

Esthetic Indication for Dental Implant Treatment and Immediate Loading (3). Case Report and Considerations Regarding the Aspect of the Patient's Right to Self-Determination in Medical Decision-Making

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Abstract

The technology of the Strategic Implant® has expanded the indications for tooth and bone removal. This case report shows what kind of results are possible and how much the appearance of a patient can be changed within a few days if both teeth and bone are removed. The treatment option explained here could be considered by patients with a gummy smile. This treatment conflicts with the traditional thinking of dentists, who are educated to keep and maintain teeth. This can be compared to other fields of esthetic surgery where the patient's right to self-determination in medical decision-making has been established for a considerable period of time and is more frequent than in dentistry.

Keywords: Esthetic bone contouring, esthetic indications for tooth removal, dental implant treatment, immediate functional loading, Strategic Implant®

INTRODUCTION

Traditional dentistry is divided into several subdisciplines, all of which deal with specific aspects of our profession.

Except for rare cases of orthodontic tooth intrusion^[1] (but not tooth and bone intrusion), rare instances of orthognathic surgeries (as an invasive method of planned skeletal changes)^[2] and the fabrication of removable complete dentures,^[3,4] none of these subdisciplines addresses changes in the plane of bite in the tooth position. The occlusal plane of a bite was taken as “given” in most patients (based on genetics and function). Even if this plane is “wrong” (in the sense of not being parallel to Camper's plane), traditional dentistry does not attempt to correct this.

The options traditional dentistry has at its disposal are limited. Placing longer crowns on teeth, which do not reach the (theoretical) occlusal plane, can result in mobility of those teeth. Reducing the height of elongated/over-erupted teeth often requires root-canal treatment,^[5] and the true limiting factors here are the bifurcations because as soon as a bifurcation is exposed, all other efforts become questionable.^[6]

For most patients, a comprehensive correction is only possible once, all teeth have been extracted and complete dentures fabricated. At that point, finally (or suddenly), dentists know what to do and what the “correct” situation is.

Conventional dental implantology has (so far) existed almost without occlusion and masticatory guidelines.^[7] Conventional implantologists (and their customers) are more than satisfied if the implants integrate, and some prosthetic restoration can be attached to it. According to conventional implant traditions, the implants are placed into the available bone if enough vertical and width of bone is given; otherwise, bone augmentation (preferably in the maxillary sinus) is required.^[8]

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This, in turn, in combination with limitations regarding the height of the restorations in relationship to the endosseous length of the implant mandates a number of uncomfortable compromises.^[9] Fixed prosthetics on conventional dental implants is, therefore, often a far cry from finally resolving the masticatory problems – it is more like putting the new teeth in “somewhere anywhere.” In clinical reality, we too often see implant treatment results where neither the vertical dimension nor the occlusal plane is adequate. It seems that this profession (the treatment is, after all, performed by dentists) is unable to harness the freedom that arises after all teeth are extracted.

Recently, reports have been published on a new implant technology.^[10,11] Conventional implant dentistry seems to disregard the new option of cortical implantology. Patients, however, thankfully accept the advantages of this technology. Their main source of information today is the internet.

In some markets, the availability of the technology of the Strategic Implant[®], which allows the dentist to fulfil almost all the wishes of today’s implant patients within a few days, has completely changed the picture and the market.

With the help of this technology, we are today able to provide fixed teeth as follows:

- For almost any patient, and especially
- For patients with almost any skeletal jaw relationship (angle classes 1–3)
- For patients with minimal residual bone (i.e., patients untreatable by conventional method even if bone block transplants are considered).

We will be demonstrating here the treatment options, the Strategic Implant[®] concept offers in a case where too much bone was present. The occlusal plane as well as the inclination of the spee curve was changed with esthetics in clear view.

MATERIALS AND METHODS

A 37-year-old female patient, healthy and a nonsmoker, requested a treatment proposal to improve her “horse-like” smile [Figure 1]. Some mandibular teeth were missing on the left side, tooth 16 was elongated.

To limit the effects of lowering the bite, several combined adjustments were planned for the new dentition. The mandibular arch was slightly elevated vertically, and the overbite was reduced. In this way, the maxillary anteriors were moved slightly upward and inward compared to the baseline situation shown in Figure 1.

The amount of bone reduction necessary was evaluated on preoperative photographs with the patient attempting her maximum smile. It is important to perform this diagnostic step before local anesthesia is administered and before intravenous sedation has shown first effects.

The vertical bone must be reduced to the previously determined level; any surplus of bone will result in problems with esthetics



Figure 1: The patient presented with a gummy smile and she was very concerned about this

or oral hygiene at a later point when the possibilities of resolving this are quite limited.

