

CLINICAL EVALUATION OF COMPLICATIONS ASSOCIATED WITH TOOTH SUPPORTED FIXED PARTIAL DENTURE AMONGST PATIENT VISITING DENTAL COLLEGE IN GHARWA.

Dental Science

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ABSTRACT

Introduction: Any dental prosthesis that is luted, screwed, or mechanically attached or otherwise securely retained to natural teeth, tooth roots, and/or dental implants/abutments that furnish the primary support for the dental prosthesis and restoring teeth in a partially edentulous arch; the patient cannot remove it. There are three main types of failures Biologic failure, mechanical failure and aesthetic failure. Clinical failure may occur during or after fixed prosthodontic treatment procedure. Failure and complications associated with fixed prostheses include, but not limited to the loss of retention, caries, endodontic complications, periodontal disease, tooth fracture or porcelain fracture, and unsatisfactory esthetics of the prosthesis. When a crown or Fixed Partial Introduction Dentures (FPD) fails, the primary question is whether the problem can be easily resolved, or requires extensive rehabilitation and reconstruction. A mild failure may be considered one that is generally correctable without having to remake the restoration.

Aim: To evaluate the post-operative complaints of patients having crowns & fixed partial dentures by means of a simple questionnaire & clinical examination.

Material & Methods: A total of 190 patients satisfying the criteria for inclusion in this study were identified. Forty seven of these patients could not be reached, Out of 143 patients who were contacted & 110 responded positively, the rest were not able to avail themselves for review due to various reasons. 100 subjects wearing fixed partial denture either anterior or posterior three Unit Bridge or crowns were selected randomly out of 110 patients. The Study was conducted with detailed questionnaire and was planned to get patients response. The questionnaire was divided into 4 parts which included.

Results: There was a statistically significant / highly significant difference seen for the frequencies between the groups ($p < 0.01, 0.05$) For frequent Dislodgement with higher frequency for yes with position 2 (maxillary posterior) and 4 (mandibular posterior) There was a statistically non-significant difference seen for the frequencies between the groups ($p > 0.05$) for all other questions

KEYWORDS

Crown, fixed partial denture, Perio-problems, Bone loss.

INTRODUCTION

Any dental prosthesis that is luted, screwed, or mechanically attached or otherwise securely retained to natural teeth, tooth roots, and/or dental implants/abutments that furnish the primary support to the dental prosthesis and restoring teeth in a partially edentulous arch; the patient cannot remove it¹. A fixed dental prosthesis assures greater retention and stability in addition to comfort; it is more or less considered, as the next best to implants². There are three most common types of failures Biologic failure, mechanical failure, and aesthetic failure. Clinical failure may occur during or after a fixed prosthodontic treatment procedure. Failure and complications associated with fixed prostheses include, but not limited to the loss of retention, caries, endodontic complications, periodontal disease, tooth fracture or porcelain fracture, and unsatisfactory esthetics of the prosthesis. When a crown or Fixed Partial Introduction Dentures (FPD) fails, the primary question is whether the problem can be easily resolved, or requires extensive rehabilitation and reconstruction. A mild failure may be considered one that is generally correctable without having to remake the restoration.³ lot of causes can be stated for the failures of the FPD but few have emphasized the importance of preoperative diagnosis as well as proper plan of the design of the prosthesis to avert failure of the prosthesis.⁴ Cementation is the common step during any fixed dental prosthesis. The incidence of post cementation complaints is often underestimated by most dentists. Knowledge regarding the clinical complications that can occur in fixed prosthodontics enhances the clinician ability to communicate realistically.⁵ The present study aims to evaluate the post-operative complaints of patients having

crowns & fixed partial dentures by means of a simple questionnaire & clinical examination. With the objectives of identifying the potential cause of failures of FPD/crown and identifying the role of oral hygiene, oral habits for the cause of failure of FPD/crowns.

MATERIAL & METHODS

This was a cross-sectional study based on detailed questionnaire followed by clinical examination. A consent form was taken from all the participants after properly explaining them about the study protocol. 100 patients were selected randomly who were given three Unit Bridge or crown. All the selected patients were systematically healthy and from different socio-economic groups.

