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Prevalence of Malocclusion And Radicular Cyst In A Known Population And Treatment

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ABSTRACT

Background: This study was conducted to assess the prevalence of malocclusion and radicular cyst in a known population and treatment.

Material and methods: This study comprised of 30 participants who underwent oral clinical examination. The study procedure had been explained to all the subjects and the subjects had been asked for informed consent. 10 out of 30 subjects denied to give consent and hence had been excluded from the study. The prevalence of malocclusion and radicular cyst in these subjects had been estimated. Two groups were made in which Group 1 comprised of subjects having malocclusion and Group 2 comprised of subjects who had radicular cysts in their oral cavity and the findings were tabulated. Also, treatment plans were made for these subjects. Statistical analysis had been conducted using SPSS software.

Results: In this study, there were 12 males and 8 females. There were 14 cases of malocclusion out of 20. Hence the prevalence of malocclusion in this study was 70%. There were 6 cases of radicular cysts and hence the prevalence was 30%. There were 14 subjects in group 1 and 6 subjects in group 2. Among 14 subjects having malocclusion, 8 subjects had type II malocclusion while 6 subjects had type III malocclusion. Out of 14 subjects with type II malocclusion, Frankel II appliance was fabricated for 4 subjects, twin block appliance was made for 3 subjects and activator was fabricated in 1 case. While for the subjects having type III malocclusion, Frankel III appliance was made for 4 subjects, reverse head gear was given in 1 case and chin cup was made for 1 patient. For the treatment of radicular cyst, enucleation was carried out in all the subjects.

Conclusion: Based on the findings of this study, it can be concluded that the prevalence of malocclusion and radicular cyst was 70% and 30%, respectively. Various myofunctional appliances and orthodontic appliances had been fabricated for subjects with type II and type III malocclusions and enucleation was carried out in all the subjects who had radicular cyst in their oral cavity.

Keywords: *Prevalence, Treatment, Malocclusion, Radicular Cyst.*

1. INTRODUCTION

Periapical lesions affecting the jaws predominantly arise from endodontic sources and are associated with pulp infections.[1] The majority of these lesions can be categorized as either periapical granulomas or radicular cysts. The prevalence of radicular cysts among periapical lesions has been reported to range from 6% to 55%.[2] In a study analyzing 2030 cystic lesions of the jaws, radicular cysts were found to account for 42%, making them the most frequently diagnosed type of cyst in this region.[3]

According to the 2017 edition of the World Health Organization (WHO) classification of odontogenic lesions, radicular cysts are classified under the inflammatory cyst group. This category is further subdivided into radicular cysts (including apical and periodontal cysts) and inflammatory collateral cysts (such as paradental cysts and buccal bifurcation cysts).[4]

Radicular cysts develop as a consequence of chronically inflamed granulation tissue (the periapical granuloma) situated near the apex of teeth that have either undergone endodontic treatment or have untreated root canal systems that are infected.[5]

This study was conducted to assess the prevalence of malocclusion and radicular cyst in a known population and treatment.

2. MATERIAL AND METHODS

This study comprised of 30 participants who underwent oral clinical examination. The study procedure had been explained to all the subjects and the subjects had been asked for informed consent. 10 out of 30 subjects denied to give consent and hence had been excluded from the study. The prevalence of malocclusion and radicular cyst in these subjects had been estimated. Two groups were made in which Group 1 comprised of subjects having malocclusion and Group 2 comprised of subjects who had radicular cysts in their oral cavity and the findings were tabulated. Also, treatment plans were made for these subjects. Statistical analysis had been conducted using SPSS software.

3. RESULTS

Table 1: Gender-wise distribution of subjects

Gender	Number of subjects	Percentage
Males	12	60
Females	08	40
Total	20	100

In this study, there were 12 males and 8 females.

Table 2: Prevalence of malocclusion and radicular cyst

Condition	Number of cases	Prevalence
Malocclusion	14	70
Radicular cyst	06	30
Total	20	100

There were 14 cases of malocclusion out of 20. Hence the prevalence of malocclusion in this study was 70%. There were 6 cases of radicular cysts and hence the prevalence was 30%.

Table 3: Group-wise distribution of subjects

Groups	Number of cases	Percentage
Group 1 (Malocclusion)	14	70
Group 2 (Radicular cyst)	6	30
Total	20	100

There were 14 subjects in group 1 and 6 subjects in group 2.

Table 4: Types of malocclusions

Types of Malocclusions	Number of cases	Percentage
Type II Malocclusion	8	57.14
Type III Malocclusion	6	42.86
Total	14	100

Among 14 subjects having malocclusion, 8 subjects had type II malocclusion while 6 subjects had type III malocclusion.

