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Research Article

Analysis of Pathologies of Hard Tooth Tissues before Orthodontic Treatment Using a Bracket System

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Abstract

This article analyzes the condition of hard tooth tissues before orthodontic treatment using fixed vestibular technique in patients of the same age group, male and female based on 42 human teeth removed by orthodontic indications taking into account their therapeutic condition in patients aged 20 to 44 years. The teeth were examined for the presence of pathology of the hard tissues of the tooth using a magnifier with a 10-fold increase and a dental lamp.

Keywords: *Dental Hard Tissues; Caries; Orthodontic Treatment*

Introduction

Clinically and etiologically diverse diseases-caries and non-carious cavities-are combined under the term "pathology of hard tooth tissues" in the domestic literature [1-4]. Many of these diseases have not been studied enough, which makes their timely prevention and effective treatment difficult. Currently, the ICD-10 classification used in outpatient practice is systematized by M Ya Alimova, LN Maksimovskaya, LS Persin, OO Yanushevich [2] in a separate manual, illustrated by clinical cases, taking into account the characteristics of primary specialized medical care. According to T Takano., *et al*. [5], TA Bakhsh., *et al*. [6] and Y Igarashi [7] causal factors in the development of pathologies of hard tooth tissues after the eruption are gender, age, oral hygiene, saliva composition, number of teeth, occlusion, the presence of parafunctions, and the use of acidic drinks. The factors we have mentioned can be reduced to the basic fundamental mechanism - supracontacts [8,9]. As a result of the action of external abrasive materials on the tooth (improper brushing technique, abrasive toothpastes, the use of bristles with hard bristles, toothpicks), friction occurs, leading to microdamage on the surface of the teeth, a violation of the microstructure and, as a result, loss of hard tooth tissue [10-12].

Purpose of the Study

To analyze the state of hard tooth tissues before orthodontic treatment in patients of the same age group of male and female.

Materials and Methods

The material of the laboratory part of the study was 42 teeth, extracted by orthodontic indications in patients aged 20 to 44 years. Samples were stored in 0.9% sodium chloride solution in a special laboratory glassware. The examined teeth have been examined to see if there was a pathology of the hard tooth tissues using a magnifying lens with a 10-fold increase. The data have been processed using the statistical method of variation statistics with Microsoft Excel (2012).

Results and Discussion

According to the results of the examination, 6 groups of teeth have been identified: Group I-teeth with approximal caries, Group II-with caries of grinding surface, Group III-with root caries, Group IV-with attrition of enamel, Group V-with enamel fissures, Group VI-with wedge-shaped defects. The most common affections of hard tooth tissues were enamel fissures- 83.3% (Group V) and attrition of enamel, which amounted to 47.6% (Group IV). Caries of grinding surface- 12% (Group II) and wedge-shaped defects- 14.3% (Group VI) were least likely to occur, due to orthodontic indications of tooth extraction. When studying the pathology of hard tooth tissues, distributed

by gender, it was found that the incidence of these pathologies in men and women is almost the same, with the exception of the wedge-shaped defect, which was found in males 5 times more often. In women, approximal caries prevailed (38.1%).

Conclusion

This study has shown that the most common diagnosis in the studied group of patients aged 20 to 44 years is enamel fissures and its attrition. The existence of pathology of hard tissues of non-carious origin should be taken into account when planning loads on the teeth during orthodontic treatment. The detection of clinically undiagnosed caries of approximal caries necessitates an instrumental method of investigation before treatment of malocclusions.

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