INCLUSION CRITERIA:

1. Patient age minimum 18 years
2. Minimum 1 year old prosthesis
3. No previous craniofacial trauma or surgeries
4. Three Unit Bridge or single unit crowns
5. Porcelain fused to metal & all metal crowns

EXCLUSION CRITERIA:

1. Immuno-compromised patients
2. Patient on chemotherapy
3. Patient with chronic debilitating disease
4. Pregnant mother
5. Injury to crown/FPD due to trauma
6. Uncontrolled diabetes.

PROCEDURE

In the study a detailed questionnaire was planned to get patients response. The questionnaire is divided into 4 parts which include:

1. Patients perception of failure of prosthesis
2. Patients oral hygiene habits
3. Patients oral habits
4. Patients medical history which could lead to failure of the prosthesis.

Part-1 (Patients Perception of Failure)

1. Do you have frequent? Dislodgement of crown/FPDs
2. Do you have pain in? Relation to crowns/FPDs?
3. Do you have fractured/broken crowns/FPDs?
4. Was the supporting tooth/teeth been broken/fractured?
5. Was the patient dissatisfied with the appearance of the crown/FPDs?
6. Was there any mobility in relation to crown/FPDs?
7. Was there gingival bleeding in relation to crown/FPDs?
8. Was there food lodgment in relation to crown/FPDs?
9. Was there bad odor in relation to crown/FPDs?
10. Was there high spots in relation to crown/FPDs

Part-2 (Oral Hygiene Habits)

1. Do you brush your teeth?
2. Do you rinse your mouth after taking food?
3. Do you use mouth rinse?
4. Do you use dental floss?
5. Do you undergo scaling procedures from dentist?

Part-3 (Habits)

1. Do you have gum chewing habit?
2. Do you have miswak chewing habit
3. Do you have nail biting habit?
4. Do you have pen nibbling habit?
5. Do you experience teeth grinding during night/day?

Part-4 (Systemic Disease)

1. Do you have diabetes mellitus?
2. Do you have hypertension?
3. Do you have depression/anxiety/sleep disorders?
4. Do you take any medicines?

The data thus obtained after questionnaire and clinical examination of the entire 100 subject were tabulated and subjected to statistical analysis to identify potential cause of failures of FPD/crown and to know the role of oral hygiene, oral habits for the cause of failure of FPD/crowns.

RESULTS

In this study 100 subjects wearing fixed partial denture either anterior or posterior FPDs were selected randomly out of 190 patients. Among 100 subjects 75 (75%) were male and 25 (25%) were female. The study sample size further divided in to age and sex. Subject wearing prosthesis in all four quadrant i.e. maxillary anterior, maxillary posterior, mandibular anterior, mandibular posterior were examined.

Four type of prosthesis were included in the study

- 1) Full coverage ceramic fused to metal FPD
- 2) Full veneer metal crown
- 3) Full coverage ceramic fused to metal crown
- 4) Full veneer metal FPD.

Questionnaire were divided into four parts which include

- 1) Patients perception of failure of prosthesis
- 2) Patients oral hygiene habits
- 3) Patients oral habits
- 4) Patients medical history which could lead to failure of the prosthesis

Each questionnaire were compared with age, position of prosthesis, sex, type of prosthesis.

MEAN AGE OF THE SUBJECTS**Table 1**

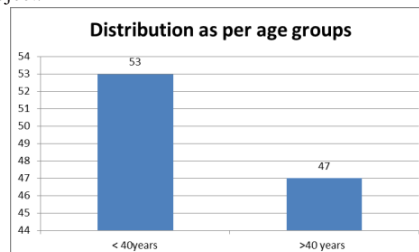
	N	Minimum	Maximum	Mean	Std. Deviation
Age	100	19	69	40.02	11.938

Table 1 depicts minimum age of subject is 19 and maximum is 69, mean is 40.02 and SD is 11.938.

FREQUENCY TABLES DISTRIBUTION AS PER AGE GROUPS**Table 2**

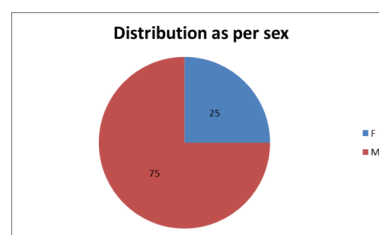
	Frequency	Percent
≤40years	53	53.0
>40 years	47	47.0
Total	100	100.0

Table 2 depicts distribution as per age groups and their percentage in study subject.

