

The Effect of the Staged Approach Using Dental Implants in the Rehabilitation of Mutilated Occlusion on the Patient's Quality of Life

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Abstract

Introduction: This clinical report presents a clinical case scenario of a Saudi young lady who presented with multiple heavily restored teeth, multiple missing teeth, and a mutilated occlusion. The patient's chief complaint was "I want to restore my mouth to be able to smile and eat well".

Objective: The purpose of this presentation is to emphasize the importance of interdisciplinary in the management of such complex cases and how endosseous dental implants can and did change the patient's quality of life (QoL).

Materials and Methods: This clinical report describes a step-by-step scenario for the dental rehabilitation of the patient using the staged approach and endosseous dental implants. The effect of the installed implant-supported prostheses on the patient's quality of life (QoL) was measured through a subjective scale filled by the patient before and after the treatment.

Results: Significant patient satisfaction and improved quality of life were achieved as assessed by the patient; there was a noticeable positive effect influencing the patient's esthetics, phonetics, mastication, comfort, self-esteem and oral hygiene.

Keywords: Dental Implants; Fixed Provisional Restorations; Full Mouth Rehabilitation; Mutilated Occlusion; Staged Approach

Abbreviation

QoL: Quality of Life

Introduction

Since the introduction of dental implants in the 1960s, they have been used extensively in the rehabilitation of both partially and completely edentulous patients [1]. They showed multiple advantages including slowing the rate of resorption of the residual ridge [1,2], improved stability and retention of the prostheses [2-4] and increased masticatory efficiency [5,6]. The literature shows that implant-supported prostheses for edentulous patients had a significant improvement in the psychological self-image of the patient along with better function and comfort [7].

Restoring the oral health of edentulous patients has widely been achieved through removable complete dentures which don't always fully fulfill patients' needs and desires. Dental implants helped overcome many problems associated with complete dentures related to

speech, mastication, and maintenance of the oral health. The use of dental implants helps patients achieve higher levels of satisfaction and quality of their life (QoL) [8]. Harle., *et al.* found that patients treated with implant-supported prostheses had much greater levels of satisfaction especially in their ability to speak, chew, laugh, etc [9]. This was confirmed by Zarb and Schimmts who claimed that functional problems related to conventional complete dentures can be overcome utilizing implant-supported fixed prostheses [10]. Moreover, Pjetursson., *et al.* reported that 72% of individuals treated with fixed implant prostheses reported no difference in their chewing ability in comparison with their natural dentition [11]. Grogono., *et al.* reported that from patients' perspective, the most common reason for choosing a dental implant prosthesis was to improve eating ability and that respondents favored function and confidence over esthetics [12].

Case Report

Examination and diagnosis

A twenty-five-year-old female patient presented to the dental clinic in King Saud Medical City in Riyadh, Saudi Arabia. The patient complained that she had multiple missing and decayed teeth that she wanted to replace and to fix her smile and function. Thorough Clinical and radiographic examination were conducted; and diagnostic workup involved detailed periodontal and prosthetic evaluation, radiographic examination including orthopantomogram, full mouth peri-apical and cephalometric X-rays, mounting of study models using a face bow transfer and centric relation record; and diagnostic wax up. The diagnostic workup revealed that the patient had a mutilated occlusion and that all remaining teeth were badly destructed, non-restorable and had to be extracted (Figure 1a-1f). Treatment options discussed with the patient and a final treatment plan formulated for her. There was inadequate residual bone in the maxilla for the placement of dental implants and the patient had a prominent chin.



Figure 1a-1f: a- Extra-oral frontal view, b- intra-oral frontal view, c- intra-oral right lateral view, d- intra-oral left lateral view, e- intra-oral maxillary occlusal view and f- intra-oral mandibular occlusal view.

Clinical procedures

The patient went through several surgical procedures including extraction of all remaining teeth, augmentation of autogenous bone (retrieved from the patient prominent chin) in the right and left posterior maxilla and soft tissue grafting in the anterior mandible. Endos-

seous implants were installed in the maxilla and mandible; and few selected natural abutment teeth were left to retain fixed provisional prostheses (Figure 2).



Figure 2: Maxillary and mandibular provisional prostheses retained on selected retained natural teeth.

After four months of adequate healing to achieve osseointegration of the implants, final impressions were made and master casts mounted using a face-bow transfer and bite registration in centric relation. The prosthesis metal frameworks were tried in figure 3 and the final upper and lower porcelain fused to metal prostheses were installed (screw-retained) after meticulous attention to the shape and shade of the teeth, phonetics and occlusion (Figure 4).



Figure 3: Metal framework try-in and bite registration.



Figure 4: Final upper and lower porcelain fused to metal prostheses.

The patient filled a detailed questionnaire to evaluate her new experience with the prostheses from different functional and social aspects. Many forms and scales exist to assess patients' quality of life (QoL), such as the Oral Health Impact Profile (OHIP), Oral Health-Related Quality of Life (OHRQoL) and many others [13].

Results

The effect of dental implants on the quality of life of the presented case is highly positive. It is expressed by the difference in the patient's general satisfaction and in all domains of comfort, speech, esthetics, chewing ability. The patient expressed that the quality of her life (QoL) dramatically improved, and she is now able to eat different types of food and can easily function and speak with no difficulty. Moreover, the new prostheses made her look younger and socialize with others.

Discussion

Full-mouth reconstruction of mutilated dentitions is a challenge for both the patient and the clinician. Conventionally, a staged approach is followed where the non-restorable teeth are extracted, implants are installed either immediately or after socket healing (guided by a restoratively driven approach); insertion of tooth-supported provisional prostheses during implant osseointegration, these are then converted to implant-supported prostheses. This drastic situation can generate emotional, functional and esthetic challenges for the patient.

The successful treatment of such comprehensive cases requires a team approach and proper communication between the restorative dentist, the surgeon, periodontist, the laboratory technician and cooperation of the patient [14].

The author presented a case to show how the staged approach can be used for rehabilitation of mutilated dentition and how dental implants to support fixed full arch prostheses can dramatically change the patient quality of life. Advantages of the staged technique include a restoratively driven implant placement, immediate fixed provisional restorations on selected remaining natural teeth that maintain esthetics and function during the osseointegration of the placed implants, and management of the soft tissues [15].

Conclusion

Staged comprehensive approach is a useful technique to treat dentitions with guarded or poor prognosis. The technique allows using fixed provisional restorations and avoids the use of removable complete dentures that might cause psychological stress to the patient or pressure over implants or grafts.

Conflict of Interest

The author declares no financial or any conflict of interest.

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