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PROSTHETIC MANAGEMENT OF IMMEDIATELY PLACED MALPOSITIONED SINGLE DENTAL IMPLANTS: A CASE REPORT

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ABSTRACT

This case report will try to show some of the difficulties that dentists might face during restoring implant cases, especially in the esthetic zone. It's a case for an immediately placed dental single implant in the area of maxillary right 1st premolar. The implant was placed in a compromised location with severe angulation. It shows some of the capabilities and limitation of prosthetic solutions in restoring dental implants. 12 years after cementing the implant supported crown, patient stated that the implant still functioning and had no complain.

INTRODUCTION

Dental implants have been proven to be a successful treatment option for the replacement of missing teeth . Success of implant treatment is not only judged by its survival in the patient mouth, but rather by its ability to restore both function and esthetic. Both patients' and practitioners' expectations kept increasing ever since dental implants were introduced by Brånemark nearly 40 years ago. The development of different technologies and materials have been a major factor in improving the overall outcome of dental implants, Such as, cone beam tomography, CAD/CAM technology, and implant junction. Nevertheless, there are still challenges that face dentists and patients across the globe that limit them from achieving optimal results. For example, availability of proper equipment and/or materials, competency of the practitioners, the supporting staff, and market demands.

The training of restoratively driven implant placement protocols been mentioned to be the correct approach when it comes to implant dentistry.

This report will show the prosthetic management and limitation of an immediately placed single dental implant in a compromised position in the maxillary right premolar area.

Case report

A 46-year female patient presented to the clinic in 2006 seeking to restore a dental implant that was placed in the upper right premolars area 6 months ago.

The patient medical and dental history was obtained and reviewed before the treatment,

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and appropriate clinical and radiographic tests were gathered. Patient medical history is with in normal, with no underlying medical condition that might contribute to her management. History and examination revealed that the patient had received an immediately placed dental implant, Tapered Screw Vent Implant System 3.5 mm (Zimmer Dental, Carlsbad, CA, USA) after the extraction of tooth #5 (figure 1). At the first glance, it was clear that the implant was misplaced. Alternative treatment options were explored and discussed with the patient but she refused, and wanted to restore the above-mentioned implant.

Smile line analysis of the patient showed that she has an average smile line (figure 8). This was a factor in determining the final prosthetic part. A fixture transfer coping was placed in and a closed tray final impression was taken using polyether impression material (Impregum; 3M ESPE, Seefeld, Germany) (figure 2). An appropriate implant analogue was placed into the transfer coping and both were carefully inserted into the final impression. A master cast was fabricated with ISO type IV dental stone (Silky- Rock; Whip Mix Corp, Louisville, KY, U.S.A.). Hand articulatation and mounting was done with a simple hinge articulator.

From clinical and diagnostic mounting, it was evident that the space was too big mesiodistally for a one premolar and too small for two premolars. A diagnostic wax up was made with two premolars where the 1st premolar has its full width and the 2nd premolar its one third approximately (figure 3). Final master cast indicated that the implant was placed too far buccaly, and almost in the middle of the space mesiodiastally. Therefore, the proposed wax up couldn't be transferred to the final prosthesis due to the location and the orientation of implant. After that, the lab was directed to make the final restoration for one tooth with a narrow dominant mesial half, and wide disappearing distal half to create illusion of a smaller tooth. An engaging "cast to" gold abutment was waxed up and casted for a cement retained implant supported metal ceramic crown. The custom abutment was tried in the patient's mouth, and was adjusted in as lingually as the screw opening and the location of the implant permits (figure 4&5). A final metal ceramic crown was fabricated and tried in the patient mouth. The abutment was torqued in according to the manufacturer's recommendation. The crown was tried and adjusted in the patient's mouth. Screw hole was covered with a temporary filling material (Cavit; 3M ESPE, Seefeld, Germany), and the final crown was cemented with Zinc Oxide based temporary cement (Temp Bond (NE); Kerr Corporation, Orange, CA, USA) (Figure 6&7&8).

Per a phone conversation, the patient stated the implant still functioning and has no complain after 12 years. She was asked to come in for proper examination and radiograph, but arrangement couldn't be made.

Fig. (1) Dental implant on #5

Fig. (2) Transfer coping for final impression

Fig. (3) Diagnostic wax-up

Fig. (4) Custom abutment try-in, frontal view

Fig. (5) Custom abutment try-in, occlusal view

Fig. (6) Final crown, occlusal view

Fig. (7) Final crown, frontal view

Fig. (8) Patients full smile, as she doesn't show the full length of the final crown

DISCUSSION

Nowadays, surgical placement of dental implant can be done by various dental specialties. Therefor, communication between different key members in providing patient care is an essential part to the success of dental implant treatment. Dentists in general believe that treatment plan is better off decided and discussed by a team of the involved doctors before hand. This is to them is more rewarding over a restorative dentist finalizing the plan and referring it to the surgeon. General dentists have an understanding of when to refer difficult cases that might need grafting or in the esthetic zone . Nevertheless, implant surgeons regardless of their specialties or the level of training will most probably benefit from the understanding of the different capabilities and limitation of the restorative components. Utilization of new technologies and advancements in treating patients with dental implants is also important. The combination of 3D radiological imaging and 3D printed surgical guides will help in the accuracy of implant placement.

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