Prevalence of periapical abscess, cysts and crowding in a known population

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Abstract

Background: This study was conducted to assess the prevalence of periapical abscess, cysts and crowding in a known population.

Material and methods: This study comprised of 120 subjects from a known population. The subjects had been informed about the procedure and were asked for consent. 100 out of 120 subjects gave consent and were included in the study, while 20 subjects had been excluded from the study since they did not give consent. overall, 100 subjects had been included in the study. All subjects underwent oral clinical examination. The prevalence of periapical abscess, cysts and crowding was assessed and the findings were tabulated. Statistical analysis had been conducted using SPSS software.

Results: There were total 46 males and 54 females in this study. The prevalence of periapical abscess was 23%. The overall prevalence of cysts was 12%. Odontogenic keratocyst was present in 3 cases, Radicular cyst was seen in 4 cases and Dentigerous cyst was seen in 5 cases. The prevalence of crowding was 10%.

Conclusion: In this study, it was concluded that the prevalence of periapical abscess was the highest accounting for 23% of the population, followed by cysts accounting for 12% of the population and lastly crowding accounting for 10% of the population.

Keywords: Cysts, Prevalence, Crowding, Abscess

Introduction

Odontogenic cysts (OCs) are one of the most common lesions affecting the jaws. OCs are derived from the epithelial component of the odontogenic apparatus or its remnants that lie entrapped within the bone or gingival tissue.[1]

Non-odontogenic cysts (nOC) also occur in the oral cavity; these cysts arise from ectoderm involved in facial tissue development.[1] Odontogenic and non-odontogenic cysts are epithelial-lined cysts, with OCs classified as developmental or inflammatory and nOCs as developmental in origin.[2-4]

Pathogens of the infected pulp may leak out to the periapical area, leading to the development of an acute periapical abscess. If an acute periapical abscess persists for a long time, it may convert to a chronic abscess and consequential results formation of sinus/cellulite or Ludwig's angina. The development of clinical signs and symptoms of a disease depends upon the balance between host reaction and the virulence and number of pathogens. The primary carious teeth considered for the study had toothache with soft swelling, gingival sulcus drainage, sinus formation, periapical involvement, and tooth-related cellulite.[5]

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Material and methods

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Results

Table 1: Prevalence of periapical abscess

Prevalence	Number of cases	Percentage

Absent	77	77
Present	23	23
Total	100	100

The prevalence of periapical abscess was 23%.

Table 2: Prevalence of periapical cysts

Prevalence	**Number of cases**	**Percentage**
Odontogenic Keratocyst	03	0.25
Radicular cyst	04	0.33
Dentigerous cyst	05	0.41
Total	12	100

The overall prevalence of cysts was 12%. Odontogenic keratocyst was present in 3 cases, Radicular cyst was seen in 4 cases and Dentigerous cyst was seen in 5 cases.

Table 3: Prevalence of crowding

Prevalence	**Number of cases**	**Percentage**
Absent	90	90
Present	10	10
Total	100	100

The prevalence of crowding was 10%.

Table 4: Gender-wise distribution of subjects

Gender	**Number of subjects**	**Percentage**
Males	46	46
Females	54	54
Total	100	100

There were total 46 males and 54 females in this study.

Discussion

Dental crowding is characterized as a mismatch between the size of the teeth and the size of the jaw, resulting in dental imbrication and rotation.[6] It's a medical condition that affects the appearance, function, and health of the teeth.[7] Crowding is characterized as a lack of tooth size and arch length that limits the amount of space available for permanent dental eruption.[8]

In comparison to maxillary arch crowding, mandibular arch crowding is more common in individuals.[9]

Crowding more than 3–4 mm of the mandibular incisors can be classified as moderate lower incisor crowding. In normal circumstances space for the eruption of mandibular incisors into perfect alignment can be obtained by a modest increase in the intercanine width, labial positioning of the permanent incisors relative to the primary incisors, and also slight backward migration of the canines in cases with slight crowding.[10,11]

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There were total 46 males and 54 females in this study. The prevalence of periapical abscess was 23%. The overall prevalence of cysts was 12%. Odontogenic keratocyst was present in 3 cases, Radicular cyst was seen in 4 cases and Dentigerous cyst was seen in 5 cases. The prevalence of crowding was 10%.