**Graph 1****DISTRIBUTION AS PER SEX****Table 3**

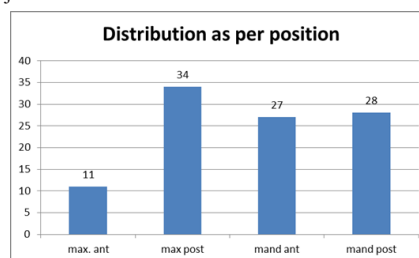
	Frequency	Percent
F	25	25.0
M	75	75.0
Total	100	100.0

Table 3 depicts distribution as per sex and their frequency in the study subject.

**Graph 2****DISTRIBUTION AS PER POSITION****Table 4**

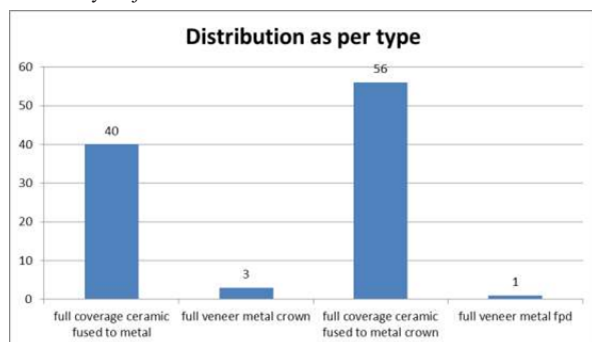
	Frequency	Percent
MAXILLARY ANTERIOR	11	11.0
MAXILLARY POSTERIOR	34	34.0
MANDIBULAR ANTERIOR	27	27.0
MANDIBULAR POSTERIOR	28	28.0
Total	100	100.0

Table 4 depicts distribution as per position and their frequency in the study subject.

**Graph 3****DISTRIBUTION AS PER TYPE****Table 5**

	Frequency	Percent
FULL COVERAGE CERAMIC FUSED TO METAL FPD	40	40.0
FULL VENEER METAL CROWN	3	3.0
FULL COVERAGE CERAMIC FUSED TO METAL CROWN	56	56.0
FULL VENEER METAL FPD	1	1.0
Total	100	100.0

Table 5 depicts distribution as per type of prosthesis and their frequency in the study subject.



Graph 4

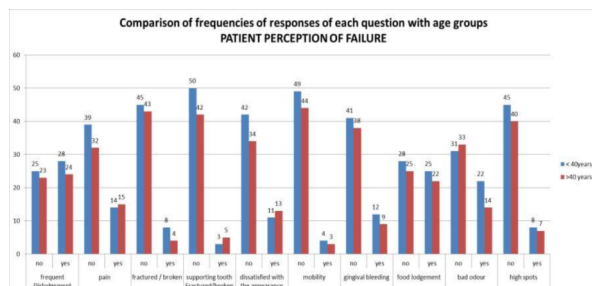
COMPARISON OF FREQUENCIES OF RESPONSES OF EACH QUESTION WITH AGE GROUPS PATIENT PERCEPTION OF FAILURE

Table 6

		≤40 years	>40 years	Chi square value	p value of chi square test
Frequent Dislodgement	No	25	23	0.031	0.860#
	Yes	28	24		
Pain	No	39	32	0.366	0.545#
	Yes	14	15		
Fractured / Broken	No	45	43	1.022	0.312#
	Yes	8	4		
Supporting tooth Fractured/broken	No	50	42	0.839	0.360#
	Yes	3	5		
Dissatisfied with the appearance	No	42	34	0.651	0.420#
	Yes	11	13		
Mobility	No	49	44	0.052	0.820#
	Yes	4	3		
Gingival bleeding	No	41	38	0.183	0.669#
	Yes	12	9		
Food lodgment	No	28	25	0.001	0.971#
	Yes	25	22		
Bad odor	No	31	33	1.486	0.223#
	Yes	22	14		
High spots	No	45	40	0.001	0.978#
	Yes	8	7		

There was a statistically non-significant difference seen for the frequencies between the groups ($p>0.05$) for all other questions.

