BENEFITS OF ORAL REHABILITATION WITH IMPLANT OVERDENTURE. CLINICAL CASE REPORT

Dental Science

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ABSTRACT

Patients who for a long period of time suffer from total edentulism, a bone resorption of the jaws is generated despite using conventional mucosal supported dentures, for this reason, when the clinical case allows it, a plan should be made to perform a retained overdenture with implants, to stop bone loss with the placement of dental implants, as well as, increasing retention by means of the mechanical anchors produced by implants splinted with a bar, in addition to favoring phonetics, good salivary control and especially safety when chewing to properly grind food. A clinical case is presented of an adult patient who lost his upper teeth in a car accident and who needs chewing efficiency and a lot of security when speaking for the profession he performs, the placement of 4 splinted implants with a bar made of type IV gold. The results obtained were satisfactory for the patient, since it was achieved that the prosthesis was excellently retained which gives it security, the chewing capacity, retention, stability and support are improved, which allows the patient to feel comfortable with her rehabilitation to perform her work and social activity without problems. Therefore, oral implantology strengthens the different rehabilitation techniques in a predictable and successful way in the treatment of patients with partial and total edentulism.

KEYWORDS

Edentulism, Overdenture, Implants, Bar.

INTRODUCTION

The problem of edentulism today is a public health problem that affects the elderly population more frequently, despite advances in preventive and restorative dental techniques, the frequency of edentulism worldwide continues to increase as the patient goes getting old. When the patient goes through this stage of edentulism it causes multiple problems, not only oral but also systemic due to the lack of the correct grinding of food that can lead directly to digestive problems that will be reflected in their health in general and cause a deficiency physical with family and social consequences. With the use of conventional mucosa-supported only prostheses, chewing efficiency is decreased compared to occlusion in a toothed patient, as well as progressive residual bone atrophy and muscle changes.

However, in older patients with a long period of total edentulism, an advanced atrophy of the jaws occurs, so an acrylic-based overdenture can provide a good therapeutic option to correct a large discrepancy of the dental arches, which supports vestibular tissues with good salivary and phonetic control, and favors easy access to oral hygiene by the patient.¹ Therefore, it is important to inform the patient of the benefits of Osseo-integrated implants to rehabilitate with implant-mucosal supported prostheses. The treatment plan must be carried out individually, which meets the needs of each patient. The number of implants to be placed and the design of the retention mechanism between the implant and the prosthesis, depends on two major factors: 1) The conditions of the residual bone volume, bone quality and the possibility of being able to redesign it with the placement of bone grafts, through bone regeneration. and 2) Financial resources, socioeconomic and cultural environment.

Currently, the osseointegration process, the knowledge of the biological phenomena that explain the bone response to the insertion of implants in different clinical situations, has made it possible for the treatment with implants to be incorporated into dental practice with greater frequency. In this sense, oral implantology has had a very important impact on the dental profession in the last three decades since it represents a predictable and successful therapeutic technique in the treatment of patients with partial and total edentulism. This allows implant-supported prostheses to be performed more frequently, which provides a series of benefits to the patient such as; 1) Prevent the bone from losing volume due to the resorption that occurs when teeth are lost and thus allow the bone to maintain its function, 2) Obtain an anchor that provides stability, comfort and safety to total or monomaxillary overdenture dental prostheses.² The objective of this clinical article is to show an alternative to rehabilitate the edentulous upper jaw with 4 Osseo-integrated implants, the anchoring mechanism is a bar and finally with an overdenture implant.

MATERIALS AND METHODS

A 42-year-old female patient who uses an upper prosthesis, in her dental history mentioned that due to a car accident she lost her upper teeth, with previous radiographic studies (orthopantomography and computerized axial tomography, CT) they can perfectly identify the regional and local anatomical characteristics of the maxilla and describe the volume of bone in height, width and its arrangement in space, it is observed that there is no presence of dental or bone fractures, the patient used a mucosa-supported prosthesis. The treatment plan was designed as follows; placement of 4 Osseo-integrated implants anchored with a bar, taking as a reference what is mentioned by the author Naert I, Gizani S (1999) If the studies carried out on the maintenance of overdentures are evaluated, it is observed that screw loosening is more common when ball anchors are used than bar anchors.³

