Features of the Clinical Course of Dental Tissue Abrasion in Adulthood

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ABSTRACT

Objectives: In the paper the data is given of the research on prevalence of dental tissues abrasion (DTA) in adults of various age groups.

Materials and Methods: The detailed dental examination of 1.924 patients (1.044 males and 880 females) at the ages from 21 to 89 was carried out. There were 4 groups: young adults – from 18 to 44; middle-aged adults – from 45 to 59; older persons – from 60 to 74; and senile persons – from 75 to 89.

Results: The prevalence of dental tissues pathology in adults depends on the age group and gender specific features. The DTA is less common in young adults (4.98%) than in middle-aged adults (36.24 %) as well as older (31.44%) and senile persons (17.2%). People of older age groups more often need treatment and preventive interventions oriented to teeth tissue.

Conclusions: The study found that women are less susceptible to hard tooth tissue abrasion than men. With age, the number of people with tooth abrasion as well as its severity increase.

Keywords: dental tissue abrasion, tooth abrasion prevalence, teeth non-carious lesions.

INTRODUCTION

Today, dental tissues abrasion (DTA) is becoming one of the most common dental pathologies (Mandra 2012). The prevalence in adults is extremely high and ranges from 30% to 40% according to different authors (Gajvoronskij et al. 2007). DTA clinically proceeds differently over time and has characteristic clinical forms and degrees of the pathological process of hard dental tissues (Iordanishvili et al. 2014). Each tooth is its integral element and serves for its effective functioning. Analyzing the interaction of the dentition of the upper and lower jaws, we can conclude about even more complex relationships aimed at ensuring the proper functioning of the dentition in general. The loss or change of one of the elements entails a corresponding change in the entire system (Surzhenko et al. 2018). The most common causes of DTA are functional insufficiency of hard dental tissues, morphological inferiority, tooth overload, chemical exposure, and occupational hazards (Mandra et al. 2011). Analysis of clinical observations suggests that tooth abrasion in patients aged 30-60 years is also determined by the shape of the bite (Gajvoronskij et al. 2006). In addition, there is still contradictory information about the prevalence of DTA among adults of different age groups (Fedorov & Drozhzhina; Tsimbalistov et al. 2004; Seddigh et al. 2018; Akdeniz et al. 2018).

MATERIAL AND METHODS

The authors conducted an in-depth dental examination of 1924 patients (1044 men and 880 women) aged 21 to 89 years. According to the age classification of the World Health Organization (1963), all patients with DTA (dental tissue abrasion) were divided into 4 age groups: 18-44 years (young age), 45-59 years (middle age), 60-74 years (advanced age), 75-89 years (senile age) in Table 1.

Table 1: Division of examined patients by age and gender

from 18 to 44		from 45 to 59		from 60 to 74		from 75 to 89	
men	women	men	women	men	women	men	women
355 (58.97%)	247 (41.03%)	373 (62.5%)	223 (37.5%)	283 (44.7%)	350 (55.3%)	33 (35.48%)	60 (64.52%)
602 (31.29%)		596 (30.98%)		633 (32.9%)		93 (4.83%)	

In confirmed cases of dental tissue abrasion, its form was determined according to V.Iu. Kurliandskii classification (1962), the degree of abrasion according to A.G. Moldovanov classification, type of tooth abrasion according to A.L. Grozovskii classification (1992).

RESULTS AND DISCUSSION

At a young age, dental tissue abrasion was diagnosed in 30 (4.98%) of the 602 subjects, while the pathological process was detected in 17 (56.7%) men and 13 (43.3%) women.

Most often, at a young age, a generalized form of DTA was diagnosed in 25 (83.3%) people: 14 (56%) men and 11 (44%) women. The localized DTA was observed only in 5 (16.7%) patients: 3 men and 2 women (Fig. 1)

