tilted implants is diagnosed as mobile and is removed. After its removal, the surgeon notes the lack of buccal bone in the area where the failed tilted implant was removed. What options does the surgeon have?

In scenario one, the surgeon may decide to leave the implant, which has an insertion torque of less than 35–40 Ncm, and not immediately load the patient; but if this is not acceptable to the patient, the surgeon may remove the tilted implant and place a Brånemark System Zygoma implant in its

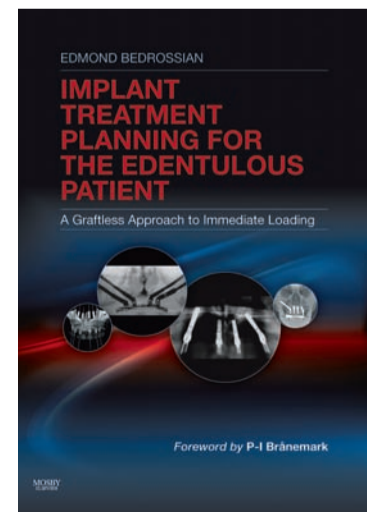
place and continue with immediate loading.

In scenario two, the surgeon may debride the failed implant site and immediately place a zygoma implant, rescuing the case and reattaching the provisional, immediately loaded prosthesis.

In conclusion, the Brånemark System Zygoma surgical protocol allows for the treatment as well as rescue of every possible maxillary defect. It is a predictable protocol for either delayed or immediate loading for the patient with a fully edentulous maxillary arch. Without question, the contemporary surgeon should incorporate this surgical protocol into his or her practice. <

→ More to explore:

The author's *Implant Treatment Planning for the Edentulous Patient – A Graftless Approach to Immediate Loading*, with a foreword by Professor Per-Ingvar Brånemark.



The Nobel Biocare website is also a goldmine of information: nobelbiocare.com/edentulous

For Smarter, Easier, More Personal Choices

Nobel Biocare has launched an online store based on more than eight years of online sales experience. The US has been first in line; selected markets will have access to the store this fall.

At the new Nobel Biocare Store, customers can choose from the full range of high-quality Nobel Biocare products 24 hours a day. In-

telligent filtering helps you find the product you're looking for fast, and search results show related products to make comparisons easy. Shopping can take place on virtually any device, and with the "quick buy" function, you can order regular supplies with ease.

What's more, you can buy items directly from your previous purchase history or even build up your own practice-specific product catalog—complete with product information.

At the Nobel Biocare Store, you can shop with confidence. All Nobel

Biocare products are covered by generous warranties and the company's convenient return policy is literally, "just what the doctor ordered!" <



→ More to explore:

Visit the Nobel Biocare Store today! store.nobelbiocare.com