RESULTS



Graph 5

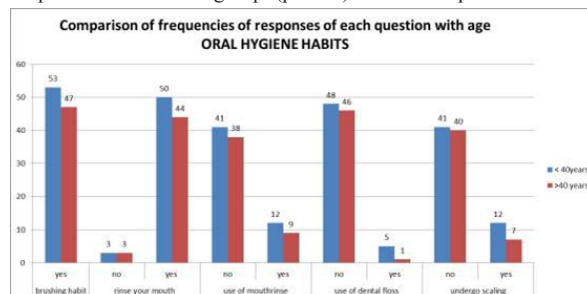
ORAL HYGIENE HABITS

Table 7

		≤40 years	>40 years	Chi square value	p value of chi square test
Brushing habit	Yes	53	47	0.023	0.879#
Rinse your mouth	No	3	3		
	Yes	50	44		

Use of mouth rinse	No	41	38	0.183	0.669#
	Yes	12	9		
Use of dental floss	No	48	46	2.358	0.125#
	Yes	5	1		
Undergo scaling	No	41	40	0.972	0.324#
	Yes	12	7		

There was a statistically non-significant difference seen for the frequencies between the groups ($p>0.05$) for all other questions.



Graph 6

HABITS

Table 8

		≤40 years	>40 years	Chi square value	p value of chi square test
Gum chewing habit	No	51	42	1.803	0.179#
	Yes	2	5		
Miswak chewing habit	No	48	42	0.040	0.841#
	Yes	5	5		
Nail biting habit	No	53	42	5.935	0.015**
	Yes	0	5		
Pen nibbling habit	No	52	46	0.007	0.932#
	Yes	1	1		
Teeth grinding during night/day	No	48	41	0.282	0.595#
	Yes	5	6		

There was a statistically significant / highly significant difference seen for the frequencies between the groups ($p<0.01, 0.05$).

For nail biting habit with higher frequency for yes with age>40 years. There was a statistically non-significant difference seen for the frequencies between the groups ($p>0.05$) for all other questions.

Graph 7

SYSTEMIC DISEASE

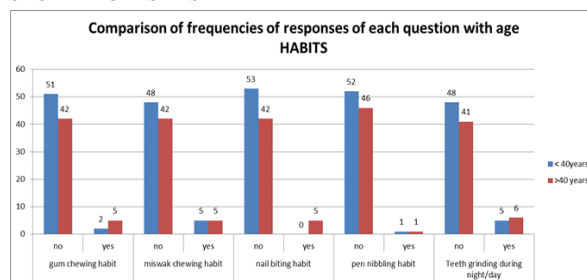
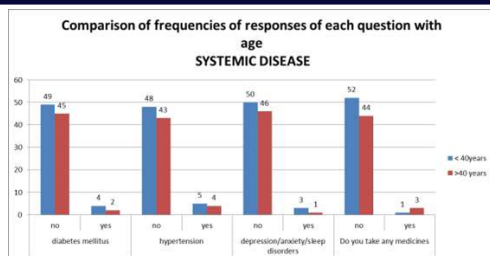


Table 9

		≤40 years	>40 years	Chi square value	p value of chi square test
Diabetes mellitus	No	49	45	0.479	0.489#
	Yes	4	2		
Hypertension	No	48	43	0.026	0.872#
	Yes	5	4		
Depression/anxiety/sleep disorders	No	50	46	0.810	0.368#
	Yes	3	1		
Do you take any medicines	No	52	44	1.311	0.252#
	Yes	1	3		

There was a statistically non-significant difference seen for the frequencies between the groups ($p>0.05$) for all other questions.



Graph 8
COMPARISON OF FREQUENCIES OF RESPONSES OF EACH QUESTION WITH POSITION

PATIENT PERCEPTION OF FAILURE

Table 10

		Max. Ant.	Max. Post.	Mand. Ant.	Mand. Post.	Chi square value	p value of chi square test
Frequent Dislodgement	No	7	13	20	8	13.965	0.003**
	Yes	4	21	7	20		
Pain	No	8	24	18	21	0.483	0.923#
	Yes	3	10	9	7		
Fractured / broken	No	9	28	23	28	5.446	0.142#
	Yes	2	6	4	0		
Supporting tooth Fractured/broken	No	10	32	25	25	0.518	0.915#
	Yes	1	2	2	3		
Dissatisfied with the appearance	No	8	27	21	20	0.649	0.885#
	Yes	3	7	6	8		
Mobility	No	11	34	24	24	6.371	0.095#
	Yes	0	0	3	4		
Gingival bleeding	No	8	25	24	22	2.469	0.481#
	Yes	3	9	3	6		
Food lodgment	No	5	16	17	15	1.813	0.612#
	Yes	6	18	10	13		
Bad odor	No	8	22	13	21	4.786	0.188#
	Yes	3	12	14	7		
High spots	No	9	28	23	25	0.678	0.878#
	Yes	2	6	4	3		

