A STUDY ON THE PROSTHETIC RESTORATION ON IMPLANTS IN PARTIAL EDENTULOUS CASES

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Abstract

A prosthetic restoration on implants in partial edentulous cases sums up a series of interventions and traumatic procedures the patient must bear: anesthesia, tooth extraction at times, increase of the bone bed receptor, insertion of implants, bone integration tracking, making of the prosthetic superstructure and its gnathic equilibrium.

Key words: implant, balancing prosthetics, edentulous, bone integration

INTRODUCTION

The loss of most teeth becomes crippling for most patients, this situation being accompanied by a desperate search to remedy this situation. Along with psychosocial aspects, together with the edentulous part there also appears a destruction of a bone part of the alveolar crest and a morphological change of the soft tissue coverings (Mihai Augustin, 2000), (Mihai Augustin, 1998).

The bone density available in a toothless area has a major influence on the treatment plan, the layout of the implant, the surgical approach, the initial request period of healing and the progressive bone during the prosthetic reconstruction (Degidi et al, 2010), (Duka et al, 2008).

The higher the edentulous age, the more local and loco-regional anatomical shortcomings appear. Following clinical and laboratory investigations there shall be determined the volume of the edentulous alveolar ridge by: height, width, length, angulation. The crown-implant ratio is also established.

In the last 30 years, implantology has become a controlled science based on the concept of bone integration (Helmut R. and Henrichs, 2009), (Hupfauf L, 1996).

The success of implant bone integration becomes possible by optimizing the dento-parodental pre-implantar status by an appropriate surgical treatment, the use of biomaterials and a favorable implant design (American Diabetes Association, 2011). Treating dento-parodontal affections is required for the prevention of post-implantation complications (Randie R. et al., 2011).

MATERIALS AND METHODS

We conducted a study on 200 patients during the period 1.03.2009-30.04.2015 at the Dental Practice Dental Net, in order to perform a dental implant.

In the group with non-diabetic patients, the edentulous jaw type was recorded at 38.28% and 31.25% at diabetic patients, the mandibular type at 29.69%, 29.17% respectively and 32.03% at the mixed gender category, 39.58% respectively.

The partially unilateral edentulous case prevails all 3 types of locations in both groups. I had no total maxillary and / or mandibular edentulous cases.

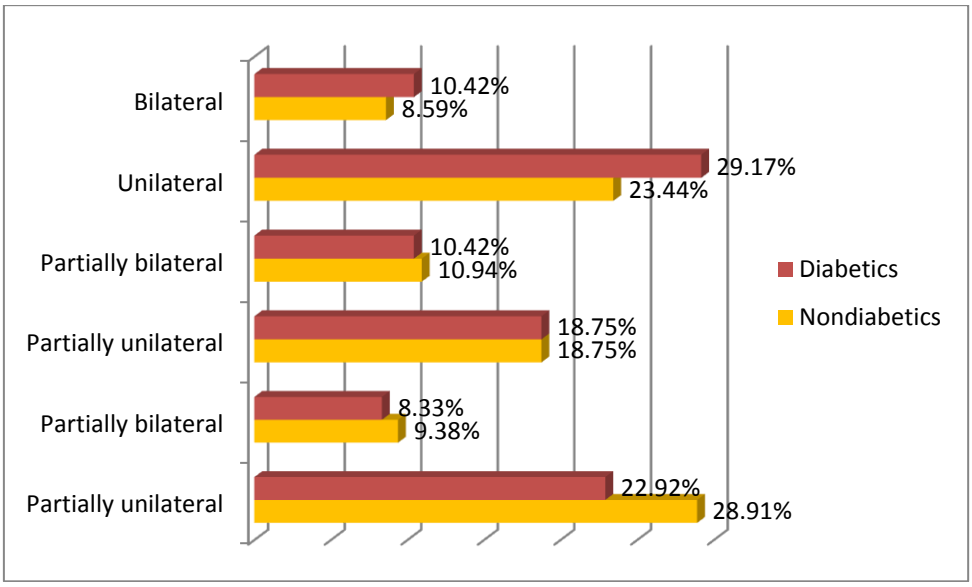

Fig.1 Distribution of cases by edentulous type and topography

The alveolar processes were slightly reduced to 35.94% at non-diabetic patients and to 20.83% at diabetic patients, averagely decreased to 42.19% and 52.08% respectively and severely diminished to 21.88%, 27.08% respectively.

The alveolar processes diminish through the bone resorption phenomenon after the edentulous process. In the edentulous jaw area, in a year, there is a 25% reduction in bone volume, and during the first 3 years the maxilla bone volume is reduced by 40-60%, especially in patients over 60 years of age.