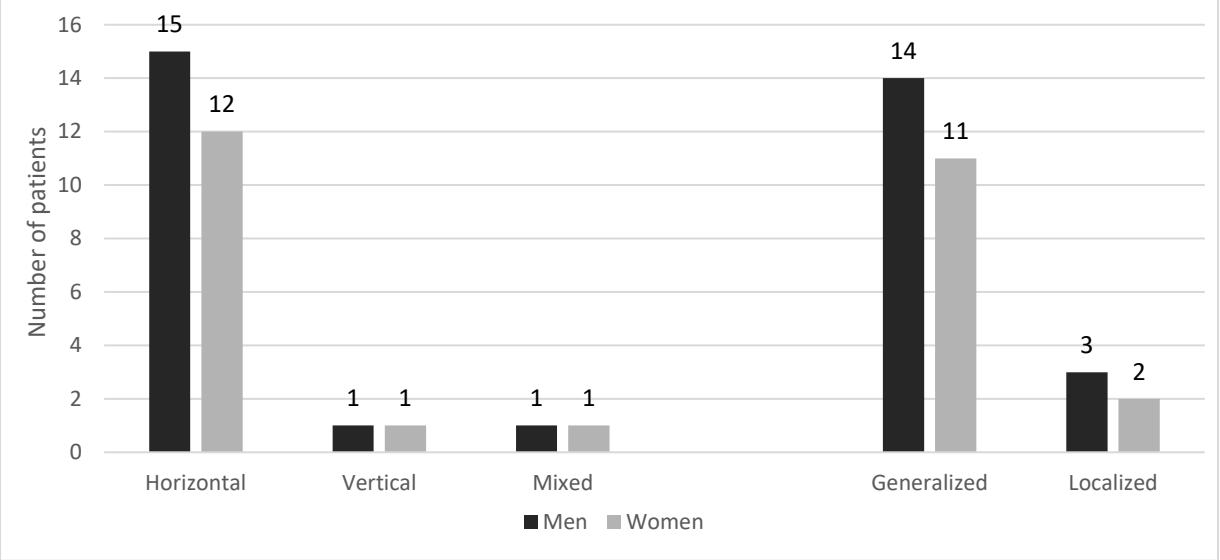

Figure 1: Gender distribution of various forms of abrasion in young patients.

Most often, at a young age, the 1st degree of dental tissue abrasion was diagnosed in 28 (93.3%) people: 15 (53.57%) men and 13 (46.43%) women. Only 2 (6.7%) men were diagnosed with a 2nd degree of dental tissue abrasion. None of women had second degree abrasion diagnosed. Patients with 3rd and 4th degree of abrasion were not identified (Fig. 1)

In addition to the degree of abrasion in young people, its shape was determined. The horizontal shape was recorded in 27 (90%) people: 15 (55.55%) men and 12 (44.45%) women. Rarely, in this age group, vertical and mixed DTA were diagnosed. Vertical DTA was diagnosed at a young age in 2 (6.67%) patients: 1 man and 1 woman, and mixed DTA was diagnosed in only 1 man.

Based on the medical history, the main cause of DTA was malocclusion and TMJ (temporomandibular joint) pathology.

Examination of people of the middle age group showed that dental tissue abrasion was diagnosed in 216 (36.24%) of 596 subjects: 124 (57.4%) men and 92 (42.6%) women.

Similar to a young age, the middle age group most often had generalized DTA, namely 152 (70.4%) people: 91 (59.87%) men and 61 (40.13%) women. Localized DTA was noted only in 64 (29.6%) people: 33 (51.55%) men and 31 (48.45%) women (Fig. 2).

