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ЕЖЕМЕСЯЧНЫЙ НАУЧНЫЙ ЖУРНАЛ

Медицинские новости Грузии

საქართველოს სამედიცინო სიახლენი

GEORGIAN MEDICAL NEWS

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GMN: Georgian Medical News is peer-reviewed, published monthly journal committed to promoting the science and art of medicine and the betterment of public health, published by the GMN Editorial Board since 1994. GMN carries original scientific articles on medicine, biology and pharmacy, which are of experimental, theoretical and practical character; publishes original research, reviews, commentaries, editorials, essays, medical news, and correspondence in English and Russian.

GMN is indexed in MEDLINE, SCOPUS, PubMed and VINITI Russian Academy of Sciences. The full text content is available through EBSCO databases.

GMN: Медицинские новости Грузии - ежемесячный рецензируемый научный журнал, издаётся Редакционной коллегией с 1994 года на русском и английском языках в целях поддержки медицинской науки и улучшения здравоохранения. В журнале публикуются оригинальные научные статьи в области медицины, биологии и фармации, статьи обзорного характера, научные сообщения, новости медицины и здравоохранения. Журнал индексируется в MEDLINE, отражён в базе данных SCOPUS, PubMed и ВИНИТИ РАН. Полнотекстовые статьи журнала доступны через БД EBSCO.

GMN: Georgian Medical News – საქართველოს სამედიცინო სიახლენი – არის ყოველთვიური სამეცნიერო სამედიცინო რეცენზირებადი ჟურნალი, გამოიცემა 1994 წლიდან, წარმოადგენს სარედაქციო კოლეგიისა და აშშ-ის მეცნიერების, განათლების, ინდუსტრიის, ხელოვნებისა და ბუნებისმეტყველების საერთაშორისო აკადემიის ერთობლივ გამოცემას. GMN-ში რუსულ და ინგლისურ ენებზე ქვეყნდება ექსპერიმენტული, თეორიული და პრაქტიკული ხასიათის ორიგინალური სამეცნიერო სტატიები მედიცინის, ბიოლოგიისა და ფარმაციის სფეროში, მიმოხილვითი ხასიათის სტატიები.

ჟურნალი ინდექსირებულია MEDLINE-ის საერთაშორისო სისტემაში, ასახულია SCOPUS-ის, PubMed-ის და ВИНИТИ РАН-ის მონაცემთა ბაზებში. სტატიების სრული ტექსტი ხელმისაწვდომია EBSCO-ს მონაცემთა ბაზებიდან.

WEBSITE

www.geomednews.com

К СВЕДЕНИЮ АВТОРОВ!

При направлении статьи в редакцию необходимо соблюдать следующие правила:

1. Статья должна быть представлена в двух экземплярах, на русском или английском языках, напечатанная через **полтора интервала на одной стороне стандартного листа с шириной левого поля в три сантиметра**. Используемый компьютерный шрифт для текста на русском и английском языках - **Times New Roman** (**Кириллица**), для текста на грузинском языке следует использовать **AcadNusx.** Размер шрифта - **12**. К рукописи, напечатанной на компьютере, должен быть приложен CD со статьей.

2. Размер статьи должен быть не менее десяти и не более двадцати страниц машинописи, включая указатель литературы и резюме на английском, русском и грузинском языках.

3. В статье должны быть освещены актуальность данного материала, методы и результаты исследования и их обсуждение.

При представлении в печать научных экспериментальных работ авторы должны указывать вид и количество экспериментальных животных, применявшиеся методы обезболивания и усыпления (в ходе острых опытов).

4. К статье должны быть приложены краткое (на полстраницы) резюме на английском, русском и грузинском языках (включающее следующие разделы: цель исследования, материал и методы, результаты и заключение) и список ключевых слов (key words).

5. Таблицы необходимо представлять в печатной форме. Фотокопии не принимаются. **Все цифровые, итоговые и процентные данные в таблицах должны соответствовать таковым в тексте статьи**. Таблицы и графики должны быть озаглавлены.

