



Long Span Fixed Dental Prostheses: A Case Report

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ABSTRACT: Forces on the fixed partial dentures are transmitted to the abutment teeth through the pontic, connector and retainers. This article describes a case report of a long span fixed dental prosthesis where adequate number of sound and healthy abutment were used to support the long span fixed dental prosthesis. Having a proper knowledge about the various forces and their biomechanical factors enables the prosthodontics to properly plan the treatment and increase the life span of the prosthesis and reduced the failures of FPD.

KEYWORDS: Long Span Edentulous, Fixed Partial Denture, Failure of FPD

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I. INTRODUCTION

Forces on the fixed partial dentures are transmitted to the abutment teeth through the pontic connector and retainers.¹ Forces that exceeded beyond the physiologic limits of hard tissues can cause initial bone loss and failure of the prosthesis. Longevity of a fixed partial denture and its abutment depends on occlusion, span length, bone loss, and quality of periodontium. Biomechanical factors such as overload, leverage, torque, and flexing induce abnormal stress concentration in a fixed partial prosthesis.^{2,3} Having knowledge about the complications that can occur in fixed prosthodontics enhances the clinician to be more careful in diagnosis and treatment plan and enables to explain how far the treatment can fulfill patient's expectations. This article describes a case report of a long span fixed dental prosthesis incorporating the biomechanical factors. Hence, proper treatment planning can increase the life span of the prosthesis.

II. CASE REPORT:

A 36 year old male patient reported to the PD Dental Health Care, Canchipur, Manipur with a chief complaint of missing teeth associated with difficulty in mastication as well as aesthetic problem. No relevant medical details were revealed. His dental history revealed extraction of the missing teeth due to dental caries. On intraoral examination long span edentulous condition was found missing of right premolar to central incisors and missing left central incisors and lateral incisor (Fig 1). Radiographic examination confirmed that the abutment teeth were in good bone support and no periapical pathology. After the evaluation, it was finally decided to rehabilitate with a fixed dental prosthesis replacing all the missing teeth in the maxillary arch. Entire treatment plan including the cost and time required to finish the procedure was explained and an informed consent was taken from the patient before starting the treatment.

Tooth preparation in relation to right molar and right premolar incisor and then from left canine to left premolar was completed for a porcelain fused to metal crown restoration (Fig 2). Temporary provisional crowns were made using auto polymerizing tooth color acrylic resin (Fig 3) and cemented with a eugenol free temporary cement. Final impression was made and a die stone master cast was obtained. Metal framework was tried in patient's mouth (Fig 4). Final prosthesis was checked for the correct fit and shade matching and after the patient's approval, the cementation of the final prosthesis was done using Glass Ionomer Type 1 luting cement (Fig 5). The patient was instructed to maintain good oral hygiene and was asked to report back after 1 week for a follow up visit.



Fig1: Preoperative View



Fig 2: Prepared Teeth



Fig 3:: Provisional Restoration



Fig 4 Metal Tryin



Fig 5: Postoperative View

III. DISCUSSION

According to Schilling burg et al every restoration must be able to withstand the constant functional and Para functional forces to which it is subjected².Thuswhen designing and fabricating a FPD, we should consider the mechanical, biological and esthetic considerations Any factor that are deviated or exceeds beyond the physiologic limits can failure of the prosthesis³.However there are various studies where a long-span FDP are given to the patients not meeting Ante's law.^{4,5}.Further studies are required to ensure long-term success of the restorations forpatients provided withlong-span fixed dental prostheses not meeting Ante'slaw. Peter

Rehmann stated that the patient's compliance is a crucial factor in the successful implementation of a long-span fixed dental prostheses, whereas other factors are of minor importance⁵

IV. CONCLUSION

When designing and fabricating a FPD proper planning should be done as forces that would normally be absorbed by the missing tooth will be transmitted, through the pontic connector and retainers, to the abutment teeth. These forces if exceeds beyond the physiologic limits can cause bone loss and failure of the prosthesis.

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