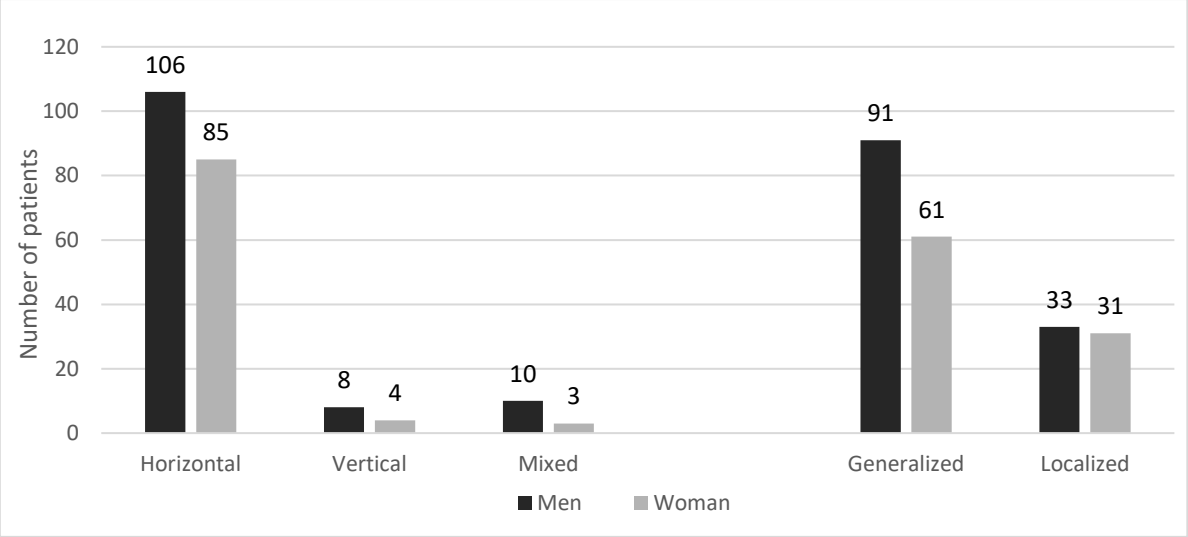

Figure 2: Gender distribution of various forms of abrasion in middle-aged patients.

Most often, the middle-age group was diagnosed the 1st degree of abrasion - 178 (82.4%) people, of which 108 (60.67%) were men and 70 (39.33%) were women. In 33 (15.27%) patients, the 2nd degree of DTA was diagnosed: 14 (42.42%) men and 19 (57.58%) women. The 3rd degree of dental tissue abrasion was diagnosed only in 4 (1.86%) subjects, namely in 2 men and 2 women. The fourth degree of dental tissue abrasion was diagnosed only in 1 woman of this age group.

Horizontal DTA in the middle-age groups was diagnosed in 191 (88.43%) people: 106 (55.5%) men and 85 (44.5%) women. The young-age group had both vertical and mixed DTA. Thus, vertical DTA was diagnosed in 12 (5.55%) patients: 8 (66.66%) men and 4 (33.34%) women, and mixed DTA was diagnosed in 13 (6.02%) people: 10 (77%) men and 3 (23%) women (Fig. 2).

A review of the medical history of middle-aged people made it possible to establish some reasons for the development of DTA, namely malocclusion, secondary anodontia of certain groups of teeth and the TMJ (temporomandibular joint) pathology.

Examination of the middle-aged patients showed dental tissue abrasion in 199 (31.44%) of 633 subjects: 111 (55.78%) men and 88 (44.22%) women.

Similar to young and middle-aged people, the most common among older people was generalized DTA, namely in 148 (74.37%) people: 80 (54.05%) men and 68 (45.95%) women. Localized DTA was observed only in 51 (25.63%) subjects: 31 (60.78%) men and 20 (39.22%) women.

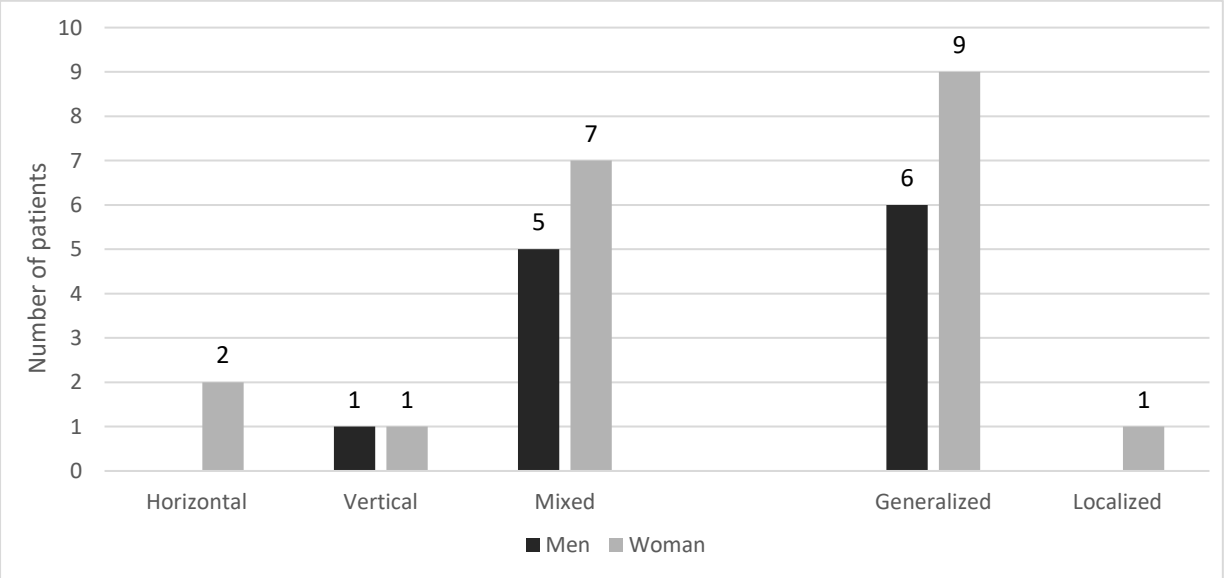

Figure 3: Gender distribution of various forms of abrasion in elderly patients.

