



Flapless surgery for implant placement

Cirurgia livre de retalho para colocação de implantes

Oliveira Alves Neto¹

Abstract

In the following article, it will be reported a clinical case of flapless surgery, which is a surgery that uses a minimally invasive technique, requiring no flap preparation, so the recovery is much faster. The patient suffers a lot less and the process of surgery since the beginning until implant placement becomes a less aggressive procedure, which pleases the patient completely. Besides that recovery is faster, due to better vessels and tissues preservation and it is not necessary to peel off bone periosteum, which consequently will provide better nutrition to the surgical site.

Descriptors: Endosseous dental implant, dental surgery, surgery duration.

Resumo

No artigo a seguir, será abordado um caso clínico de cirurgia livre de retalho, que é uma cirurgia, na qual se utiliza uma técnica minimamente invasiva, não se necessitando de confecção de retalho, sendo assim a recuperação é muito mais rápida. O paciente sofre bem menos e o processo desde o início da cirurgia até a colocação do implante se torna um procedimento menos agressivo aos tecidos, o que agrada completamente ao paciente. Ainda, a recuperação fica mais acelerada, devido a uma melhor preservação de vasos e tecidos e não é necessário descolar o periosteio do osso, o que consequentemente fornecerá melhor nutrição ao local operado.

Descritores: Implantação dentária endo-óssea, cirurgia dental, duração da cirurgia.

¹ Specialist in Implantology and Orthodontics - ABO/Uberaba.

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Introduction

Always seeking to improve the procedures in the current implantology, the use of the flapless surgery technique was proposed, because it can re-establish a better function and esthetic, with a consequent greater comfort, with the use of a minimally invasive surgery that will be well accepted by the patient.

When the patient has a lot of bone in the surgical site it is possible to propose the flapless surgery technique, which is much less invasive and requires a shorter surgery period, which is very good for the patient as it does not require flap preparation, thereby leaving no scars, which is esthetically excellent. Therefore, suturing is not required, which greatly improves the osseointegration process, because there are neither problems with suture dehiscence nor the risk of an iatrogenic effect when tightening the suture knot. If the aggression is minimal, there will be a smaller response against the surgical procedure since no damage is caused to the tissues or vessels. Therefore, the surgery ends up becoming a less painful surgical intervention to the patient during and after surgery.

For precautionary purposes before the surgery, we must elaborate a pre-surgical planning, which will be the key to our success in the treatment. We must not forget to evaluate each case as if it were unique, because the technique will not be adopted in all the cases, thus requiring a careful evaluation of each case to be operated for rehabilitation with osseointegrated implant.

Case report

Female patient sought for rehabilitation regarding the loss of teeth 46 and 47, as can be observed in the initial photo (Figure 1).

In the initial phase, an anamnesis and initial clinical examination was conducted and radiography was

requested; and after the bone height and thickness was confirmed to perform the implants, a flapless surgery technique was chosen for the case (Figure 2A-B).

In the second phase, the two perforations made can be seen, including with an implant already installed in the site of 46; the technique mentioned in figure 2 was used, and it can be observed that there was no flap preparation and the bleeding was practically minimal. Another advantage is the amount of anesthetics used, which is also very low and this is excellent especially for patients that have problems with the use of anesthetics with vasoconstrictors, considering that the amount used is minimal and the coverage is excellent.

The perforations were performed in the same way and with the same sequence of drills as the conventional method, the only difference being the need to increase the drilling length, since the amount of gingiva until the bone is reached cannot be forgotten. In general, this measurement can be performed by using endodontic files to check this difference, since the failure to include this measurement may cause the perforation to leave the implant neck and even part of the implant thread exposed if the gingiva is not very thick.

After drilling, the depth is verified to see if it is correct and probing is performed to try and check for any bone fenestration in the vestibular and palatine regions, after which the site is well irrigated with saline solution and the implants are then placed (Figure 3).

In this figure, it is possible to observe the photograph showing the implants installed in their due sites. In the equivalent drilling of tooth 46, an implant of 3.75x11.5 was placed, and in the second perforation equivalent to tooth 47, an implant of 3.75x10.00 was placed. In this technique, it can be observed that the amount of torque achieved is incredible (Figure 4).



Figure 1– Initial clinical appearance.



Figure 2 (A-B) – Photographs showing the image of the perforations, one installation already performed and one perforation being performed in the site of tooth 47. The flapless surgery technique was used.



Figure 3 – Photograph showing the installation of the Bionnovation tapered implants.



Figure 4 – Tomography showing the installation of the two implants using the flapless surgery technique.

The installation of the screws was smooth and the patient was very satisfied, due to the fast surgery and excellent post-operative period, without pain, swelling or hygiene difficulty, as well as without the taste of blood in the mouth or mild bleeding, which is characteristic of the first day of surgery.

