10 TIPS ABOUT AESTHETIC IMPLANTOLOGY THAT WILL HELP YOU IN YOUR DAILY PRACTICE

FRANCISCO TEIXEIRA BARBOSA
As soon as I observed that this article about aesthetic implantology was the most shared and visited on my webpage the last year (2014), I forced myself to replicate its content in a more friendly and useful format. I hope you like this way to share content and as always I’m willing to hear from you some suggestions and feedback on my email: info@franciscobarbosaimplantology.com

Also you can follow me at my Twitter @cisco_research to get more updates or visit my webpage www.franciscobarbosaimplantology.com and subscribe so I can send you new updates about oral implantology.
INTRODUCTION

Nowadays, implantology is a predictable area and well-accepted by scientific community for missing or doubtful prognosis tooth reposition. More than 30 years ago, Brånemark and col. published the first articles that presented implantology as a safe and predictable method to rehabilitate edentulous patients if a standard protocol is performed, in which one of the key factors were the time the implant was submerged until loading (3 months for the jaw and 6 months to the maxilla)(Brånemark 1977).

Years later, Albrektsson establishes a success criteria for every treatment involving implants, where implants should be absent of mobility, pain, radioluscence around the implant, and the bone loss should never be more than 1,5 mm and 0,2 mm per year (Albrektsson 1986).

Although this is a prevailing criteria, at that time treatment involving implants were mainly functional and aesthetics were at most at the time not a mandatory requirement. Smith et al. just three years later established that aesthetic have also an important role on a successful implant treatment (Smith 1989).

For that there are some golden rules that every implantologist should manage in order to achieve predictable results on the aesthetic zone and in this article there will be described ten rules that everyone should consider:
Presence of papilla between an implant and a teeth depends mainly on the presence of inter proximal bone of the adjacent teeth. If there is a bone defect there will not be papilla (Kan 2003). There is also a relation between the presence of the papilla and the distance between the contact point and the bone crest (Tarnow 1992), where there will be a probability of complete presence if this distance is 5mm or less (98%), and less probability if that distance is 6 mm (56%) and 7 mm (27%).

Although the trial performed by Tarnow was performed in natural teeth, Salama (Salama 1998) and co-workers found that 4,5 mm of papilla was the average amount of papilla that we should expect to have between an implant and a teeth if a distance of at least 1,5 mm was maintained between an implant and a teeth.

Different distance from the contact point to the bone crest will represent different soft tissue contour. The more distance the less probability there will be papilla at the inter-proximal contact.
Placing two implants adjacent is always a big challenge. The mean papillary height between two implants will be 3.4 mm, which is in the most of the cases insufficient to achieve an optimal aesthetic result (Tarnow 2003). This issue can be solved by placing one implant to substitute two anterior teeth. This way it is expected to achieve a higher papilla level between an implant and a pontic (5.5 mm) (Salama 1998).

Aesthetic results when two adjacent implants are placed adjacent is always a challenging issue. The average of papilla height we should expect is 3.4 mm.
3) SELECTING THE CORRECT ABUTMENT.

It is important to choose the right abutment when an aesthetic restoration is performed. If there is a thin mucosa with less than 2 mm width, zirconia should be the option cause metallic abutments will show a color alteration of the peri-implant soft tissue (Jung 2007, 2008).

When the width of the buccal soft tissue is more than 2 mm, a metallic abutment can be used without altering the soft tissue color.
Although this is a very discussed topic, there are some basic knowledge about immediate implants in the aesthetic zone. Unavoidable bone resorption happens when a tooth is extracted (Cardaropoli 2003, Schropp 2003, Araujo & Lindhe 2005) and this events are not avoidable if the implant is placed at the time of the extraction (Botticelli 2004, Araujo & Lindhe 2006). There are some protocols published to over correct this events, like performing a connective tissue graft at the time of the immediate implant (Kan 2000, Kan 2005), but recession of the gingival margin is likely to occur (Evans 2007). This facial recession will be more pronounced on a thin biotype rather than a thick biotype (Kan 2011), so there could be stated that immediate implants in a thin biotype is not a predictable treatment and other treatment options should be consider, like ridge preservation (Jung 2012).
5) EARLY IMPLANT PLACEMENT. A PREDICTABLE ALTERNATIVE.

The time when the implant is placed has been a topic of discussion (Hämmerle 2004). One option is perform the extraction and after one month place the implant with simultaneous ridge augmentation (Buser 2013). This method as been proved to be a reliable way to achieve predictable aesthetic results.

**TYPE 1**  Implant placement immediately following tooth extraction and as part of the same surgical procedure.

**TYPE 2**  Complete soft tissue coverage of the socket (typically 4 to 8 wk)

**TYPE 3**  Substantial clinical and/or radiographic bone fill of the socket (typically 12 to 16 wk)

**TYPE 4**  Healed site (typically more than ridge 16 weeks)
After extraction of the teeth, it is important to preserve the papilla architecture. Some authors stated that placing an implant at the same time the teeth is extracted somehow helps to preserve the shape and the papillary architecture.