Older people were most often diagnosed with the 1st degree of dental tissue abrasion - 135 (67.84%) people, of which 70 (51.85%) were men and 65 (48.15%) were women. The second degree of DTA was diagnosed in 39 (19.6%) patients:

27 (69.23%) men and 12 (30.77%) women. The third degree of DTA was diagnosed in 21 (10.55%) subjects of this age group: 12 (57.14%) men and 9 (42.86%) women. The fourth degree of abrasion was found in 2 men and 2 women.

The horizontal pathological process was detected in 160 (80.4%) people: 93 (58.12%) men and 67 (41.88%) women. Rarely, the older people were diagnosed with vertical and mixed DTA. Vertical DTA was diagnosed in 22 (11.05%) people: 4 (18.2%) men and 18 (81.8%) women, and mixed DTA was diagnosed in 17 (8.55%) people: 14 (82.35%) men and 3 (17.65%) women (Fig. 3).

The causes of DTA in the old-age groups were a partial loss of tooth groups, pathology of TMJ and masticatory muscle parafunction.

Examination of people of senile age showed that dental tissue abrasion was detected in 16 (17.2%) of the 93 patients examined during a clinical study. The pathological process was diagnosed in 6 (37.5%) men and 10 (62.5%) women.

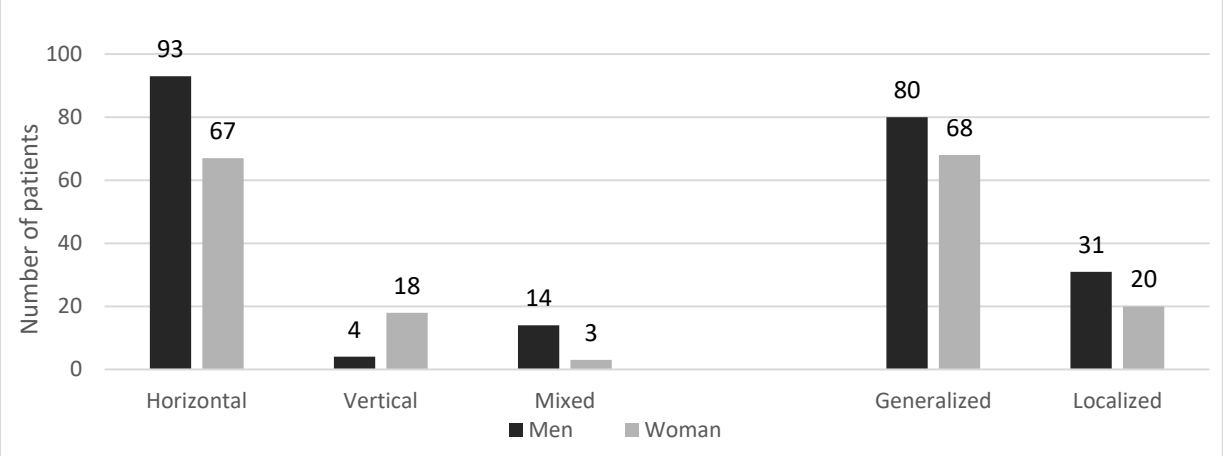

Figure 4: Gender distribution of various forms of abrasion in senile patients.

Similar to an old age, the senile age group most often had generalized DTA, namely 15 (93.75%) people: 6 (40%) men and 9 (60%) women. Localized DTA was noted only in 1 (6.25%) woman (Table 4).

With age, the severity of DTA increased. Two (12.5%) patients had a 1st degree of dental tissue abrasion (2 women). The second degree of dental tissue abrasion was diagnosed in 4 (25%) people: in 2 men and 2 women. The senile-age group was most frequently diagnosed with the third degree of dental tissue abrasion - in 6 (37.5%) people, of which 3 were men and 3 - women. Four (25%) people had the 4th degree of dental tissues abrasion: 1 man and 3 women.