6. Фотографии должны быть контрастными, фотокопии с рентгенограмм - в позитивном изображении. Рисунки, чертежи и диаграммы следует озаглавить, пронумеровать и вставить в соответствующее место текста **в tiff формате**.

В подписях к микрофотографиям следует указывать степень увеличения через окуляр или объектив и метод окраски или импрегнации срезов.

7. Фамилии отечественных авторов приводятся в оригинальной транскрипции.

8. При оформлении и направлении статей в журнал МНГ просим авторов соблюдать правила, изложенные в «Единых требованиях к рукописям, представляемым в биомедицинские журналы», принятых Международным комитетом редакторов медицинских журналов - http://www.spinesurgery.ru/files/publish.pdf и http://www.nlm.nih.gov/bsd/uniform_requirements.html
В конце каждой оригинальной статьи приводится библиографический список. В список литературы включаются все материалы, на которые имеются ссылки в тексте. Список составляется в алфавитном порядке и нумеруется. Литературный источник приводится на языке оригинала. В списке литературы сначала приводятся работы, написанные знаками грузинского алфавита, затем кириллицей и латиницей. Ссылки на цитируемые работы в тексте статьи даются в квадратных скобках в виде номера, соответствующего номеру данной работы в списке литературы. Большинство цитированных источников должны быть за последние 5-7 лет.

9. Для получения права на публикацию статья должна иметь от руководителя работы или учреждения визу и сопроводительное отношение, написанные или напечатанные на бланке и заверенные подписью и печатью.

10. В конце статьи должны быть подписи всех авторов, полностью приведены их фамилии, имена и отчества, указаны служебный и домашний номера телефонов и адреса или иные координаты. Количество авторов (соавторов) не должно превышать пяти человек.

11. Редакция оставляет за собой право сокращать и исправлять статьи. Корректура авторам не высылается, вся работа и сверка проводится по авторскому оригиналу.

12. Недопустимо направление в редакцию работ, представленных к печати в иных издательствах или опубликованных в других изданиях.

При нарушении указанных правил статьи не рассматриваются.

REQUIREMENTS

Please note, materials submitted to the Editorial Office Staff are supposed to meet the following requirements:

1. Articles must be provided with a double copy, in English or Russian languages and typed or compu-ter-printed on a single side of standard typing paper, with the left margin of **3** centimeters width, and **1.5** spacing between the lines, typeface - **Times New Roman** (**Cyrillic**), print size - **12** (referring to Georgian and Russian materials). With computer-printed texts please enclose a CD carrying the same file titled with Latin symbols.

2. Size of the article, including index and resume in English, Russian and Georgian languages must be at least 10 pages and not exceed the limit of 20 pages of typed or computer-printed text.

3. Submitted material must include a coverage of a topical subject, research methods, results, and review.

Authors of the scientific-research works must indicate the number of experimental biological species drawn in, list the employed methods of anesthetization and soporific means used during acute tests.

4. Articles must have a short (half page) abstract in English, Russian and Georgian (including the following sections: aim of study, material and methods, results and conclusions) and a list of key words.

5. Tables must be presented in an original typed or computer-printed form, instead of a photocopied version. **Numbers, totals, percentile data on the tables must coincide with those in the texts of the articles.** Tables and graphs must be headed.

6. Photographs are required to be contrasted and must be submitted with doubles. Please number each photograph with a pencil on its back, indicate author's name, title of the article (short version), and mark out its top and bottom parts. Drawings must be accurate, drafts and diagrams drawn in Indian ink (or black ink). Photocopies of the X-ray photographs must be presented in a positive image in **tiff format**.

Accurately numbered subtitles for each illustration must be listed on a separate sheet of paper. In the subtitles for the microphotographs please indicate the ocular and objective lens magnification power, method of coloring or impregnation of the microscopic sections (preparations).

7. Please indicate last names, first and middle initials of the native authors, present names and initials of the foreign authors in the transcription of the original language, enclose in parenthesis corresponding number under which the author is listed in the reference materials.