Katz J et al.[12] The purpose of this study was to assess the prevalence of periapical abscesses in patients with different types of hypertension conditions and to evaluate the effect of commonly used antihypertensive medications on the prevalence of periapical abscesses. The integrated data of hospital patients were used. Data from the corresponding diagnosis codes for hypertensive conditions and periapical abscess were retrieved by searching the appropriate query in the database. The odds ratio (OR) of periapical abscesses, its association with hypertensive conditions, and the intake of 4 antihypertensive medications were calculated and analyzed statistically. The prevalence of periapical abscesses in patients with hypertensive conditions was 1.2% compared with 0.558% in the general patient population of the hospital. The OR for the prevalence of periapical lesions in patients with hypertension was 2.32. For primary hypertension, the OR was 2.02; for hypertensive heart disease, the OR was 2.68; for hypertensive chronic kidney disease, the OR was 2.1; for hypertensive heart and chronic kidney diseases, the OR was 4.16; for secondary hypertension, the OR was 4.16; and for hypertension crisis, the OR was 5.64. For patients treated with beta blockers, the OR was 2.58; for patients treated with angiotensin-converting enzyme inhibitors, the OR was 2.73; for patients treated with angiotensin II receptor blockers, the OR was 1.93; and for patients treated with calcium channel blockers, the OR was 2.79. The differences were statistically significant ($P < .0001$). The OR for the prevalence of periapical abscesses in patients treated with angiotensin II receptor blockers was significantly lower than that of

patients treated with either beta blockers or calcium channel blockers (P < .00001). Under the conditions of this study, it appears that the prevalence of perapical abscesses is significantly higher in hypertensive patients. The prevalence of periapical abscesses is higher in patients with secondary hypertension than in those with primary hypertension. Angiotensin II receptor blockers may significantly lower the prevalence of periapical abscesses in hypertensive patients.

Yuvashree CS et al.[13] The study was aimed to perform an association of the lower anterior crowding severity with gender and type of malocclusion. The current study was performed in a hospital setup and data about mandibular arch crowding patients were collected from the Records management system of a Private Dental Hospital in Chennai city. All the patient data on Mandibular arch crowding were sourced and tabulated after which statistical analysis with SPSS-IBM was done. Data collection was done over a period from June 2019 to February 2021. The entire study sample size was 634 case records. The result obtained from the statistical analysis was found that nearly 46% of the patients were found to have Mandibular arch crowding with female predilection (50%). The most commonly associated age groups were children than adults (63.2%) associated with mild type of crowding (65.1%). The most commonly involved malocclusion was found to be Class 1 (88.4%) Mild imbrications of the lower arch were common and were seen mainly in subjects with Class I malocclusion. Female subjects presented with more prevalence of mandibular arch crowding when compared to male subjects. Children were more affected by crowding than adults.

Açikgöz A et al[14] determined the relative frequency and distribution of odontogenic and nonodontogenic cysts in a large Turkish population. A retrospective survey of jaw cysts was undertaken at the Oral Diagnosis and Radiology and Oral and Maxillofacial Surgery Department, Ondokuz Mayıs University Dental School, Samsun, Turkey. Data were retrieved from clinical files, imaging, and histopathology reports from 2000 to 2008; a total of 12,350 patients were included. In each case, they analyzed age, gender, type and number of cysts, and cyst location. Imaging patterns and pathologies associated with cystic lesions were also determined. The prevalence of odontogenic and nonodontogenic cysts was 3.51%; males were affected more frequently than females. There were 452 odontogenic cysts (98.5%) and seven nonodontogenic cysts (1.5%). The most frequent odontogenic cyst was radicular (54.7%), followed by dentigerous (26.6%), residual (13.7%), odontogenic keratocyst (3.3%), and lateral periodontal cyst (0.2%). Nasopalatine duct cyst (1.5%) was the only nonodontogenic cyst. By age, cysts peaked in the third decade (24.2%). Concerning location,

no statistically significant difference was found between the maxilla and mandible ($p>0.05$). The most frequent radiological feature of these lesions was unilocular cyst (93.7%). Pathologies associated with cystic lesions occurred in 14.7%. The prevalence of both odontogenic and nonodontogenic cysts were lower than that reported in many other studies.

Conclusion

In this study, it was concluded that the prevalence of periapical abscess was the highest accounting for 23% of the population, followed by cysts accounting for 12% of the population and lastly crowding accounting for 10% of the population.

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