WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.084
Volume 9, Issue 1, 478-482. Research Article ISSN 2277– 7105

CAUSES OF ACRYLIC DENTURE FRACTURE: A SURVEY

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Article Received on
14 Nov. 2019,

Revised on 04 Dec. 2019,
Accepted on 25 Dec. 2019,

DOI: 10.20959/wjpr20201-16557

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ABSTRACT

This study performed over 9 months at Prosthodontic department of Adel dental clinic to determine the cause of denture fracture as cross sectional study. 200 patients came to the centre seeking for repair of their dentures (maxillary and mandibular). The most common cause was lack of material at midline in 64.97% of cases. 58.8%of cases was fractured because of poor retention and unbalanced occlusion. 51.3% of dentures were fractured accidentally, 30.2% of dentures were fractured as a result of fabrication and laboratory work and 22.6% of dentures were single complete denture. Distress and cost to the patient were result from denture damage which is quite frequent that can be overcome by regular examination of mouth and dentures, reinforcing the base of denture during preparation by suitable method also can be regarded.

KEYWORDS: Maxillary and mandibular.

INTRODUCTION

Edentation is the culmination of preventive measures in chronic oral pathology and constitutes a significant public health problem world wide. The aim of prosthodontist is to provide patients with comfortable and functional appliances by restoration of oral function and pleasing appearance together with the preservation of the health relationship of the teeth and supporting structure.[1]

Acrylic resin are used for a variety of applications in prosthetic dentistry[11], one of the problem inherent in providing any prosthesis: it''s limitation of life, strength design will meet it's functional requirement.[5] Acrylic resin widely used as denture base material since 1950 because of its excellent properties like good esthetic value, ease of manipulation, ease of repair and also economic.[7] Since then it is dominating the field of prosthetic dentistry.

Subsequently many other materials like valplast (flexi-denture) came in field but couldn't compete with acrylic because repair, relining and adjustment of dentures with other materials is difficult proposition or absolutely impossible.[6]

The most common cause of denture fracture :difficulty of cleaning, dropping the denture accidently or coughing which pushes the denture out of the mouth The most common cause of denture fracture: difficulty of cleaning, dropping the denture accidently or coughing which pushes the denture out of the mouth, lack of material at midline, poor achievement of dental laboratory construction phase, pressure from opposing natural teeth in the buccal slope of the ridge or against the lack of material at midline, poor achievement of dental laboratory construction phase, pressure from opposing natural teeth in the buccal slope of the ridge or against the palate mean the teeth in the upper denture set buccally to the lower teeth "all the around the arch "each force-full occlusion tend to drive the lower denture up inside of upper and spread the later out ward and result of fracture or the upper teeth set lingual to the lower teeth as were contains an out ward spreading force is applied to the lower denture, so leading to fracture.[9]

Prominent mid palate fracture, torus, hard or soft tissue undercut.[8] The objective of this study is to determine the incidence and causes of fracture of denture so that suitable remedial measures can be adopted to reduce the incidence of such occurrence.

MATERIALS AND METHODS

This study was done over 9 months period in the prosthetic department of Al –Adel clinic and laboratory in Baghdad. Within this survey period, the total number of 200 repaired denture were recorded, 49 dentures were needed tooth addition, the remainder 151 dentures had fractured acrylic denture base and needed repair.

Formally detailed history was taken which include information about:1-Duration of denture use. 2-How does the fracture take place. 3-daily use durationn. 4-General complain about the denture.

Intraoral examination of patient was performed in regard of the form of arch, hard palate, the depth of palate vault, ridge relation, prominence of mid palatal suture, presence of undercut, presence of natural teeth on apposing arch, physical examination of fracture denture, also include site, number of fractured line arrangement of artificial teeth, occlusal wear thickness

of denture base. Then denture repair was done with cold cure acrylic by by laboratory technician and being ready for the last phase of survey which was the intraoral examination that include adaptation, retention and stability of repaired denture at the second visit of the patient.

RESULTS

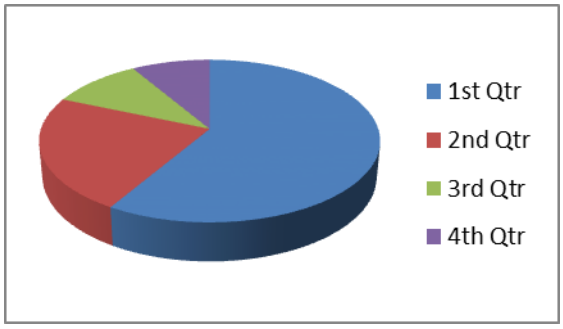

Fig 1: Pie chart shows the percentage of denture fracture.

Table 1: causes of denture fracture.

Cause of denture fracture	frequency	percentage
Lack of material	43	64.9%
Poor retention and unbalanced occlusion	39	58.8%
Accidentally happened	34	51.3%
Fabrication and laboratory work	20	30.2%
Single complete denture	15	22.6%

In this study 200 case, maxillary and mandibular, complete and partial denture were included; 49 case needed tooth addition, 85 cases are mandibular dentures(complete and partial) were repaired; 46 of them are partial denture that had midline fracture, 27 of them are complete denture that also have midline fracture due to lack of material, poor retention stability, or accidentally fracture.

The other 12 mandibular cases had else where fracture may be due to presence of undercut. We noted from 65 case of fractured maxillary denture, 35 of them are complete denture that had midline fracture and 20 of them are partial denture that had midline fracture due to poor retention or lack of material in this site or during cough, 10 had else where fracture like border fracture. It was noted that the mandibular denture which came to clinic more than maxillary denture.

DISCUSSION

Several studies have investigated the incidence and types of dentures.

This study found that denture fracture along the maxillary and mandibular midline are the most common after 2-3 years that is agree with Hargreeves and Smith.[5,10]

This study found that the second common cause of fracture is poor retention and lack of balance occlusion that which disagree with Beyli who said that the most common cause is poor retention and unbalance occlusion, recountouring of the existing natural teeth to produce a uniform occlusal plain and establishment of balance occlusion can reduce the incidence to some extent.[5]

This study agree with Lumbreecht, Kydd and Hargreeves in that the 3rd cause of fracture was accidentally happened which could be explained by lack of attention being paid by the patient towards the care of their denture.[5,7]

CONCLUSION

Damage to the removable denture is quiet frequent causing much distress and cost for patients repeated fractures can be reduced by proper design and construction of dentures by correct registration of the centric relation, balance occlusion, adequate thickness in the anterior region, the maximum consistent with the tongue space. Using high impact resin can reduce the problem of denture fracture. New suitable method of reinforcing the denture base should be used e.g continuous electrical glass fiber (E.glass).[4]

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