Original Article

Morphological Changes In The Gastric Mucosa In Patients With Chronic Gastritis Taking Tobacco "Nas" Under The Tongue

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Abstract

Background: Gastric ulcers, also known as stomach ulcers, are open sores that form on the stomach's lining. Additionally, a section of the intestine right above the stomach may develop ulcers.

Purpose: The purpose of our study was to examine the morphological changes in GMS in chronic gastritis patients who smoke (lay) tobacco "NAS" and reside in unfavorable environmental conditions in the South Aral Sea region.

Materials and methods: A total of 100 patients having stomach ulcers were selected for the study and were divided randomly into 4 different Group A: control group (n=40) consists of patients having ulcers but no habit of NAS. Group B, C and D consists of patients having ulcers as well as the habit of smoking NAS for 1-5 years (n=12), 6-10 years (n=36) and more than 11 years (n=12) respectively. The biopsy samples were taken using the esaphago-gastroduodenofibroscopy technique. The staining was done using haematoxylin–eosin according to the manufacturer's protocol and was morphologically analyzed using morphological classification.

Results: The results showed that in the control group, atrophic gastritis without and with epithelial remodelling was (12.5% and 5% respectively) observations, atrophic-hyperplastic gastritis was 22.5%, while the maximum was in group C n=36; there were 8.1% cases of superficial gastritis and 28% cases of hypertrophic gastritis.

Conclusion: It can be concluded that long-term use of tobacco 'NAS' is responsible for chronic gastritis and there should awareness programs be conducted to aware people adverse effects of tobacco on human body parts as well as there should be focus on medicines to treat the illness.

Introduction

Smoking tobacco " NAS "—a smoking product made of small plant tobacco, vegetable oil, lime, and ash—under the tongue is a socially detrimental habit among the people of the areas of Central Asia and Kazakhstan, some nations in the Near and Middle East. Depending on where " NAS " is produced, a different percentage of components is used [2,8,16,32,40].

The English translation of the Arabic word "NAS" is "forget," or "forget oneself." A person experiences a soothing effect-euphoria, a pleasurable sensation, and a little degree of intoxication after placing 1-2 g of "NAS" tobacco under the tongue. This effect aids in the consolidation of the habit, which results in an addiction syndrome when using "NAS" 5 to 25 times per day. As a psychological stereotype of addiction is formed, tobacco "NAS" can encourage the consumption of higher doses [14, 20, 43].

The influence of tobacco "NAS" in experimental [11,34] and clinical trials [3,9,15,18,35] has been the subject of numerous scientific studies. Numerous researchers looked at the composition, prevalence, and racial and legal

implications of "NAS" smoking [26,30]. There are studies on the effects of tobacco "NAS" usage on many bodily systems in comparison to other unhealthy habits [7,12,23,29,32]. There have also been a number of scientific studies on the harmful interactions between tobacco use and other poor behaviours [13,17,24,28,41]. Scientists have already shown a link between tobacco use (smoking) and oncological illnesses [36,38,39].

Various Central Asian nations and areas have different "NAS" rates of tobacco usage. For instance, out of 10,135 persons, tobacco use was found in the Dzhambul region at 14.3%, the Chimkent region at 4.5%, Tajikistan at 19.7%, and Turkmenistan at 13.6% [1]. There have only been a few studies on the impact of tobacco "NAS" on the oral cavity and stomach mucosa [22,23].

Studying the impact of "NAS" tobacco on the gastric mucosa (GMS) in patients with chronic gastritis (CHG) is pertinent given the rise in contemporary "NAS" cigarette use, particularly among young people.

MATERIAL AND METHODS

The present study was conducted in our host institution. A total of hundred patients were selected for the study.

Collection of samples:

Targeted biopsy samples were acquired via esaphagogastroduodenofibroscopy from numerous GMS organs, including the pylorus, the heart, and the stomach's body served as the source of data for the morphological analysis.

Groups:

1. **Control group A (n=40)**: individuals with chronic gastritis who did not smoke "NAS,"
2. **Group B (n=12):** individuals with chronic gastritis who smoke NAS for 1-5 years
3. **Group C (n=36):** individuals with chronic gastritis who smoke NAS for 6-10 years
4. **Group D (n=12):** individuals with chronic gastritis who smoke NAS for more than 11 years

According to Van Gieson, the biopsy material was stained with hematoxylin-eosin and a CHIC reaction was also carried out (according to Mac Manus in the modification of A.L. Shabadash). The morphological classification of chronic gastritis was used to assess the morphological condition of GMS. The following criteria were considered:

1. superficial
2.with a lesion of glands without atrophy
3. atrophic (without rearrangement and epithelial rearrangement)
4. atrophic - hyperplastic
5. hypertrophic

RESULTS:

The control group included 40 individuals with chronic gastritis who did not smoke "NAS," and whose GMS histological analysis revealed the following types of gastritis: atrophic gastritis without epithelial remodelling was observed in 5 (12.5%) observations, atrophic gastritis with epithelial remodelling was observed in 2 (5%) observations, atrophic-hyperplastic gastritis was observed in 9 (22.5%) observations, and hypertrophic gastritis was observed in 10 (25%) observations. Special emphasis was given to the terms of tobacco "NAS" usage when developing anamnestic data, and as a result, the patients were split into three groups (**Table 1**).