After seven days, the patient returned to the dentist's office and the gingiva had closed practically the entire perforation hole where the implants were installed (Figure 5A and Figure 11).

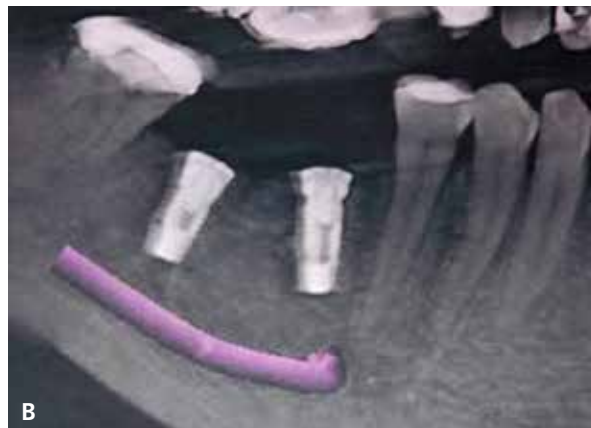


Figure 5 (A-B) – Illustrative 3D reconstruction of the implant region.

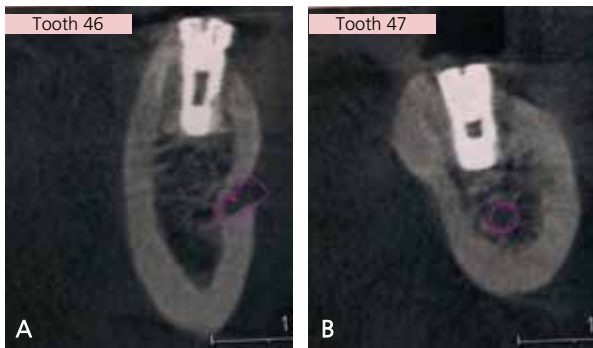


Figure 6 (A-B) – 3D reconstruction of implants 46 and 47, with the appearance of osseointegration and showing that these are inside the bone.

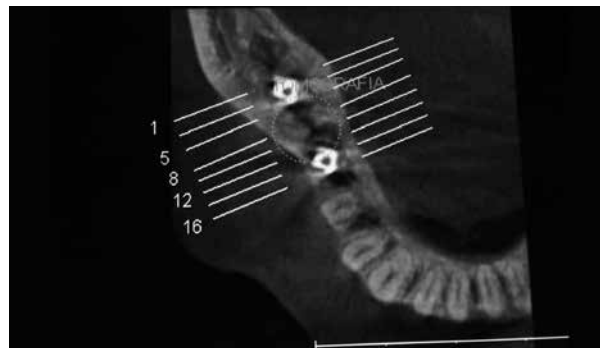


Figure 7 – Images showing that the implants are surrounded by bone.

