

Assessment of the Complications Associated With Tooth-Supported Fixed Dental Prosthesis at Qassim Region, Saudi Arabia

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ABSTRACT

Purpose: This study was conducted to identify and assess the complications associated with tooth-supported fixed dental prosthesis among dental patients in Qassim Region, Saudi Arabia, and the most common problems the patients might experience after receiving the treatment. Furthermore, the study aimed at comparing the incidence of complications of Fixed Dental Prosthesis (FDPs) with those of single crowns, and comparing the impact of complications of all-ceramic (FDPs) with those of metal-ceramic fixed Dental Prosthesis.

Methodology: Interview-based questionnaire was used followed by clinical examination which was done at the dental clinics of Qassim University and the prosthodontic clinics of King Saud Hospital.

Results: The most common complications associated with FDPs were esthetic problems, caries, loss of interproximal contact and periodontal problems respectively. Caries was the most frequently reported reason for FDPs removal.

Conclusion: There was a significantly lower Postoperative sensitivity in Bridges (FDPs) compared with single crowns.

Esthetic problems' incidence of single crowns were significantly higher than that of Bridges (FDPs). Patients who had all-ceramic FDPs experienced greater postoperative sensitivity compared with those who had metal-ceramic FDPs.

Keywords: Bridges, Complications, Crowns, FDPs, Prosthesis.

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INTRODUCTION

Restoration of teeth by fixed dental prosthesis (FDPs) is an esthetically and functionally predictable procedure with high patient acceptance.¹ Technical and biological complications associated with FDPs after prolonged exposure to the oral environment are still a significant clinical problem and the main cause of patient dissatisfaction and restoration replacement.² The longevity and complication rate of FDPs is critically influenced by the level of skills of the clinician and his or her academic knowledge.³

Several studies have investigated survival and complication rates of FDPs; estimated the longevity of FDPs to be between 8.3-10.3 years,^{4,5} and stated that Caries was the most frequently reported reason for FDPs removal.^{2,6}

One of the study reported that fixed prosthesis is more acceptable to patients, but there are short and longer-term biological changes, caries at retainer margins and some lesions of abutment teeth, and loss of retention.¹

Complications like dental caries, root canal failures, and de-cementations were more significantly associated with patients who had previously acquired single crowns as compared to (FDPs).⁷

This study was conducted to identify and assess the complications associated with tooth supported fixed dental prosthesis among dental patients in Qassim Region, Saudi Arabia, and the most common problems the patients might experience after receiving the treatment. Furthermore, the study aimed at comparing the incidence of complications of fixed partial dentures with those of single crowns, and comparing the impact of complications of all-ceramic fixed dental prosthesis with those of metal-ceramic fixed dental prosthesis.

METHODOLOGY

Interview-based questionnaire was used followed by clinical examination which was done at the dental clinics of Qassim University and the prosthodontic clinics of King Saud Hospital. All patients were subjected to an intraoral examination using a mirror, dental explorer and dental tweezers and floss. A panoramic (OPG) radiograph and periapical radiographs (of abutment teeth) were taken for each patient.

Each patients was asked about their gender, their age, medical and dental histories, and the period of time that the prosthesis has

been placed. Additionally, patients were asked about the location of the prosthesis i.e. anterior or posterior, prosthesis type i.e. single crown or bridge (FPD), material that has been used i.e. all ceramic or porcelain fused to metal, and the radiographic finding i.e. periapical lesion or bone loss around abutments, etc. Lastly and the most importantly in this clinical survey what was the type of the complications i.e. carious abutments, abutment fracture, postoperative sensitivity, periapical lesions, periodontal problems, occlusal interference, loss of interproximal contact, de-cementations, esthetic problems, and porcelain and metal fractures.

RESULTS

Out of 84 Patients who participated in the study, 59.5 % were males, and 40.5 % were females. The patients' age who have FDP were 35.7 % less than 31 years old, 48.8 % between 31 – 50 years old, and 15.4 % more than 51 years old. Most of the patients 39.2 % had been using the FDP less than six years, 38 % of the patients from 6 – 10 years and 22.6 % more than a decade. The most common complications associated with FDPs were esthetic problems, caries, loss of interproximal contact and

periodontal problems respectively as you can see in figure.1. The patients who wore a single crown were almost 47.6%, while the ones who had FDPs were 53.3%. When we compare the percentage of the complications between those two groups, most of them were in the same range except for postoperative sensitivity and aesthetic problems.

17.5 % of patients who have crowns have postoperative sensitivity in comparison with 2.3 % of patients who have bridges (FPDs) and there was a statically significant difference at $X^2p=0.018$. Also, 55 % of patients who have crowns have esthetic problems in comparison with 22.7 % of patients who have bridges (FPDs), and there was a statically significant difference at $X^2p=0.002$ as you can see in table. 1.

Table 2 shows the complications between the patients who wear the all-ceramic crowns or bridges with the ones who wear porcelain fused to metal (PFM), almost all the complications happened to both types in the same range except for the postoperative sensitivity. 20.7% of patients who have all ceramic FDP have postoperative sensitivity in comparison with 4.3 % of patients who have metal ceramic FDP and there was a statically significant difference at $X^2p=0.02$.