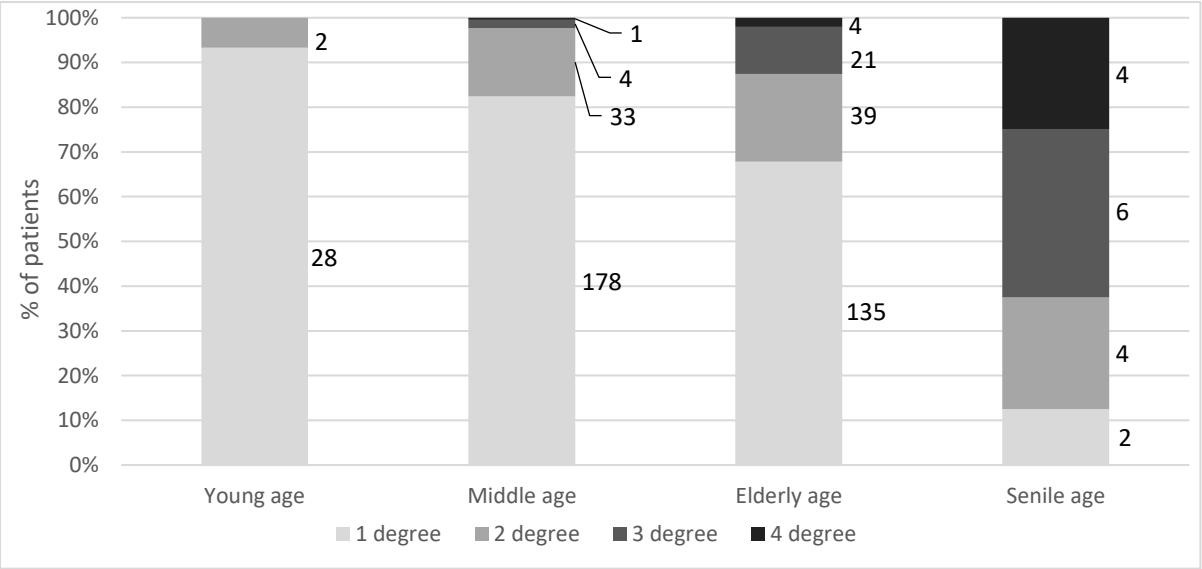

Figure 5: The severity of abrasion of hard tooth tissues depending on age.

Senile people rarely had horizontal DTA: only in 2 women. Vertical DTA was diagnosed in 2 (12.5%) people, including 1 man and 1 woman, and mixed DTA was diagnosed in 12 (75%) people: 5 (41.67%) men and 7 (58.33%) women (Fig. 5).

A review of the medical history of elderly patients, as well as their concomitant diseases, made it possible to establish the causes of DTA. These often included partial absence of teeth and pathology of the TMJ (temporomandibular joint).

CONCLUSION

Examination of patients of different age groups suffering from DTA allowed us to establish the prevalence of dental tissue abrasion in people of different ages and determine the age-related features of the clinical course of this pathology. The prevalence of this pathology of dental tissues is age- and gender-related.

DTA was diagnosed in 4.98% of the examined young people, 56.7% of which were men. Generalized DTA prevailed and occurred in 83.3% of patients. The first degree of dental tissue abrasion was diagnosed in an overwhelming number of patients (93.3%). The third and fourth degree was not diagnosed in people of this age group. Horizontal DTA was diagnosed in 90% of cases.

Examination of patients of the middle age group showed that DTA was diagnosed in 36.24% of cases. Similar to the young age group, people of the middle age group predominantly had generalized DTA, namely in 70.4% of patients, more often in men (57.4%). Most of the subjects had the first degree of abrasion - 82.4% of people. Horizontal DTA was diagnosed in 88.43% of people.

Examination of patients of the old age group showed that DTA was diagnosed in 31.44% of cases, more often in men (55.78%). Similar to the young and middle age group, generalized DTA was found in 74.37% of patients. Most often, the first degree of dental tissue abrasion was diagnosed in old people - 67.84% of cases. The second degree was diagnosed in 19.6% of patients. 80.4% of patients had horizontal DTA.

Examination of people of senile age showed that the dental tissue abrasion was found in 17.2% of patients, more often in women (62.5%). 93.75% of patients were diagnosed with generalized DTA. With age, the severity of tooth abrasion increased. The third degree of dental tissue abrasion was predominant in senile age - 37.5% of cases. Mixed dental tissue abrasion was diagnosed in 75% of patients.

The study found that women are less susceptible to hard tooth tissue abrasion than men. With age, the number of people with tooth abrasion as well as its severity increase.

CONFLICT OF INTEREST

None

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