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"Prevalence of Most Common DentalMalocclusions and Dental Anomalies in AhmednagarDistrict Population

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Abstract

This research set out to find out how frequent dental malocclusion and related dental malformations were among Ahmednagar's resident population.

Methods: Participants ranged in age from 10 to 30, all of whom had attended a dental clinic in Ahmednagar for a symptomatic evaluation for orthodontic therapy. The latest case study that was reviewed included 135 individuals (mean age 22 +/- 11 years). the vast majority of cases of both DAs and malocclusions. Tooth impaction, microdontia, agenesis of one or more teeth, supernumerary teeth, transposition, and fusion were all discovered by reviewing the patient's original diagnostic data. Diagnostic castings, clinical pictures, panoramic radiographs, and lateral cephalograms were reviewed to determine the presence of DAs prior to therapy.

Conclusion: In this study, population of Ahmednagar patients showed significantly higher incidence of Angles Class II malocclusion and impacted teeth among other DAs.

1. Introduction

In the realm of dental pathology, developmental abnormalities stand out as a significant subset. Variations within and across populations are easier to grasp when researchers have access to data on the frequency and intensity with which these traits are expressed in various populations.[1] Variations in tooth development, such as those seen in dental abnormalities, may affect the teeth's number, form, structure, exfoliation, and eruption. In clinical practice, the most often seen dental abnormalities include tooth

Journal of Coastal Life Medicine

impaction, microdontia, tooth agenesis, transposition, and fusion. These birth defects may negatively impact both form and function by altering tooth number, tooth size, and arch length disparity. In addition, DAs are more common among orthodontic patients than among the general population. When DAs are identified early, orthodontic treatment may be planned to minimize discomfort and difficulty.[2]

The incidence and distribution of DAs among populations has been the subject of much reporting. Nonetheless, there is a paucity of research linking DA presence to specific types of malocclusion. Inconsistent findings may be found across the literature due to differences in the types of DAs studied and the diagnostic criteria for each DA. Additionally, there are disparities in the prevalence of DAs in prior research owing to variances in ethnicity and environmental variables.

2. Material and Methods

STUDY POPULATION:

Patients who sought an orthodontic diagnostic evaluation at the Hospital, Ahmednagar between September 2017 and August 2022 are included in the current research. Individuals who had had orthodontic treatment, had multiple dental prostheses, had lost teeth, suffered from craniofacial abnormalities, had insufficient data, or had a tooth (or teeth) whose identification was unclear were excluded from the final sample (which required patients to be at least 10 years old). In addition, follow-up panoramic radiographs were taken to confirm a diagnosis of DAs or exclude them from the sample if there was any doubt. In all, 150 patients were enrolled in the research (with a mean age of 22+ 11 years). Initial diagnostic data were reviewed to determine the existence of the most prevalent malocclusions and DAs, including tooth impaction, microdontia, tooth agenesis, supernumerary tooth, transposition, and fusion.

Characterization of malocclusion type: In this analysis, malocclusion was classified according to how the maxilla and mandible fit together front to back. Diagnostic castings were used to identify the kind of malocclusion.

Diagnosis of dental anomalies:

The following DAs were determined after reviewing

pretreatment diagnostic data, which included diagnostic casts, clinical pictures, panoramic radiographs, and lateral cephalograms:

1]   Tooth impaction: With the exception of the third molars, teeth that were impacted due to being buried in the bone and gingiva failed to erupt beyond the typical eruption period.

2]   Microdontia: a tooth with a mesiodistal crown width that is narrower than the usual for the opposing side.

3]   Tooth agenesis: the absence of one or more permanent teeth during development; sometimes called hyperdontia or congenitally absent tooth; does not include the third molar. Incisors on each side of the mandible were counted as one in order to eliminate any room for error.

4]   Supernumerary tooth: an abnormally large number of teeth, including an extra tooth that may or may not yet be visible through the gums

5]   Transposition: a rare case of ectopic eruption in which two teeth switch places

6]   Fusion: the joining of dentin or enamel from many tooth germs that had previously been separated.

SAMPLE SELECTION

The final sample included 135 patients, boys and 10 girls (mean age of 22years; range10.5 -26.2 years).

3. Results

There were 78 men and 57 women in the sample of 135 patients. Table 1 shows that Class II malocclusion was the most prevalent kind of malocclusion and that tooth impaction was the most common type of DA. This was followed by microdontia (4.4%), tooth agenesis (3.7%), transposition(1.48), supernumerary tooth (0.7%), and fusion instances, which made up 0% of the total. The incidence of DAs did not vary much across sexes.

Journal of Coastal Life Medicine

Table1: Showing different types of malocclusions and dental anomalies in 135 patients in which Class II malocclusion is most common ,and dental anomaly is tooth impaction .

Types of Dental anomalies	Total (135)	Class I (56)	Class II Div I (39)	Class II Div II (26)	Class III (14)
Tooth impaction	10	6	1	2	1
Microdontia	6	2	4		
Tooth agenesis	4		4		
Transposition	2	1			1
Supernumerary Tooth	1	1			
Fusion	0				

4. Discussion

The number, form, and arrangement of teeth may be used to categorize the many forms of dental abnormalities. Some are rather common and, because of their potential impact on function, aesthetics, or occlusion, should be taken into account in advance of orthodontic treatment. The four most prevalent DAs were the primary foci of this study: dental impaction, microdontia, tooth agenesis, and supernumerary tooth. The greatest incidence rate was seen for tooth impaction. In addition, the four DAs had a prevalence that was either the same as or higher than that reported before, with the exception of supernumerary teeth and fusion.

There was no discernible variation in the incidence of supernumerary teeth between the sexes. Supernumerary teeth are twice as common in men as they are in women. Similar rates of prevalence were observed in this investigation, with men being afflicted at a rate of 2.2:1.[2]

Missing teeth at birth accounted for 16.3% of all dental anomalies in the Indian population, with impacted teeth coming in second at 15.5%.[1] Tooth agenesis was found to be the only condition that impacted more than two teeth on average per person, which is in line with the findings of a prior research by Fernandez et al.[2]

At least one dental abnormality was seen in 32.6% of the sample. At least 32.1% of female patients and 33.5% of male patients had at least one dental abnormality. [3].

The prevalence of extra teeth in those who needed orthodontic treatment was calculated to be 0.64 percent by Rubenstein et al. In 4.3% of the sample, Rose discovered that people were born without any teeth.

Journal of Coastal Life Medicine

Kotsomitis et al. found an incidence of ectopic eruption of 29.7% in their pilot twin research of 202 orthodontic patients.[4] There were a total of 551 individuals included in the research, all of whom had had orthodontic care at a hospital in France between 2003 and 2013; of them, 45.74 percent (n = 252) had some kind of dental abnormality. The most prevalent condition was taurodontism (15.06%), followed by ectopic eruption (11.43%).[5]

When looking at all four DAs together, Class I had the greatest incidence (23.4%), followed by Class II (21.4%), and then Class III (17.3%). There are, however, notable variations between the DAs.

5. Conclusion

In this study of population of Ahmednagar :

- 1] Several types of malocclusion have different rates of occurrence and patterns of dental abnormalities. The most prevalent kind of malocclusion was classified as Angles Class II.2] As compared to individuals without impacted teeth, those with DA have a much greater prevalence.

- 3] Tooth impaction, microdontia, and agenesis are the three most prevalent Das. Hence, improved treatment is possible only if impacted teeth and other DAs are identified and diagnosed early.

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