8. Please follow guidance offered to authors by The International Committee of Medical Journal Editors guidance in its Uniform Requirements for Manuscripts Submitted to Biomedical Journals publication available online at: http://www.nlm.nih.gov/bsd/uniform_requirements.html
http://www.icmje.org/urm_full.pdf
In GMN style for each work cited in the text, a bibliographic reference is given, and this is located at the end of the article under the title "References". All references cited in the text must be listed. The list of references should be arranged alphabetically and then numbered. References are numbered in the text [numbers in square brackets] and in the reference list and numbers are repeated throughout the text as needed. The bibliographic description is given in the language of publication (citations in Georgian script are followed by Cyrillic and Latin).

9. To obtain the rights of publication articles must be accompanied by a visa from the project instructor or the establishment, where the work has been performed, and a reference letter, both written or typed on a special signed form, certified by a stamp or a seal.

10. Articles must be signed by all of the authors at the end, and they must be provided with a list of full names, office and home phone numbers and addresses or other non-office locations where the authors could be reached. The number of the authors (co-authors) must not exceed the limit of 5 people.

11. Editorial Staff reserves the rights to cut down in size and correct the articles. Proof-sheets are not sent out to the authors. The entire editorial and collation work is performed according to the author's original text.

12. Sending in the works that have already been assigned to the press by other Editorial Staffs or have been printed by other publishers is not permissible.

Articles that Fail to Meet the Aforementioned Requirements are not Assigned to be Reviewed.

ავტორთა საყურადღებოდ!

რედაქციაში სტატიის წარმოდგენისას საჭიროა დავიცვათ შემდეგი წესები:

1. სტატია უნდა წარმოადგინოთ 2 ცალად, რუსულ ან ინგლისურ ენებზე,დაბეჭდილი სტანდარტული ფურცლის 1 გვერდზე, 3 სმ სიგანის მარცხენა ველისა და სტრიქონებს შორის 1,5 ინტერვალის დაცვით. გამოყენებული კომპიუტერული შრიფტი რუსულ და ინგლისურენოვან ტექსტებში - **Times New Roman (Кириллица)**, ხოლო ქართულენოვან ტექსტში საჭიროა გამოვიყენოთ **AcadNusx.** შრიფტის ზომა – 12. სტატიას თან უნდა ახლდეს CD სტატიით.

2. სტატიის მოცულობა არ უნდა შეადგენდეს 10 გვერდზე ნაკლებს და 20 გვერდზე მეტს ლიტერატურის სიის და რეზიუმეების (ინგლისურ, რუსულ და ქართულ ენებზე) ჩათვლით.

3. სტატიაში საჭიროა გაშუქდეს: საკითხის აქტუალობა; კვლევის მიზანი; საკვლევი მასალა და გამოყენებული მეთოდები; მიღებული შედეგები და მათი განსჯა. ექსპერიმენტული ხასიათის სტატიების წარმოდგენისას ავტორებმა უნდა მიუთითონ საექსპერიმენტო ცხოველების სახეობა და რაოდენობა; გაუტკივარებისა და დაძინების მეთოდები (მწვავე ცდების პირობებში).

4. სტატიას თან უნდა ახლდეს რეზიუმე ინგლისურ, რუსულ და ქართულ ენებზე არანაკლებ ნახევარი გვერდის მოცულობისა (სათაურის, ავტორების, დაწესებულების მითითებით და უნდა შეიცავდეს შემდეგ განყოფილებებს: მიზანი, მასალა და მეთოდები, შედეგები და დასკვნები; ტექსტუალური ნაწილი არ უნდა იყოს 15 სტრიქონზე ნაკლები) და საკვანძო სიტყვების ჩამონათვალი (key words).

5. ცხრილები საჭიროა წარმოადგინოთ ნაბეჭდი სახით. ყველა ციფრული, შემაჯამებელი და პროცენტული მონაცემები უნდა შეესაბამებოდეს ტექსტში მოყვანილს.