According to the aforementioned research, persons who had been using "NAS" for six to ten years made up the largest group (60%) of users. In a GMS histological examination, 7 (58.3%) of the 12 observations from the first group showed abnormalities in the stomach mucosa that were consistent with superficial gastritis (SG). 5 (41.7%) additional instances had alterations that were consistent with hypertrophic gastritis (HG). In the second set of 36 observations, there were 3 (8.1%) cases of superficial gastritis and 10 (28%) cases of hypertrophic gastritis. Changes in GMS were classified as atrophic gastritis without epithelial remodelling in 7 (19.4%) instances, atrophic-hyperplastic gastritis (AHG) in 4 (11.1%) cases, CHG with glandular lesion without atrophy in 7 (19.4%) cases, and atrophic gastritis with epithelial remodelling in 5 (4%) cases. Only atrophic gastritis was seen in the third group of patients, who frequently used "NAS," without epithelial remodelling in n = 5 cases and with remodelling in n = 7 cases (**Table 2**).

DISCUSSION:

Thus, the mildest morphological changes in GMS, such as superficial **(Figure 1, 2**) and hypertrophic gastritis (**Figure 8**), were observed among the first group of patients, but GMS atrophy still does not play a significant role in the morphological picture of gastritis. The type of stomach lesion changes as the amount of time spent using tobacco "NAS" rises. The specific gravity of the expressed types of atrophic gastritis increases in the second set of data (**Figure 3,4,7,9**), and only a few isolated cases of superficial gastritis in long-term smokers are identified as "NAS."

Group 3 users who have been using "NAS" for more than 11 years have not shown any signs of superficial gastritis or CHG with gland damage without atrophy. These observations mostly centre on expressed forms of atrophic gastritis (**Figure 5**).

The aforementioned data show a strong correlation between the depth and prevalence of the process, the seriousness and severity of structural changes, and the duration of the use of "NAS" tobacco. SG phenomena were found in patients with short periods of "NAS" use (smoking), and as "NAS" use duration increases, atrophic changes in GMS up to atrophic lesions of the glands occur. The long-term hazardous effects of smoking tobacco, a multicomponent mixture, should be directly blamed for the emergence of structural abnormalities in GMS and associated glands.

It is also impossible to dispute the importance of the immunological factor, which is supported by the development of plasma cell clusters and NAS lymphoid cells over time in the thickness of the atrophied mucous membrane (**Figure 6**), which serves as the morphological foundation for immune inflammation.

CONCLUSION

Our findings indicated that long-term tobacco "NAS" usage is a risk factor for the development of chronic gastritis. Chronic gastritis is a significant issue due to its prevalence as well as the association of various kinds of gastritis with stomach tumour lesions. In this regard, the data collected by NAS on the morphological alterations in S0F in chronic gastritis in general, and specifically in patients with a poor habit—the smoking of "NAS" tobacco, are of considerable theoretical and practical significance. It is important for the medicine to focus on illness prevention.

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FIGURE LEGENDS

Figure.1. Superficial gastritis of the pyloric stomach. Hematoxylin-eosin stain. X 80. Observation 5.

Figure.2. Chronic gastritis with lesions of glands without atrophy. Hematoxylin-eosin stain. X 80. Observation 57.

.Figure.3. Atrophic gastritis without restructuring of the epithelium. Hematoxylin-eosin stain. X 80. Observation 16.

Figure.4. The growth of connective tissue in the mucous membrane with atrophic gastritis without rearrangement of the epithelium. Van Gieson stain. X 400. Observation 9.

Figure.5. Atrophic gastritis with restructuring of the epithelium. Van Gieson stain. X 80. Observation 6.

Figure.6. The appearance of lymphoid follicles in the thickness of the mucous membrane with atrophic gastritis with restructuring of the epithelium. Hematoxylin-eosin stain. X 80. Observation1.

Figure.7. Atrophic-hyperplastic gastritis. Hematoxylin-eosin stain. X 80. Observation 12.

Figure.8. Hypertrophic gastritis with the formation of polyps in the pyloric region of the stomach. Hematoxylin-eosin stain. X 80. Observation 54

Figure.9. Weak staining of the surface epithelium with Schiff's reagent for atrophic gastritis. CHIC reaction. X 80. Observation 3.

Table 1.

The distribution of patients with chronic gastritis in groups, taking into account the duration of use tobacco "NAS"

Groups	Duration of use tobacco "nas" (years)	Total patients
1	1 – 5	12 (20%)
2	6 – 10	36 (60%)
3	More than 11	12 (20%)

Table 2. Distribution of patients with chronic gastritis using tobacco "NAS" taking into account the defeat of the gastric system

Group 1 n =12	Group 2 n =36	Group 3 n =12
Superficialgastritis -7; hypertrophicgastritis -5;	SG-3; HG-10; ANG-4; CHG with glandular affection without atrophy-7; atrophic gastritis without restructuring of the epithelium-7; atrophic gastritis with epithelial remodeling-5	Atrophic gastritis without rearrangement of the epithelium -5; atrophic gastritis with epithelial remodeling -7

Fig 1

Fig 2

Fig 3

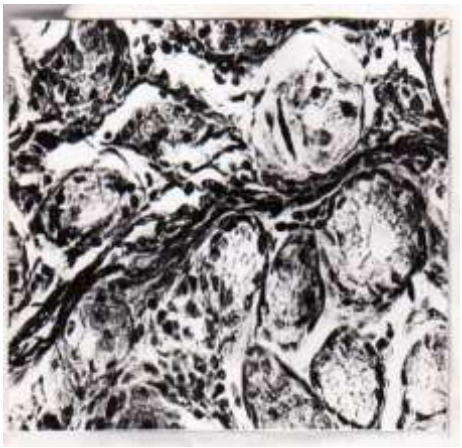

Fig 4

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