Clinical Course of Trophic Ulcers of the Oral Mucosa in Post-Covid Patients

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Abstract: This article highlights the results of a study conducted in patients with trophic ulcers after COVID-19. It also describes the pathomorphological changes in patients with trophic ulcers of the oral mucosa who have experienced COVID-19, and the pathogistological composition of swabs taken from these ulcers. Clinical changes in patients with trophic ulcers of the oral mucosa after COVID-19 were also investigated in this study.

Keywords: trophic ulcers, oral mucosa, necrotization, inflammatory reaction, clinical examination

Abstract: In post-COVID patients, there is a long latent period between systemic manifestations of COVID-19 and symptoms from the oral cavity, which is apparently associated with the indirect effect of the SARS-CoV-2 virus on the oral mucosa. Various studies report that post-COVID-19 patients have erythematous macules, papules, or plaques on the tongue, lip mucosa, hard palate, and oropharynx. [1,2,4,5]. In confirmed cases in patients who have had COVID-19, trophic lesions of the oral mucosa have been reported along with white and red spots and plaques on the back and side of the tongue, gums and palate [3,6].

Purpose of the study. Clinical changes in the oral mucosa in trophic ulcers in post-COVID patients.

Material and research methods. The study involved patients of both sexes who underwent COVID-19 and the appearance of a trophic ulcer on the oral mucosa in the post-COVID period. 125 people were examined, of which 104 were patients with trophic oral ulcers after COVID-19 and 21 were healthy individuals not infected with the virus. The study included people aged 18-70 years, including 61 men and 43 women. The average age of the subjects was 56.7 ± 0.9 years. The study participants (104) were divided according to the following criteria: group 1 (main) - patients with trophic oral ulcers, having traumatic factors in the oral cavity (52 patients), group 2 (comparison) - patients with trophic oral ulcers, with sanitized oral cavity of the mouth, without traumatic factors in the oral cavity (52 patients), group 3 (control) - healthy individuals with a sanitized oral cavity, who are not sick (21 people). Clinical (questioning; collection of anamnesis of life, illness; examination; palpation of the lesion), dental: (hygienic - IG-HB, determination of CPUz) research methods were carried out.

Results. Clinical examination of trophic ulcers on the lateral surface of the tongue and mucous membrane of the hard palate showed that the ulcer has uneven edges. On palpation, slight pain is noted, the ulcer has an infiltrated bottom, covered with a white-gray coating, sometimes with elevated tissue areas above the wound, combined with foci of putrefactive tissue necrosis. Characteristic is the absence of an inflammatory reaction in the surrounding tissues. The saliva is thick, viscous, there is an unpleasant smell from the mouth.
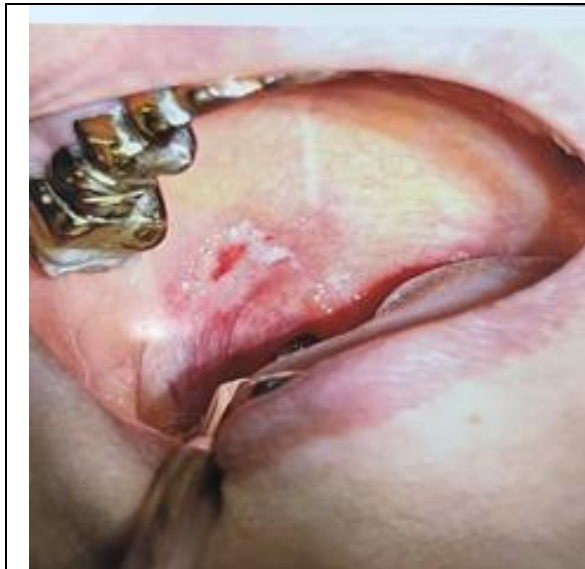
| **Fig.1 Trophic ulcer in the sky** | **Fig. 2 Trophic ulcer on the tongue** |

The index score is an objective factor that determines the hygienic state of the oral cavity. In the patients included in the study, we assessed the oral hygiene status using the Green-Vermillion Hygiene Index (GV-GV). This interpretation of the Green-Vermillion index was carried out according to gradations of the total value of IG-HS.