6. ფოტოსურათები უნდა იყოს კონტრასტული; სურათები, ნახაზები, დიაგრამები - დასათაურებული, დანომრილი და სათანადო ადგილას ჩასმული. რენტგენოგრამების ფოტოასლები წარმოადგინეთ პოზიტიური გამოსახულებით **tiff** ფორმატში. მიკროფოტოსურათების წარწერებში საჭიროა მიუთითოთ ოკულარის ან ობიექტივის საშუალებით გადიდების ხარისხი, ანათალების შეღებვის ან იმპრეგნაციის მეთოდი და აღნიშნოთ სურათის ზედა და ქვედა ნაწილები.

7. სამამულო ავტორების გვარები სტატიაში აღინიშნება ინიციალების თანდართვით, უცხოურისა – უცხოური ტრანსკრიპციით.

8. სტატიას თან უნდა ახლდეს ავტორის მიერ გამოყენებული სამამულო და უცხოური შრომების ბიბლიოგრაფიული სია (ბოლო 5-8 წლის სიღრმით). ანბანური წყობით წარმოდგენილ ბიბლიოგრაფიულ სიაში მიუთითეთ ჯერ სამამულო, შემდეგ უცხოელი ავტორები (გვარი, ინიციალები, სტატიის სათაური, ჟურნალის დასახელება, გამოცემის ადგილი, წელი, ჟურნალის №, პირველი და ბოლო გვერდები). მონოგრაფიის შემთხვევაში მიუთითეთ გამოცემის წელი, ადგილი და გვერდების საერთო რაოდენობა. ტექსტში კვადრატულ ფჩხილებში უნდა მიუთითოთ ავტორის შესაბამისი N ლიტერატურის სიის მიხედვით. მიზანშეწონილია, რომ ციტირებული წყაროების უმეტესი ნაწილი იყოს 5-6 წლის სიღრმის.

9. სტატიას თან უნდა ახლდეს: ა) დაწესებულების ან სამეცნიერო ხელმძღვანელის წარდგინება, დამოწმებული ხელმოწერითა და ბეჭდით; ბ) დარგის სპეციალისტის დამოწმებული რეცენზია, რომელშიც მითითებული იქნება საკითხის აქტუალობა, მასალის საკმაობა, მეთოდის სანდოობა, შედეგების სამეცნიერო-პრაქტიკული მნიშვნელობა.

10. სტატიის ბოლოს საჭიროა ყველა ავტორის ხელმოწერა, რომელთა რაოდენობა არ უნდა აღემატებოდეს 5-ს.

11. რედაქცია იტოვებს უფლებას შეასწოროს სტატია. ტექსტზე მუშაობა და შეჯერება ხდება საავტორო ორიგინალის მიხედვით.

12. დაუშვებელია რედაქციაში ისეთი სტატიის წარდგენა, რომელიც დასაბეჭდად წარდგენილი იყო სხვა რედაქციაში ან გამოქვეყნებული იყო სხვა გამოცემებში.

აღნიშნული წესების დარღვევის შემთხვევაში სტატიები არ განიხილება.

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PREVENTIVE PLASTIC OF BUCCAL FRENUM IN COMPLEX TREATMENT OF PATIENTS WITH ACQUIRED MAXILLOMANDIBULAR ANOMALIES

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Abstract.

Aim: Improving the effectiveness of complex treatment of patients with maxillomandibular anomalies and disorders of the architectonics of the vestibule of the mouth.

Materials and methods: We conducted clinical, X-ray methods and cytomorphometric, rheographic examination of the oral mucosa of 30 patients 15-17-years old with acquired maxillomandibular anomalies and disorders of the architectonics of the vestibule of the mouth (buccal frenum) and 15 relatively healthy children - norm group. The patients of I group had surgical correction of buccal frenum, where the surgical wound was healing by secondary tension. The patients of II group had proposed surgical correction of buccal frenum, where the surgical wound was healing by primary tension Patients were prescribed chlorhexidine-denta and a preparation based on hyaluronic acid (Gengigel, Italy) in the postoperative period.

Statistical Analysis Used: Statistical processing of the results was performed using a personal computer using the software package Statistica 12.0. Data distribution was assessed using the Kolmogorov-Smirnov test of normality. Mean values and standard errors were calculated for continuous variables. Correlation between parameters was analyzed using Spearman's correlation coefficient and tested for significance. Significance was set at $p<0.05$.