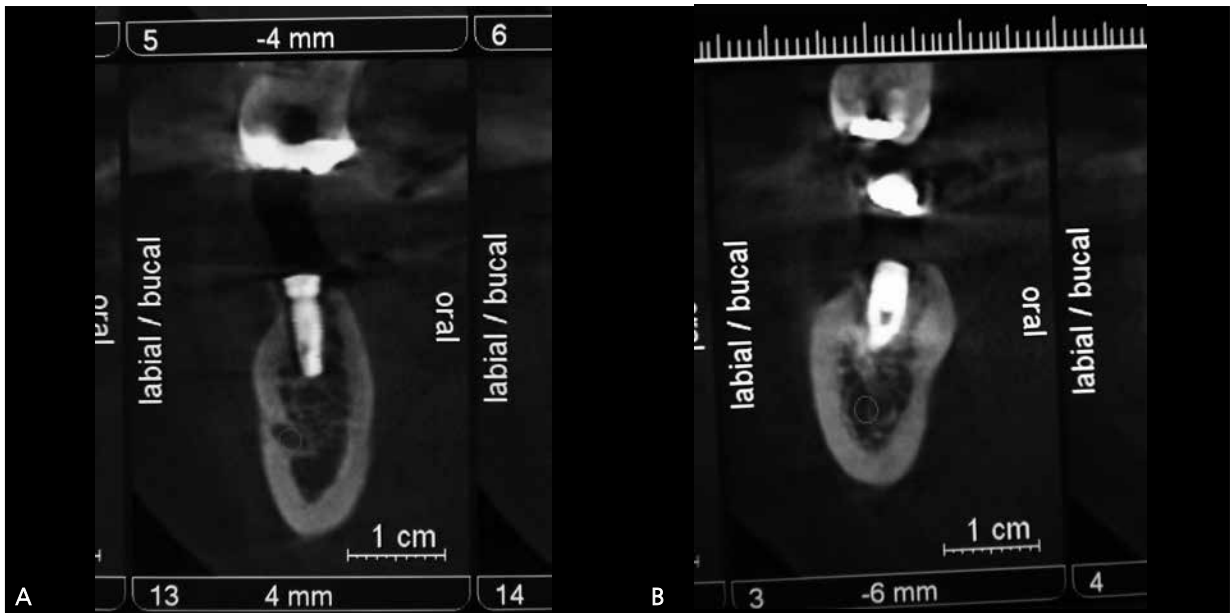


Figure 8 (A-B) – Tomographic section showing the good position of the implants inside the bone



Figure 9 – Photograph of the operated region 3 months after the surgery.



Figure 10 (A-B) – Photograph of the implants in function, with porcelain prosthetic crowns.



Figure 11 – Periapical x-ray photograph two years after implant placement surgery.

Discussion

It is known that nowadays the treatment with osseointegrated implants is well documented and has a high percentage of success. What is observed is that minimally invasive procedures have been adopted in implantology and are increasingly accepted among patients, provided there is the presence of enough bone; the surgery for the installation of implants using the flapless surgery technique is very peaceful, being that this technique came to demystify implantology, making it less invasive, less painful and, consequently, a less traumatic procedure and especially more esthetic in cases where esthetics is needed, due to not requiring the use of sutures.

The term “minimally invasive surgery” was first described in the medical field by Fitzpatrick and Wickham (1990). In 1994, Hunter et al. refined this therapeutic approach, describing the minimally invasive surgery as a technique that allowed detailing the reach of the eyes and increase the extension of the hands to perform macro and microscopic procedures that were previously conducted through large incisions.

Lindhe e cols. Reported that the entire blood vessel system must be seen as a complex of vessels and not individually, and that all these vessels are like a unit that will supply to the maxilla and mandible; it is known that the existence of flap reflection will in some way reduce

part of the vascular supply in the region. Without mentioning that during suture, if there is great tension in the suture to tighten the stitches, this will generate an iatrogenic crush of the tissue, as well as cut off the nutrition due to the obliterations of delicate microvascular structures, which will result in necrosis caused by lack of blood supply.

When the flapless technique is used, the procedure also conserves the integrity of the vessels and tissues, which will serve as a seal to prevent products coming from the oral cavity to come in contact with the bone tissue, thus allowing good osseointegration and solid fixation of the implant. Conserving the integrity of the tissue and vessel system will allow for better supply and less attraction of defense cells to repair the site.

According to Bezerra e cols., the main characteristic of this surgical technique is the possibility of performing surgeries safely, rapidly and with a high level of predictability.

To Zoman e cols., patients requiring long-term treatment with anticoagulants, due to having a prosthetic valve in the heart may also benefit from the technique when they have bone for this procedure, so they do not have to reduce the drug dose when it is possible to perform the minimally invasive technique.

Profitt et al., in his book, in the chapter on concepts of growth and development, mention that the formation of new bone on the surface of an existing bone occurs through cells that are in the periosteum, which is a membrane that surrounds the bone and where the formation of new cells occur.

One can never do without some important criteria before using the flapless surgery technique, such as double precaution in the esthetic areas, because it is necessary to try and imagine how the position of this implant will be three-dimensionally, the available bone height, and the volume of the soft tissue, which are all fundamental requirements before starting the surgery.

Conclusion

It is believed that the possibility and feasibility of performing a minimally invasive surgery and, with much less trauma and suffering to the patient, is possible thanks to the use of the flapless technique and of course it is only for those cases where there is a good amount of bone, in both height and width. This method will not only be beneficial to the patient, but will also provide various other advantages, such as better preservation of the papillae when an implant is installed between two teeth, because no flap will be made. Another advantage of not performing flap reflection is the preservation of the periosteum, which will help in a faster repair, because according to Profitt et al., the inclusion of new bone to the surface of an already existing bone is possible due to the activity of cells in the periosteum, which has the potential of creating new cells.

In a certain way, damages to the papillary tissue that may be irreversible are avoided, thus eliminating the much feared gingival embrasures in the smile; furthermore, in addition to the non reflection of the flap, there is the preservation of the complex of blood vessels that can never be seen as a single vessel, but as an interconnected network. Preserving this network will provide better blood supply, which will result in a much faster repair and if there is no reflection, there is no suture, so there will be no problems with suture dehiscence, the presence of which exposes bone tissue, thus delaying the healing process or even leading to serious inflammation of the site. It can also be considered that there are not many risks with patients that have a slightly poor hygiene, thus preserving the implant osseointegration.

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