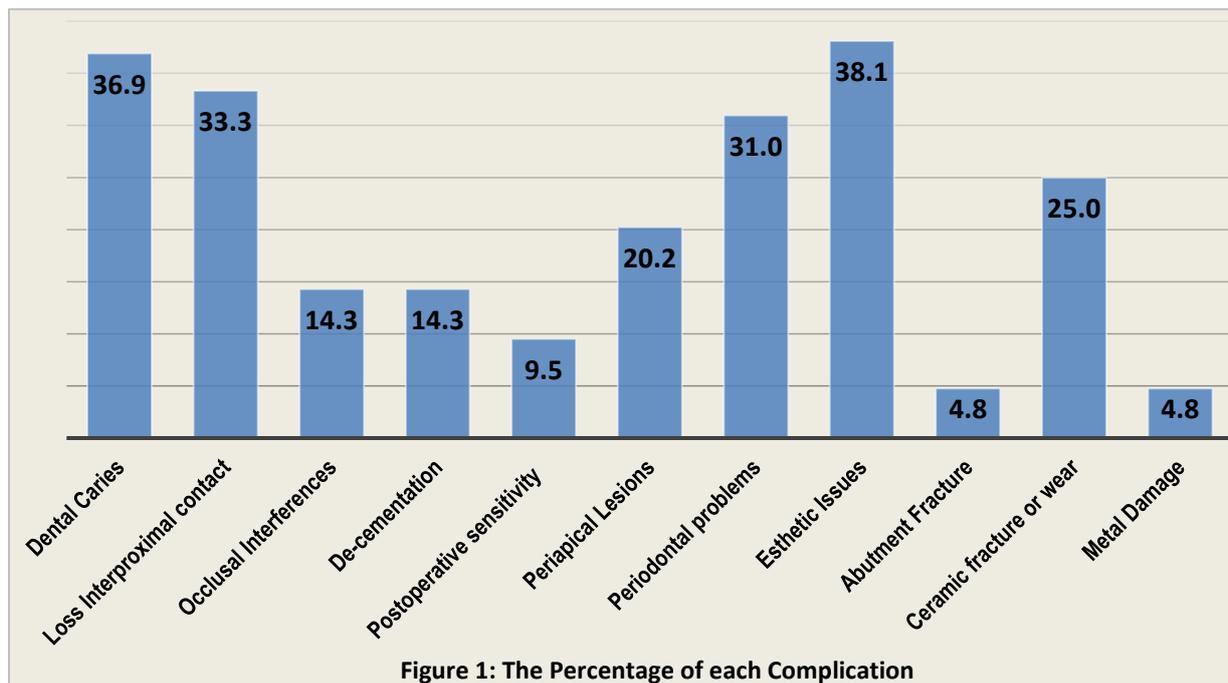


Table 1: Comparing the Percentage of the Complications between Crowns and PFDs

Complications	Crowns	PFDs
Dental Caries	32.5%	40.9%
Loss Interproximal Contact	27.5%	38.6%
Occlusal Interferences	17.5%	11.4%
De-cementation	12.5%	15.9%
Postoperative Sensitivity	17.5%	2.3%
Periapical Lesions	20.0%	20.5%
Periodontal Problems	37.5%	25.0%
Esthetic Issues	55.0%	22.7%
Abutment Fracture	.0%	9.1%
Ceramic Fracture or Wear	22.5%	27.3%
Metal Damage	.0%	9.1%

Table 2: The Complications Difference between the All Ceramic Crowns and Bridges and the PFM Crowns and Bridges

Complications	All Ceramic	PFM
Dental Caries	31.0%	29.8%
Loss Interproximal Contact	37.9%	29.8%
Occlusal Interferences	17.2%	12.8%
De-cementation	13.8%	14.9%
Postoperative Sensitivity	20.7%	4.3%
Periapical Lesions	27.6%	12.8%
Periodontal Problems	24.1%	36.2%
Esthetic Issues	62.1%	17.0%
Abutment Fracture	.0%	6.4%
Ceramic Fracture or Wear	31.0%	25.5%
Metal Damage	.0%	8.5%

DISCUSSION

The most common complications in the current study were dental caries and esthetic problems, which is consistent with previous reports.^{8,9}

Results of the present study revealed that dental caries and de-cementations were more frequently associated with bridges (FPDs) in comparison with single crowns. These results appeared to contradict Tayyaba et al's study (2013) who reported that complications like dental caries and de-cementations were more significantly associated with single crowns as compared to bridges (FPDs). On the other hand, esthetic and periodontal problems were more commonly related to the use of bridges (FPDs),⁷ while in this study the aesthetic and periodontal problems were more often associated with single crowns.

The longevity of FDPs to be between 8.3-10.3 years,^{(4) & (5)} and in this survey just 22.6 % of patients had been using the FDPs more than 10 years, while most of the patients used those prosthesis 39.2 % less than six years and 38 % between six and ten years.

CONCLUSION

The most common complications associated with FDPs were esthetic problems, caries, loss of interproximal contact and periodontal problems, respectively. Caries was the most frequently reported reason for FDPs removal. There was lower postoperative sensitivity in bridges (FPDs) than single crowns. Esthetic problems' incidence of single crowns was significantly higher than that of Bridges (FDPs). Patients who had all-ceramic FDPs experienced significantly greater postoperative sensitivity compared with those who had metal-ceramic FDPs.

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