Results: Clinical studies have shown that all patients have anomalies of buccal frenum fixationin the area of the canines and premolars. The results of cytomorphometric and rheographic studies indicated a deficiency of blood supply in these areas. The results of clinical and laboratory examination showed the advantage of the proposed treatment plan. Long-term results indicate the formation of a normorthophic scar, the absence of recurrences and recessions of the gums in the area of projections of the buccal frenum, the normalization of clinical and laboratory parameters. The obtained data in II group significantly differ from those in I group ($p <0.05$).

Conclusions: Surgical correction of disorders of the architectonics of the vestibule of the mouth is an important and necessary stage of complex treatment of patients with maxillomandibular anomalies and disorders of the architectonics of the vestibule of the mouth. We can achieve the desired therapeutic effect in the treatment of such patients and prevent relapses only by eliminating the etiological factor. The use of preparations based on hyaluronic acid in the postoperative period stimulates reparative processes in the operated area and contributes to the formation of a normotrophic scar. Plastic of buccal frenulum is a prevention of abnormal position of premolars and gum recession in the area of canines and premolars. It is important for preventive dentistry.

Key words. Vestibule of the mouth, buccal frenum, hyaluronic acid, mucosal graft.

Introduction.

A number of clinical studies have shown that abnormally attached lip's frenula, buccal frenula, and ankyloglossia are increasingly observed in children. They impede blood supply in these areas and stimulate the development of related pathology. Among them are changing in the position of a separate group of teeth or tooth protrusion, localized periodontitis, gum recession [1,2]. Scientists emphasize that it can be prevented if the etiological factor is eliminated in time before the etiopathogenetic chain is started [2-4].

In modern surgical practice there are various methods of surgical correction on the vestibule of the mouth (frenuloplasty and vestibuloplasty). The main complication after any chosen method of surgical correction of the architectonics of the vestibule of the mouth is cicatricial changes of oral mucosa (in 10.0% - 30.5% of patients) [5,6]. That is why the choice of surgical tactics, the method of wound healing and management of the postoperative period are important.

Medicines based on hyaluronic acid (HA) attracted our attention due to their wide use as a wound-healing drug and the possibility of use in children's practice [7,8]. HA is an indispensable drug in surgical dentistry due to its bacteriostatic properties, strengthening the effect of antibiotics and other agents, and a pronounced wound-healing effect [3,5,6,9]. It reduces clinical signs of inflammation, bleeding gums [10,11,12]. The multifaceted properties of HA indicate the relevance of studying its effect on the tissues of the vestibule of the mouth and, in combination, it is an effective method of buccal frenum plastic surgery.

Materials and Methods.

We conducted clinical, X-ray methods, cytomorphometric and rheographic examination of 30 patients 15-17-years old with acquired maxillomandibular anomalies and disorders of the architectonics of the vestibule of the mouth (buccal frenum); 15 relatively healthy children – norm group.

The patients of I group had surgical correction of buccal frenum, where the surgical wound was healing by secondary tension. The patients of II group had proposed surgical correction of buccal frenum, where the surgical wound was healing by primary tension with the use of palatal grafts.

Palate grafts are similar in structure to the mucous membrane of the gums. Therefore, we give preference to their use during the intervention. When taking a palatal graft, it is necessary to consider the individual characteristics of the patient. Each person has individual position the greater palatine foramen and greater palatine artery [13]. The safe zone for graft collection was determined according to Tavelli L. et al. in order to prevent damage to the palatine artery [14]. We studied and analyzed the data of computed tomograms of 30 patients with acquired maxillomandibular anomalies, deformities, 15 tomograms of persons of the norm group. X-ray methods included examination