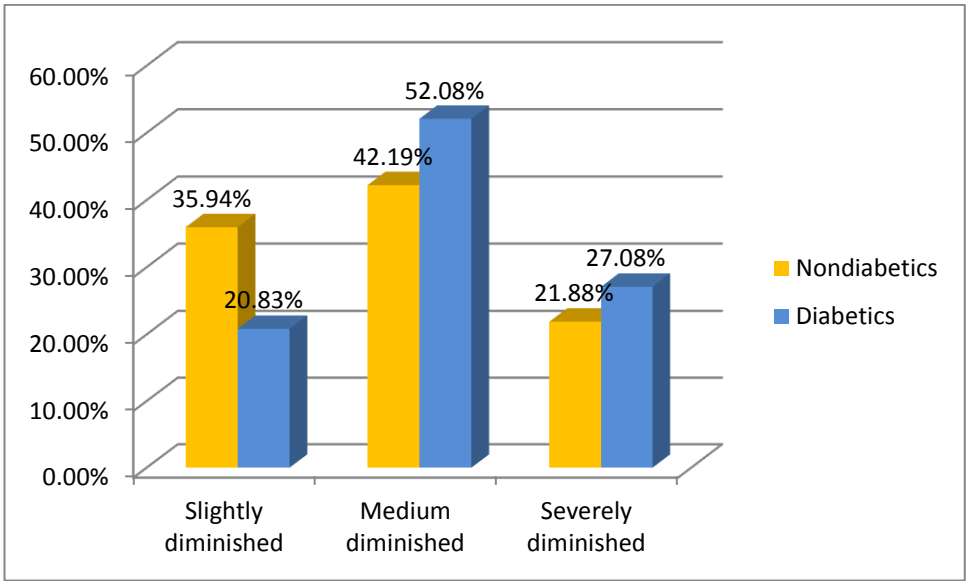

Fig.2. Distribution of cases by reducing the alveolar processes

Table 1

Distribution of cases by natural teeth as pillars

Natural teeth as pillars	Nondiabetics		Diabetics	
	Nr.	%	Nr.	%
Natural teeth as pillars	33	25,78	9	18,75
Treatment of cavities	12	36,36	4	44,44
Pulp canal obturation	3	9,09	2	22,22

Natural teeth as pillars were used in 25.78% of non-diabetic patients and in 18.75% of the diabetic ones ($p = 0.071$). Treatment of cavities has been necessary to 36.36% of non-diabetic patients, and 44.44% of diabetic patients ($p = 0.103$), and 9.09% of the non-diabetic patients and 22.22% of the diabetic patients ($p < 0.001$) the proper obturation of the pulp canal was needed to improve the endodontic status.