There was a statistically significant / highly significant difference seen for the frequencies between the groups ($p < 0.01, 0.05$) For frequent Dislodgement with higher frequency for yes with position 2 (maxillary posterior) and 4 (mandibular posterior)

There was a statistically non-significant difference seen for the frequencies between the groups ($p > 0.05$) for all other questions.

DISCUSSION

In a society, the paradigm governing oral rehabilitation changes with time. This can be a consequence of changes in economic and social factors accompanied by progress in research and development.⁶ Fixed prosthodontic treatment does not last a lifetime. It represents a mechanical repair in a changing and demanding biological environment. The longevity of a restoration is dependent on a great many factors including the type and design of the prosthesis, the degree of functional and parafunctional loading, the structural integrity and biological status of the supporting teeth and tissues, appropriate maintenance and home care, and the precision with which the technical and clinical work has been carried out.⁷ A primary factor for long term success with crown and Fixed Partial Denture is to achieve good patient recall compliance. Risk of course and Fixed Partial Denture failures are divided into 4 factors, patient-related, infection-related, load-related and technique and design related factors. Most of the failures are due to poor patient care after insertion while others occur as a result of defective design and inadequate execution of clinical and laboratory procedures.¹⁸ In India, epidemiological data on the patient-reported assessment of intraoral prostheses is scant. Therefore, the present study was conducted to give importance to the assessment of the prostheses by patients report. This would enable the patients to reveal their opinion regarding the prostheses and perhaps serve as a guideline to the prosthodontist to pay more attention to the factors of patient concern.¹⁴

In this study, clinic survey was undertaken to access the patients discomfort after cementation of prosthesis. 100 subjects were included in this study out of that 54 were male and 46 were female. Crown and three unit bridge prosthesis were included in this study, type of prosthesis which was included in this study was

- 1) Full coverage ceramic fused to metal FPD
- 2) Full veneer metal crown
- 3) Full coverage ceramic fused to metal crown
- 4) Full veneer metal FPD

In this study, 80% of patients complaint of discomfort after cementation of prosthesis. Among these patients, the most common complaints were loss of retention and repeated dislodgement, difficulty in maintaining oral health hygiene. Most common complaint was frequent dislodgement i.e. 52%. As shown in graph 9 (comparison with position) frequent dislodgement was seen most commonly in maxillary posterior and mandibular posteriors. In graph 5, 13, 17 (comparison with age, sex and type respectively) frequent dislodgement was found very common but there was no significant difference according to age, sex and type of prosthesis.

Similar results were found in the studies conducted by Nandhini G. Ashok, Sangeetha S18 (2016) in a sample of 100 subjects. The study was carried out in patients who visited Saveetha Dental College and Hospitals as outpatients from January 2016 to April 2016. They found in 52% of subject has complain of Loosness and frequent dislodgement. Study conducted by Krishna Prasad, Chethan Hegde and Harsh Desai³⁴ (2017) stated that The most common cause of failure in crown and fixed partial dentures was the lack of retention amounting to 27.2 %, which can be attributed to various causes like improper preparation of tooth with too much taper of proximal walls, one of the proximal walls being too short, and lack of resistance form. It can also be attributed to improper cementation and lack of adjustment of occlusion during eccentric mandibular movements. The average lifespan of prosthesis was found to be 7.33 years in the survey, Porcelain fused to metal crown showed more failures than any other types of prostheses. Reason for it could be the increase in the usage of aesthetic restorations in recent years and it should not be interpreted as all metal prosthesis is better than porcelain fused to metal restorations. Single crowns showed less failure rates then the dental bridges which might be due to the fact that dental bridge takes support of adjacent teeth for the abutment purpose and failure of even a single abutment might lead to failure of entire dental bridge Similar results were also found in the studies conducted by Sudhir Pawar¹⁶ (2011) in a sample of 87 subjects. Out of 87 cases surveyed, 68 crowns and 19 fixed partial dentures demonstrated failure. The most common cause of failure in crown and fixed partial dentures was the lack of retention, which can be attributed to various causes like improper preparation of tooth with too much taper of proximal walls, one of the proximal walls being too short, and lack of resistance form. It can also be attributed to improper cementation and lack of adjustment of occlusion during eccentric mandibular movements. Gordon J. Christensen²⁷ (2003) The most frequent failures appear to be the fracture of the ceramic veneering material, the need for endodontic treatment after cementation, postoperative tooth sensitivity and release of crowns or prostheses from abutment teeth during service.