of the patient on a spiral computed tomography scan TOSHIBA Aquilion PRIME 160-slices MODEL TSX-302A / 1C. The scan was performed according to a specially developed protocol. During the scan, the position of the jaws in the bite and the head remains stable in order to reduce the risk of artifacts. The reconstruction algorithm at the time of the study was set as "bone" or "high resolution". The matrix extension was 512x512. The scan range included the facial and cerebral skulls. The thickness of the slice during the scan was 3-5 mm, the step in the reconstruction of the slice was 1 mm. All sections matched the anatomical area, had the same proportions and sizes, and were scanned at the same table height. The scan was performed in one direction. After the study, archival data were stored in Dikom format. The main method of examination is stereotopometric analysis (three-dimensional cephalometry), which studied the ratio of the structures of the facial head relative to three mutually perpendicular planes. Three-dimensional cephalometric analysis was performed on computer reconstructions in SimPlant Pro 11.04 software. SurgiCase (Materialize) was used according to the developed modified method of cephalometric and stereotopometric analysis. To perform stereotopometric analysis of the facial skeleton, we used the method developed by us to construct the base planes, which are centered at the reference point of the coordinate system.

The localization of the greater palatine foramen was determined by analyzing the cephalometric indicators of each patient during the planning of surgical intervention [15]. If it is impossible to take a graft from the palate, we recommend taking it from the tuber maxilla.

Stages of the operation: after conducting analgesia in the safe zone of the palate, the mucosal graft is collected, thinned, and placed in a physiological solution (Figure 1a & 1b). In the area of the buccal frenum, after conduction analgesia, a horizontal incision of 10-15 mm length is made, parallel to the gingival margin. The oral mucosa is separated from the periosteum. A graft 2-3 mm larger in diameter compared to the surgical wound in the buccal area is formed. It is placed in the surgical wound, pushed 1-2 mm under the oral mucosa, sutured. Aseptic bandage is applied (Figure 2).

All patients were prescribed chlorhexidine-denta and a preparation based on hyaluronic acid (Gengigel, Italy) in the postoperative period. We studied the condition of the wound, the processes of postoperative scar formation, and performed a cytological examination of the mucous membrane according to H.V. Banchenko. Oral mucosal blood flow was assessed using the Rheograph DX device (Kharkiv, Ukraine), measuring qualitative characteristics and quantitative parameters such as vascular tone index (VTI), venous outflow index (VOI), peripheral resistance index (PRI), extensive blood flow index (EBFI), and rheographic index (RI).

Statistical processing of the results was performed using a personal computer using the software package Statistica 12.0. Data distribution was assessed using the Kolmogorov-Smirnov test of normality. Mean values and standard errors were calculated for continuous variables. Correlation between parameters was analyzed using Spearman's correlation coefficient and tested for significance. Significance was set at $p<0.05$ [16].