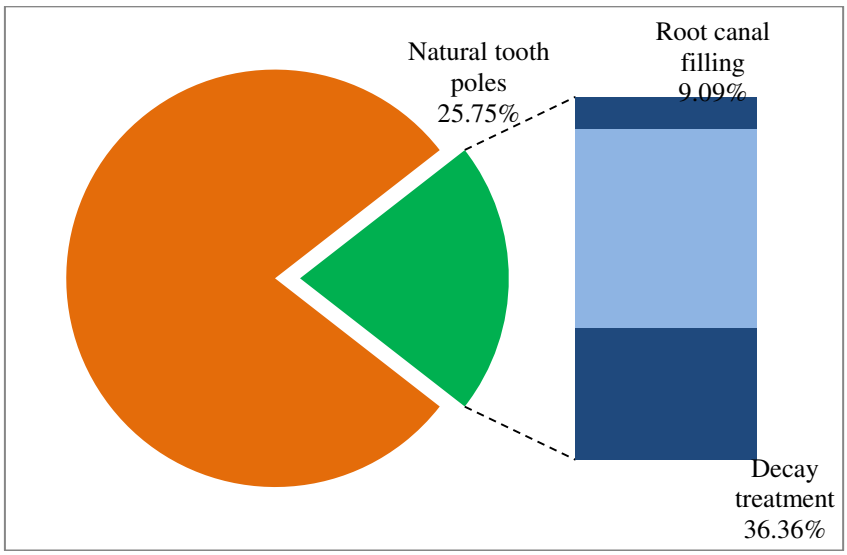

Fig.3 Case distribution of natural teeth pillars - non-diabetic patients

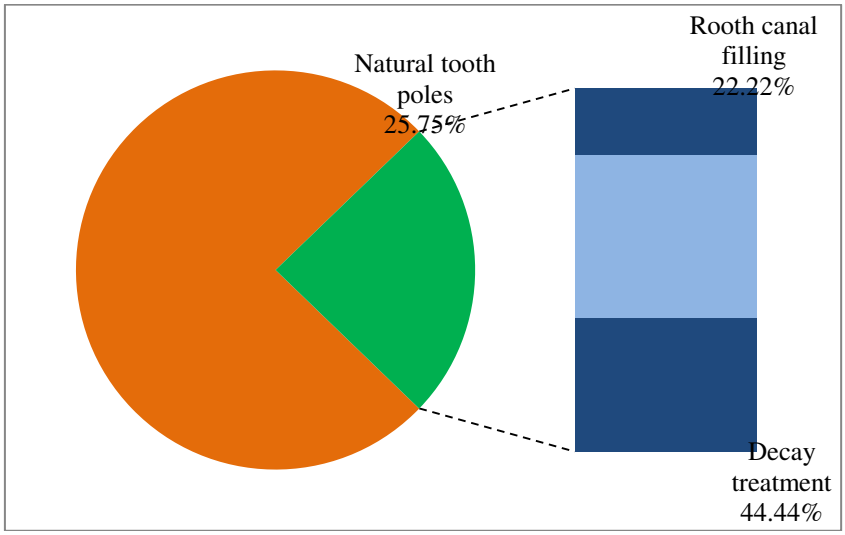

Fig.4 Case distribution of natural teeth pillars - diabetics

RESULTS AND DISSCUSIONS

In all observations, addressability reasons for implant and prosthetic reconstruction have been established by functional and aesthetic deficiencies. Following tooth loss resorption and atrophy of alveolar process occur according to the chronology of tooth loss. Atrophy can be symmetrical and uniform if extractions were followed at short intervals, and if the intervals between extractions were higher, the atrophy thus being

asymmetrical and uneven. In this study the clinical and laboratory investigations have established the volume of alveolar edentulous ridges, the length of the edentulous ridge, the bone angulation and crown-implant relationship. In terms of bone offer, the alveolar bone and the anatomical aspects, the bloodstream, the bone metabolism and the bone density available were the most important ones. The quality of the bone offer influenced the evolution of the implant, the surgical approach decision, the healing period and the prosthetic reconstruction. The higher the edentulous age, as in other comparable studies in the literature, the more local and loco-regional anatomical shortcomings have appeared.

In order to establish a treatment plan it is required an evaluation of the edentulous extent and location. Thus, we classified the patients into two categories: the partially edentulous unimaxillary and bimaxillary ones and the total edentulous unimaxillary and bimaxillary ones. Among the criteria for the prediction of success restoring a tooth that followed endodontic treatment, the presence of at least 5 mm of tooth structure over bone is included: 2mm required for the compliance of ther biological width, 1mm for the depth of the trench and 2mm for the sleeve (the cervical portion of restoration surrounding 1-2mm of healthy dental structures to prevent fractures).

Following tooth loss there occurs the resorption and atrophy of the alveolar process according to the chronology of tooth loss. At the patients in this study the atrophy was symmetric and uniform if the extractions were performed at short intervals, and if the intervals between extractions were higher, the asymmetrical atrophy was uneven.

CONCLUSIONS

1. To assess the cellular morphology a thorough clinical exam completed with imaging investigations adapted to each case is required. In a smaller number of cases it was necessary to use the latest investigative imaging methods - CT, orthopantomography. This increased the precision of the diagnosis and the therapeutic decision (bone augmentation, implant design and osseointegration and prosthetic loading).

2. The pre-implant preparing of the patient was a rigorously followed stage in all cases. The implants were achieved only after a proper assessment of the overall, loco-regional and local conditions of every patient. We mainly insisted on maintaining the health of the oral and peri-oral tissues simultaneously with the prophylaxis of bone ridges resorption syndrome.

Once a partially or fully edentulous patient was identified as apt to

receive the implant, the next step was to evaluate the bone tender. The available bone dictates the treatment method - if the patient can receive endosseous implants or subperiosteal implants. Many times, the bone offer for inserting implants at the level of the alveolar ridges was insufficient or at the minimum allowable limit. To correct this shortcoming I reworked the crest bone as a support for oral implants, pursuing its growth in height, thickness, length. This was conducted by using several techniques and materials that can ultimately achieve a stable bone-time deal and a good biological bed where implants inserted to integrate. First we watched maintaining the alveolar ridge after tooth extraction and, if we failed this we used the augmentation of the osseous ridges. Studies in the specialty literature mention this interventional possibility.

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