Initial - the highest rate of IG-HB was observed in the main group (1) (4.5+0.3), which demonstrates a significantly higher rate than in the comparison group (2) (2.3+0.3) and the control group (3) (1.2+0.4). In the comparison group, there was also a significant difference (p≤0,05) in the initial indicators of the hygienic state of IG-HV compared with the control group (Table 1).

Table 1. Determination of the hygienic index of IG-HB in the oral cavity in the examined patients, identification of the hygienic state of the oral cavity in the examined patients.

Groups (M+m)	IG-HV	R in the group
Main (1)	$4,5\pm0,3^{*\,\eth}$	≤ 0,05
Comparisons (2)	$2,3\pm0,3^{*}$	≥0,05
Control (3)	$1,2\pm0,4$	≥0,05

As can be seen from Table 1, the best hygienic condition was noted in healthy individuals of the control group (3) and amounted to 1.2 + 0.4, which allows us to assess it as good. The worst hygienic condition of the oral cavity was observed in patients of the main group (1) who had a history of COVID-19 and amounted to 4.5+0.3, the score corresponded to the value of poor. It should be noted that in the main group, patients had traumatic factors in the oral cavity. In the comparison group (2) patients who had, in the history of COVID-19, the hygienic state of the oral cavity was 2.3+0.3, the hygienic level was assessed as satisfactory. However, these patients did not have traumatic factors in the oral cavity.

Thus, the hygienic condition of the oral cavity in patients of the main group (1) was assessed as poor, in the comparison group (2) it was assessed as satisfactory, which has a negative effect in maintaining unfavorable factors leading to necrotization of trophic ulcers in the oral cavity and having a negative effect on the quality of life of patients. This fact requires a significant correction of the hygienic state of the cavity in both clinical groups, especially in the main (1) group.

The highest KPI index was found in patients of the main group (1) (23.2+1.5). This indicator was significantly (p≤ 0,05) higher than in the comparison group (2) (12.5+0.6) and the control group (3) (8.0+0.5).

A significant difference (p≤ 0,05) was also revealed between the indicators of CPUz in patients of the comparison group and the control group (Table 2).

Table 2. Indicators of the DMFt index in the examined patients

Groups (M$\pm$m)	DMFt
Main (1)	$23{,}2\pm1{,}5^{*\eth}$
Comparisons (2)	$12{,}5\pm0{,}6^{*}$
Control (3)	$8{,}0\pm0{,}5$

Note: * - - p$\leq$ 0,05 compared to the control group

ð - p$\leq$0,05 compared with the comparison group

It should be noted that teeth with carious cavities, defective fillings with a broken crown can cause chronic traumatization of the oral mucosa, which is an unfavorable factor for the healing of trophic ulcers.

Thus, in patients of the main (1) group with a history of COVID-19, there is a high intensity of caries, which consists in the presence of traumatic factors in the oral cavity (carious cavities, chips and sharp edges of teeth, poor-quality fillings, poor-quality crowns and prostheses, non-carious lesions, defects in the dentition, etc.). Subsequently, the intervention of dentists of various profiles (general practitioners, surgeons, orthopedists and orthodontists) is required to eliminate the listed traumatic factors and create conditions for favorable epithelialization of trophic ulcers in patients who have previously had COVID-19.

Conclusions:

1. The level of hygienic condition of the oral cavity in patients of the main group and the comparison group was assessed as poor and satisfactory, respectively, leading to necrotization of trophic ulcers on the oral mucosa.

2. High rates of caries intensity in patients with trophic ulcers with a history of COVID-19 create additional traumatic factors in the oral cavity, exacerbate the ulcerative-necrotic process of the oral mucosa and have a negative effect on the quality of life of patients.

Literature

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