DISCUSSION

The treatment shown here, with immediate loading, was made possible by the technology of the Strategic Implant[®]. No other implant system or technology accommodates reduced bone areas, removing the first cortical completely, and performing reconstruction in one step within a few hours.^[12] The possibility to complete the treatment in a few days greatly increases patient acceptance of this treatment. Patients are ready to live without teeth for just a few days if given the perspective of fixed teeth and if their requests will be met.^[13,14]

Treatment with conventional dental implants including prior bone augmentations takes between 6 and 20 months,^[15] which in reality often greatly taxes the patients’ stamina. These patients will ultimately accept any “result” if only the treatment is over. Moreover, they only follow their doctors down this cruel path because they are told that this is the only treatment option there is.

Alternatives to our intervention would not have the full desired effect. Surgical (internal) elongation of the upper lip^[16] or reduction of the muscle tonus of the upper lip with botulinum toxin might have reduced the visible part of the gum to some extent,^[17,18] however, these treatment approaches would quite probably not have satisfied the patient fully, as they do not correct the skeletal situation or address the large vertical lower face (i.e., the long face syndrome).

Keeping the mandibular teeth would have required extensive orthognathic surgery up to the midface as an alternative (Le Fort 1 osteotomy, possibly Le Fort 2). Such surgery is highly invasive, performed under general anesthesia, and requiring hospitalization followed by plate and screw removal. Moreover, even so, full reattachment of the maxilla to the facial skeleton is not achieved in many cases.^[19]

One might argue that “healthy teeth,” healthy bone and healthy gums should never be removed because of ethical

considerations. This is the (traditional) dentist's line of argument. However, in fact, patients should be given a full choice.

Several aspects are important in this context:

- Today's patients determine for themselves which parts of the body seem acceptable to them and which parts are undesirable or need modifying. A large field of plastic surgery has sprung up to accommodate the desires and hopes of these patients
- Liposuction, for example, removes healthy tissues, sometimes to a considerable extent. These interventions tend to change patients' lives and increase their acceptance of their bodies, *even though "healthy" tissues are removed*. Reality shows that many patients will opt for a liposuction treatment and against a lifetime of diets
- Likewise, many women opt for a breast reduction or breast augmentation and against losing or having to change partners. This example clarifies that it is often the desires of the patients' partners that play a key role in the decision process
- The number of esthetic intervention has grown explosively in most countries of the world
- We also would like to mention surgical changes in penis size. Such interventions are practically never done to increase the pleasure experienced by the patient who has the surgery performed
- Finally, another apt comparison is transgender surgery, which also implies massive interventions in a healthy body, including changes in the hormonal situation and psychological treatments as a part of the overall effort.

Compared to all these interventions, our treatment seems almost minimally invasive, almost painless; the patients recover fast, and the result is highly predictable.^[20-22]

A gummy smile such as that shown in Figure 1 can be without any doubt cause psychological suffering. The treatment addressed the problem completely and overnight. The patient satisfaction was achieved immediately to 100%.

It should be mentioned here that the treatment has removed the patient permanently from the sphere of dentists to the sphere of implantologists. As Figure 1 shows that the patient had given traditional dentists a fair chance to improve her appearance, and had she invested in a set of beautiful maxillary anterior ceramic crowns. However, she soon became aware that this treatment had not changed the underlying situation at all. She got even more depressed when she considered a large amount of money spent on effectively changing nothing.

This switch of principal treatment provider will not be unnoticed by traditional dentists, and they will produce all kinds of objections and "ethical" considerations. However, compared to the modern technique of the Strategic Implant[®], the field of traditional dentistry has little to offer. What patient over the age of 25 really cares to go for a Le Fort 1 or Le Fort 2 "adventure," including hospitalization and quite probably, years of orthodontic treatment?

A successful outcome of conventional dental treatments and conventional dental implant treatments depends strongly on the positions of the teeth and the bone.^[23] It determines the occlusal plane, the possibility of raising or lowering the bite, and the possible number of teeth which can be included in a fixed prosthesis.

Many restored dentitions which have been under major treatment by conventional dentistry for years allow the chewing of foods, allow a reasonable smile, and other oral functions. However, if we look more closely at those multi-repaired dentitions, we will notice that bilateral mastication is possible only for a few of these patients. Many suffer from unilateral tooth elongation, unequal length of tooth arches, unequal width of masticatory surfaces, and unequal AFMP angles even after the restoration.^[24]

CONCLUSION

While the development of the facial skeleton can be influenced by means of functional orthodontic appliances in youth, such possibilities are limited after the growth has stopped.

The technology of the Strategic Implant[®] does not depend on the length of the implant in any way, all it requires is an intact second cortical for penetration and anchorage.^[25]

This makes it easy to opt for bone reduction with the aim of improving esthetics and moving the border between the artificial and natural gums below the upper or lower lip.

This allows the effective treatment of even severe cases of "gummy smiles" in a single surgical step within a few days.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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