The surgical guide is made to determine the exact placement sites of the 4 implants to be used at the surgical time, the 4 implants were placed; 3 with a length of 13 mm and 1 with a length of 11.50 mm and 3.75mm wide, these diameters were determined according to the thickness of the bone that was calibrated and determined by the biomechanics of the prosthesis, Simultaneously, radiography are obtained to observe the correct placement of the implants. They were left for a period of 5 months for osseointegration, after this time they were discovered to start the rehabilitation process. (Figure 1, 2)

Figure.1 Surgical phase of the placement of 4 implants

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Figure.2 Immediate radiography after implant placement

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After 5 months, the 4 implants were discovered, and the healing screws were placed for 3 weeks to generate suitable periodontal conditions and to be able to make the physiological impression. Taking the physiological record, the working model was obtained with functional and aesthetic prosthodontic possibilities with its relationship with the arrangement and number of implants, the wax bar was designed to be cast in type IV gold, it was first adjusted in the working model to later be tested in the patient's mouth, the fit was verified by means of radiography. (Figure 3, 4, 5)

Figure.3 Bar design in gold

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Figure.4 Bar test in mouth

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Figure.5 Radiograph of the seal of the bar with the implant

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To continue with the intermaxillary relations procedure and selection of artificial teeth, once the prosthesis is processed and finished, the bar is placed in the mouth permanently and the staples for anchoring and retention of the prosthesis with the bar as shown in (Figure 6), the prosthesis was designed with an occlusal bi-balanced for its correct stabilization, plus the retention generated by the bar, as well as the support provided by the palate, the residual process and the bar itself, thus achieving the prosthetic triad that all oral prosthetic designs must meet.

Figure.6 Placement of the bar in the mouth and the staples in the prosthesis

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Important are the hygiene indications for the health and gingival stability when the bars are designed, due to the accumulation of plaque below the bar and/or biological complications such as peri-implantitis that can compromise bone loss around the implants, will provide durability in the implants, Mallat, E. (2006) recommends the separation of .5 to 1mm between the bar and the gum, as well as cleaning the prosthesis.⁴

RESULTS

The design of the overdenture with implants connected by a bar is a rehabilitation technique that improves chewing ability, retention, stability, and support, providing patient safety. In addition, of all the benefits generated in the residual bone by the placement of the implants, which is why it is considered a successful rehabilitation with good durability that meets the demand and needs of the total or partial edentulous patient. (Figure 7)

Figure.7 Result of the prosthesis in mouth

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CONCLUSIONS

The rehabilitation of the edentulous patient with implant overdentures is a successful treatment, due to the benefits provided by anchoring and anchoring fixation, which generates security for the patient when speaking, chewing and swallowing food, which improves their quality of life with a good nutrition that is reflected in improving your general health. It is an excellent prosthetic design that is recommended to patients who can receive implants to be rehabilitated with overdentures.

REFERENCES:

- [1] Chan MF, Närhi TO, Baat C, Kalk W. "Treatment of the atrophic edentulous maxilla with implant-supported overdentures: a review of the literature." *Int J Prosthodont* 1998; 11: 7-15.
- [2] Grau, L., Guerra, O., Sanchez, C., Valdes, H. (2018). Treatment with implants inserted by flapless in partially edentulous patients, *Spanish Journal Odontostomatológica of Implants*, Vol. 22/N.º1
- [3] Naert, I., Gizani, S., Vuylsteke, M., Van Steenberghe, D. (1999), A 5-year prospective randomized clinical trial on the influence of splinted and unsplinted oral implants retaining a mandibular overdenture: Prosthetic aspects and patient satisfaction. *Journal Oral Rehabilitation*. 6:195-202.
- [4] Mallat, E. (2006) Interesting details in implant overdentures design *RCOE*, Vol 11, N°3, 329-343 Barcelona
- [5] Velasco, E., Linares, D., Velasco, E., Monsalve, L., Medel, R. (2003). Overdentures with osseointegrated implants in the geriatric patient revista. *Journal Advances in Periodontology*, Vol. 15 - N° 1.
- [6] Gallucci, G., Bernard, J., Belser, U. (2005). Treatment of completely edentulous patients with fixed implant-supported restorations: three consecutive cases of simultaneous immediate loading in both maxilla and mandible. *International Journal Periodontics Restorative Dent*. 25:27-37.
- [7] Kampen, F., Cune, M., Bilt, A., Bosman, F. (2003). Retention and postinsertion maintenance of bar-clip, ball and magnet attachments in mandibular implant overdenture treatment: an in vivo comparison after 3 months of function. *Clin Oral Implants Res*. 14:720-6