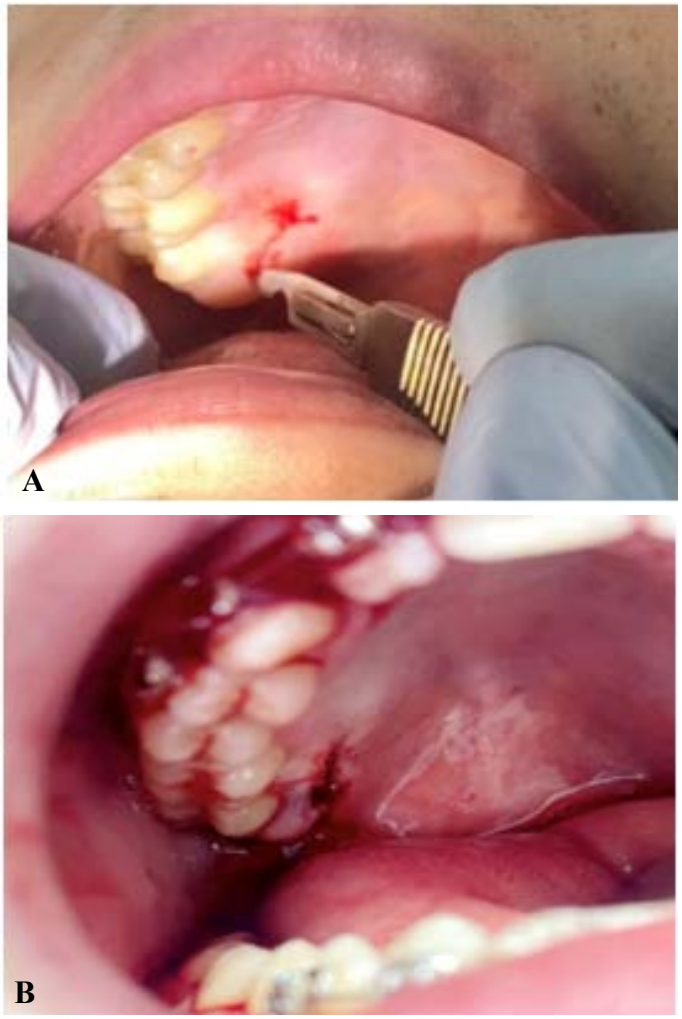

Figure 1. *Patient K., 16 years old. Diagnosis: acquired deformity of the lower jaw, high fixation of the buccal frenum. Taking a palatal graft.*

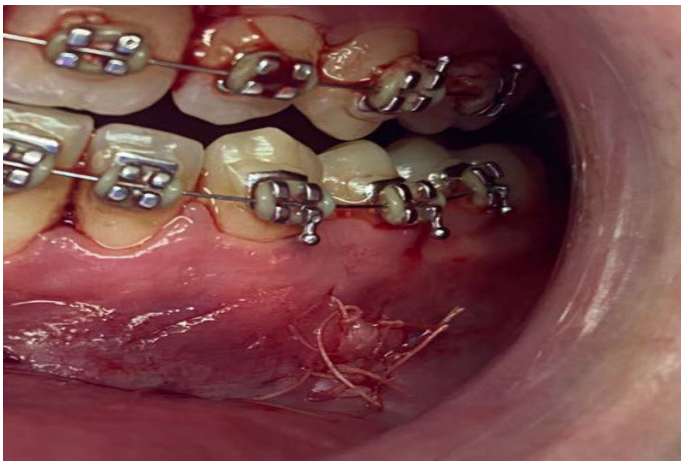

Figure 2. *Patient K., 16 years old. Diagnosis: acquired deformity of the lower jaw, high fixation of the buccal frenum. Fixation of a palatal graft in the buccal area.*

Results.

All patients had pronounced changes in the architectonics of the vestibule of the mouth. In particular, all patients of both groups (30 patients) have highly attached buccal frenula in the area of canines and premolars on lower jaws and lowly attached

Table 1. *Cell differentiation index in patients with acquired maxillomandibular anomalies and disorders of the architectonics of the vestibule of the mouth (buccal frenula) (M±m).*

Area of the oral cavity	**Control group, n=15**	**Patients with maxillomandibular anomalies and buccal frenula**	
		I group, n=15	**II group, n=15**
vestibule of the mouth	504.03±5.31	525.19±8.39*	529.23±5.18
hard palatine	514.41±4.53	515.35±3.95	516.02±4.43

*Notes: * - indicates statistically significant differences between patient groups (p<0.05).*

- on the maxilla, which are well visualized when applying the OpraGate; 13.3% (4/30) of patients were diagnosed with shellow vestibule of the mouth. In all other persons, the depth of the vestibule of the mouth was 5-8 mm.

Cephalometric analysis was used to determine the position of the greater palatine foramen, which is an important diagnostic point before taking a mucosal graft and during the planning of fixation of palatal microimplants. According to the results of the cephalometric study, we found different positions of the greater palatine foramen: in 53.3% (16/30) of people, it is closer to the third molar, in 33.3% (10/30) - between the second and third molar, in 6.7% (2/30) - between the first and second molar, and in 6.7% (2/30) - distal to the third molar.

Cytomorphometric examination in patients of both groups significantly differed from those in the control group (p<0.05). Cell differentiation index (CDI) in the area of the hard palate did not reliably differ from the indicators in the control group and the indicators in patients of I and II groups (p>0.05) (Table 1).