He discussed subject of retention and what can be done to improve it in the long term with crowns and fixed prostheses. He emphasized on four things for good retention.

- 1) Tooth preparations
- 2) Bonding agent
- 3) Retentive features in tooth preparation
- 4) Cement type

On the other hand Schwartz et al⁵ (1970) examined 406 patients with failed crowns and bridges in order to survey the reasons for failure and the life span of the restorations that had failed. The average life span for all the failed restorations in their study was 10.3 years; 20 per cent failed within 3 years, and 22 per cent lasted more than 16 years. The most frequent cause for failure was caries (36.8 percent). However, this occurred on average after 11 years, which is a longer life than the average age at which failure occurred.

Second most common complain found was food lodgment. 47% of subject complained of food lodgment. Food lodgment was the main reason of biological failure of prosthesis. It leads to bad odor, gingivitis, and periodontitis. Another complication encountered in our study was that 36% of subject complained of bad odour. Although each

and every patient brushes his/her tooth daily. 94% of subject has habit to rinse his/her mouth. Use of mouth rinse was 21% and use of dental floss in subject was only 6%. Major reason of bad odour is food lodgment and inability to remove impacted food by subject for a long term. Professional scaling was only restricted to 19% of subject.

As shown in graph 5,9,13,17 (comparison with age group, position, sex, type respectively) frequent dislodgement was seen second most common discomfort to patient encountered in subject irrespective of age, sex, position and type of prosthesis.

Similar results were also found in the studies conducted by Lujain AL Bukhari, Hala AL Kattan, Shyma AL Jefri, Haya Rashedi, Nada Qarmoushi, Yasser Othman²¹ (2017) A total of 98 patients (age range of 20-71 years, 42 of the participants were females and 56 males) with 44 FPD and 54 single crowns were selected randomly from the dental clinic at Batterjee Medical College, Dentistry Program. The study shows the most common complication was the periodontal disease that could be due to a lack of professional maintenance therapy were oral hygiene measures and regularly reinforced. In the present study, the gingival bleeding was observed due to bad oral hygiene and plaque accumulation.

Similar results were also found in the studies conducted by Greg Libby, Michael R. Arcuri, b William E. LaVelle and Lisa Hebl⁹ (1997) The greatest influence the dentist may have on periodontal health and development of dental caries associated with a restoration may be associated with the quality of the fit and finish at delivery. It has also been suggested that radiographs provide supplemental information on marginal fit of restorations. Radiographs may be beneficial in evaluating interproximal margins between abutments, where clinical evaluation is often difficult. Although radiographs are two-dimensional images, they may provide enhanced analysis of interproximal marginal adaptation when combined with clinical evaluation. Restorations in this report were routinely evaluated with radiographs before final cementation. If restorations require re-fabrication because of poor margins determined from post cementation radiographs, then abutments are subjected to additional mechanical and/or thermal trauma. This trauma can occur during removal of the restoration and with additional tooth preparation.

Restoration removal may also subject abutments to excessive trauma capable of causing tooth fracture. Margin location may inhibit home hygiene procedures that encourage dental caries and gingival inflammation. Subgingival margins have been described as a major factor in periodontitis, and may be detrimental to periodontal health. Subgingival margins were the most potentially damaging to periodontal health, followed by gingival crest margins, whereas supragingival margins were the least harmful. It has been reported that subgingival margins create more inflammation than supragingival margins. The length of service has minimal, if any effect, on severity of inflammation.