Even if there is no provisional after the surgery, it is important to reshape the soft tissue before placing the definitive prosthesis. The provisional restoration is also a way to achieve the final peri-implant shape and then transfer this emergence profile to the lab (Elian 2007).

Some of these contents are well explained on this ebook about immediate loading.

Every demanding aesthetic treatment involving implants should have a provisional phase before the definitive prosthesis is delivered. It is mandatory to design natural emergence profiles before finishing the treatment.
During the provisional phase of the treatment, a correct and natural emergence profile should be create in accordance with the adjacent teeth. In every emergence profile it can be identify two contours (Su 2010):

- **Critical contour**: The contour 1 mm immediately below the gingival margin. This contour when modified can displace apically the gingival margin.

- **Subcritical contour**: Is the contour below the critical contour. When properly managed, this contour can create soft tissue volume (concave) and once this volume is created it can be displaced where is needed.

There are some other ways to manage the provisionals during the healing phase but always regarding the concepts posted before (Wittneben 2013).

Critical contour and sub critical contour is a recent concept that explain the behavior of the peri-implant soft tissue when it is modified.
When an implant is placed in the anterior aesthetic zone, there are some rules that should be a guide for every implant placement (Buser 2004):

**Mesio-distally:** The implant should be at a distance of 1.5 mm from the adjunct teeth. This is the minimal distance although there are some articles that even showed that 2 mm would be an improvement (Gastaldo 2004).

**Apico-coronally:** This distance should be 3-4 mm distance from the gingival margin of the future restoration. In immediate implants the reference is the gingival distance of the removed teeth. If there is no teeth previously, a wax-up should create a reference of the future restoration.

**Buccal-palatal:** The buccal part of the implant should be 1-2 mm palatal to the emergence profile of the adjacent teeth.
9) CHOOSING THE RIGHT IMPLANT.

Nowadays there is an increasing implant market in almost all countries with some new implants brands. This is something positive to the clinician but we have to be well aware if the different implants companies can fulfill our expectations and also the treatment and patient goals.

Platform switching is a biological concept well implemented in almost all the implant brands (Lazzara 2006), but we should know that although it is an important issue, platform switching is not the only factor that can contribute to less bone remodeling after implant placement. Lately, Zipprich (Zipprich 2007) proved that the stability between the implant and the abutment is crucial to avoid the “pumping effect” which leads to bone resorption.

Knowing the behavior of the implants that are used in the daily practice will allow the clinician to have an extra confidence with the treatment options offered to the patient.
10) NEW TECHNIQUES TO AVOID BUCCAL BONE RESORPTION.

Several methods have been described to avoid the negative effect of an extraction like immediate implants (Botticelli 2004, Araujo & Lindhe 2006), barrier membranes (Lekovic 1997) although the most suitable technique advocated to preserve the volume of the socket is the ridge preservation (Araujo 2009).

Lately a new technique is being described as an option to perform an immediate implant without the negative consequences of the bone remodeling after an extraction (Hürzeler 2010), and the rationale behind this technique is preserving a tooth fragment that will avoid the resorption that takes place after the extraction. Although this technique is quiet promising we should be aware of the incoming publications about a larger follow up of this technique and the predictability of leaving a fragment inside the socket after an extraction (Baumer 2013, Kan 2013).

You can follow Howie Gluckman’s work about the Socket Shield technique. He is doing some research about it and he has great results using this technique. He also shares other amazing cases about oral implantology. Go and check his page here.

The socket shield technique is a recent method to avoid buccal bone resorption when immediate implants are performed. We should wait for new literature about this technique with larger follow ups before applying it on our daily practice.
Today we can find in the literature an important number of reliable protocols to achieve a satisfactory aesthetic results in our treatments. But we should consider that the success is most likely to happen if a correct diagnose and treatment plan is carried out. There are some important tools that we should use daily in our daily practice in order to asses and to help clinician to identify the complexity of a case before a treatment plan is defined (Buser 2009).

Clinicians also should perform protocols that are well described at the literature and with a follow up that categorize that treatment option as a predictable in long term. Nowadays there is sufficient data and scientific background to establish clear guidelines when demanding aesthetic treatments involving implants are required.

ABOUT THE AUTHOR:

My name is Francisco and I´m a Portuguese oral implantologist although I´m leaving in Barcelona. Married with Maria and father of three kids (yes you read it well, 3 KIDS: Nuno, Luis and Nicolás).

I also enjoy creating contents to help my colleagues in performing new treatments and to help them to have clear insights about dentistry.

I´m a Social media geek and I also enjoy running, playing the guitar and fishing octopus.

I often speak in several congresses, universities and other training programs. That´s my passion: Share my knowledge.

You can find some of my work at youtube channel, at oral-surgerytube, Dentalxp, Dentinal Tubules, FOR and at my webpage www.franciscobarbosaimplantology.com

Feel free to send me an email about suggestions or some feedback to my email info@franciscobarbosaimplantology.com . I´m an open mind person!
BIBLIOGRAPHY