Table 5: Treatment plan for subjects having malocclusion and radicular cyst

Condition	Treatment plan	Number of cases
Type 1I malocclusion	Frankel II Appliance Twin Block Appliance Activator	04 03 01
Type III malocclusion	Frankel III appliance Reverse Head Gear Chin Cups	04 01 01
Radicular cyst	Enucleation	06

Out of 14 subjects with type II malocclusion, Frankel II appliance was fabricated for 4 subjects, twin block appliance was made for 3 subjects and activator was fabricated in 1 case. While for the subjects having type III malocclusion, Frankel III appliance was made for 4 subjects, reverse head gear was given in 1 case and chin cup was made for 1 patient. For the treatment of radicular cyst, enucleation was carried out in all the subjects.

4. DISCUSSION

The WHO considers malocclusion one of the most important oral health problem, after caries and periodontal disease.[6] Its prevalence is highly variable and is estimated to be between 39% and 93% in children and adolescents.[7-9] This prevalence range is very wide and heterogeneous. This inhomogeneity may be due to ethnic and age differences of patients considered in studies, assessing the prevalence of malocclusion.[10]

Malocclusions can occur in three different spatial planes: sagittal, transverse and vertical. It is possible to identify three different types of skeletal relationship in the sagittal plane, defined from the analysis of the ANB angle, which represents the antero-posterior intermaxillary relationship.

This study was conducted to assess the prevalence of malocclusion and radicular cyst in a known population and treatment.

In this study, there were 12 males and 8 females. There were 14 cases of malocclusion out of 20. Hence the prevalence of malocclusion in this study was 70%. There were 6 cases of radicular cysts and hence the prevalence was 30%. There were 14 subjects in group 1 and 6 subjects in group 2. Among 14 subjects having malocclusion, 8 subjects had type II malocclusion while 6 subjects had type III malocclusion. Out of 14 subjects with type II malocclusion, Frankel II appliance was fabricated for 4 subjects, twin block appliance was made for 3 subjects and activator was fabricated in 1 case. While for the subjects having type III malocclusion, Frankel III appliance was made for 4 subjects, reverse head gear was given in 1 case and chin cup was made for 1 patient. For the treatment of radicular cyst, enucleation was carried out in all the subjects.

Cohen RS et al.[11] The aim of this study was to evaluate the effect of previous root canal treatment on the clinical presentation of large maxillary radicular cysts. All cases of radicular cysts treated at the Oral and Maxillofacial Surgery Department of a tertiary public hospital over a period of six years (2012–2018) were evaluated. Histologically confirmed radicular cysts of the maxilla with a maximal dimension of over 15 mm were included. Demographic data of the patients, clinical presentation and radiographic features of the lesions were analyzed. A total of 211 inflammatory cysts were treated in the study period, of these 54 histologically diagnosed radicular cysts in the maxilla were found to have a maximal dimension of over 15 mm. The mean age of patients with large maxillary radicular cysts was 43.3 years, 57.6% of which were male and 42.4% female. The lateral incisor was the most common tooth affected (46.3%). The mean size of the large radicular cysts was 25 mm. Then, 83.8% of the cysts were observed in teeth with previous endodontic treatment. Teeth without endodontic treatment presented clinically with significantly fewer acute symptoms in comparison to teeth with previous endodontic treatment. the vast majority (83.8%) of large maxillary radicular cysts were associated with endodontically treated teeth. Previous endodontic treatment was correlated to increased frequency of clinical symptoms.

Kaur H et al[12] recorded prevalence of malocclusion among 2,400 adolescents in Karnataka state, India and to define difference in malocclusion status in urban and rural population. Each individual was assessed for occlusal traits - sagittal occlusion, overjet, overbite, crowding, midline diastema, and crossbite. Examinations were computerized and analyzed using Statistical Package for Social Sciences version 16. Chi-square test was used for computing statistical significance. 87.79% of population had malocclusion. Out of which 89.45% had class I, 8.37% had class II, and 2.14% had class III malocclusion. Normal overjet and overbite was seen in 48.22 and 49.87% of subjects, respectively. Frequency of crowding was 58.12%

and 15.43% of subjects had midline diastema. Anterior crossbite was present in 8.48% and posterior crossbite in 0.99%. Urban population had twice the class II sagittal occlusion, and increased overjet as compared to rural population. Malocclusion is widely spread among population of Karnataka state, with greater prevalence in urban population. Early exfoliation of deciduous teeth and refined diet can be considered as viable etiological factors.

5. CONCLUSION

Based on the findings of this study, it can be concluded that the prevalence of malocclusion and radicular cyst was 70% and 30%, respectively. Various myofunctional appliances and orthodontic appliances had been fabricated for subjects with type II and type III malocclusions and enucleation was carried out in all the subjects who had radicular cyst in their oral cavity.

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