The deeper the margin of the restoration extends into the sulcus, the greater the inflammation. Placement of supra-gingival margins ensures preservation of the periodontal biologic width. Limited difference between supra-gingival and subgingival margins in effecting gingival inflammation and believed the fit and finish of the margins was more critical than the location. Supra-gingival margins allow visualization of tooth preparation finish lines, facilitate accurate impressions, enhance refinement of margins, and improve post-insertion evaluation and hygiene procedures. IS Improvement in marginal access commonly facilitates refinement of the tooth-restoration junction, which results in a smoother surface. Smoother the surface of restoration less likely the attachment of bacterial deposits. Supra-gingival margins also decrease possible gingival trauma during refinement procedures. One of the complication of crown/fixed partial denture in our study was that 24% subject was dissatisfied with the appearance. It may be due to improper shade selection, caries, laboratory miscommunication etc. Graph 5, 9, 13, 17 shows subject shows dissatisfaction with the appearance of prosthesis.

On the other hand study conducted by Aiman O. Johar²⁵ (2010) stated that the most common problems associated with the fixed prostheses in his study was shade mismatch, prostheses over contoured, open margins and caries. An unsatisfactory esthetic result was observed in more than 60% of the prostheses in his study. All shades were selected without using the correct light system as reported by the treating dentists.

In addition, all of the examined prostheses were porcelain fused to metal and the opaque porcelain that masks the metal color could alter the shade.

Another major complication encountered in our study was pain associated with crown/fixed partial denture. Total 29% of subject complained of pain in prosthesis. Pain was mainly due to caries in abutment teeth. Study conducted by Christoph H. F. Hämmerle, Michael C. Ungerer, Patricia C. Fantoni, Urs Brägger, Walter Bärger, EThe Niklaus P. Lang²⁶ (2000) The present clinical trial is a retrospective evaluation of fixed prostheses with cantilevers that had been incorporated 5 to 16 years prior to the follow-up examination. Frequently, biologic and technical problems affected the same abutment tooth. In this respect, in 67% of the teeth with carious destruction of dentin, a fracture of the luting cement that had led to loss of retention of the anchor was recorded. Development of carious lesions and loss of vitality were the most frequently encountered biologic problems in the studied patient group, accounting for almost 90% of the biologic problems. Necrosis of the pulp occurred in 10% of initially vital abutments, and periapical problems were observed in 1% of the teeth with root-canal treatments. Interestingly, no difference was found in a recent study regarding the failure rate of FPDs associated with vital and root-filled teeth. Reasons for failures were further divided into two groups. One group represented oral diseases and the other mechanical problems. The oral diseases such as dental caries, periapical lesions, and periodontal diseases accounted for about 38.8% of the failures. The mechanical problems accounted for 59.9% failures whereas marginal defects were the main cause of the failure followed by unsatisfactory aesthetics and loss of retention.

Knowledge of the background factors and conditions that cause fixed partial dentures (FPDs) and crowns to become unserviceable should help dentists in their prosthetic treatment planning. Furthermore, a more reliable prognosis might be possible. We found in our study that frequent dislodgement of prosthesis and food lodgments are major complication of failure of FPD/crown. Frequent dislodgement can be due to various reasons it can be due to lack of skill of dentist in preparing tooth or due to quality of bond used during insertion. Food lodgment can be due to improper margins of prepared tooth, fractured prosthesis or due wrong selection of pontic design. Diabetic patient and patient suffering from depression, anxiety is at high risk of periodontal disease. Frequent follow up to dentist should be there to avoid failure of FPD/crown.

CONCLUSION

From the results obtained, and within the limitations of the study, the following conclusions can be drawn:-

- 1) The most frequent complication of a fixed partial denture were frequent dislodgement and food lodgment, as well as esthetics.
- 2) Full crown restorations have the potential for causing gingival inflammation.
- 3) Gingival inflammation surrounding full crown restorations may be controlled regardless of gingival margin placement when the gingiva is healthy, the restorations are adequate, and the patient is in a strict recall program.
- 4) The knowledge regarding the clinical Fixed Partial Denture complications enhances students' ability to complete a thorough diagnosis, developed most appropriate to patients and communicate realistic expectations to patients and plan time internals needed for post-treatment care in the dental institutions.

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