We studied oral mucosa blood flow in children with acquired deformity and the presence of buccal frenula. The findings of the study demonstrate significant differences in blood flow parameters between the patient and control group. A decrease in the amplitude of the rheographic curve was observed in all groups of patients. It was bicuspid, smoothed, with a sloping ascent, which indicates an increase in the time of venous outflow. The double hump of the rheographic curve is caused by the shift to the top of the dicrotic tooth. We did not always see the extra wave. In such cases, the differential rheogram was used to determine the highest point of the rheographic curve, which helped to assess the qualitative characteristics of the curve. VTI, PRI, VOI, EBFI were significantly differed from such indicators in the control group (p<0.05).

In patients of I group, the healing of the postoperative area was by secondary tension. On the 4th day, all patients of I group had pain and swelling of the oral mucosa. 12 patients were diagnosed with (80.0%) hyperemia and swelling of the oral mucosa of the vestibule of the mouth, which persisted until the 8th day. In the area of the marginal gums, the phenomenon of "creeping attachment" was observed. On the 10th day the formation of a pronounced capillary network appeared. There was an increase in the height of the marginal ridge of the gums up to 1.5 mm in 11 patients (73.3%), up to 0.5 mm in 1 person (6.7%). Its stabilization was diagnosed up to 3 months after the operation in 11 patients (73.3%). This indicates the elimination of the traumatic factor from the vestibule of the mouth and the normalization of blood supply in this area in these patients. The maximum number of healings by secondary tension occurred on (18.7+0.5) days. 1 month after surgery, 4 patients of II group (26.5%) had hypertrophy of scar tissue with signs of compaction, uneven expansion and elevation above the surrounding oral mucosa of the scar with impaired sensitivity of the oral mucosa. After 3 months, the oral mucosa was thinned, pale pink in color. 11 patients (73.3%) had a normotrophic scar, 3 (20.0%) had hypertrophic scars, and 1 (6.7%) had atrophic scars. Exacerbation of chronic catarrhal gingivitis was diagnosed in 9 people (60.0%) 6 months after surgery. The results of our study12 months after the mucogingival correction of the vestibule of the mouth showed that 3 people of I group (20%) had rough postoperative scars (more than 3 mm wide), and these patients were diagnosed with gingival recession of I class according to Miller in the area of one tooth. Normotrophic scars were formed in 10 patients (66.7%), and atrophic scars in 2 patients (13.3%).

11 patients (73.3%) of II group on the 4th day complained of pain in the area of the oral mucosa when touched and slight edema of the transitional fold. 3 patients (20.0%) complained of pain at the site of mucosal graft removal, 4 patients (26.6%) complained of paresthesia of the hard palate, which persisted 3 days after graft removal. In 14 people (93.4%), swelling and slight pain in the operated area persisted until the 5th day, which was eliminated by taking nonsteroidal anti-inflammatory drugs. In the area of marginal gums, the phenomenon of "creeping attachment" was observed. On the 8th day, the formation of a pronounced capillary network appeared with an increase in the height of the marginal ridge up to 1.5 mm in 14 patients (93.3 %). In all of these patients, stabilization of the marginal ridge occurred up to 3 months after the intervention, which indicates the elimination of the traumatic factor from the vestibule of the mouth and the normalization of blood supply in this area in these patients.

Within 8 days after surgical correction, the graft was pale pink in all patients. The color of the graft became bright pink in most of the operated patients of this group from the 8th day. In all patients of group II, graft engraftment was observed for (7.4±1.03) days (p<0.05). However, during this period, the thickness of the mucous membrane in the area of fixed grafts in all patients of group II did not correspond to the color and thickness of the surrounding oral mucosa. In patients of II group, healing of the surgical wound in the area of the hard palate was observed for (7.1±1.43) days. The oral mucosa in the area palatine was thinned, pale pink in color during this period. 3 months after surgical correction, the oral mucosa of the graft was bright pink with a pronounced vascular pattern, the thickness of the graft corresponded to the surrounding oral mucosa (Figure 3).

The symptoms of graft tension were diagnosed in 1 person (6.7%). 6 months after the transplant in all patients, the mucous membrane of the hard palate did not differ from the surrounding tissues. In all patients, the thickness, color, and structure of the oral mucosa in the area where the graft was taken did not differ in color from the surrounding tissues. The oral mucosa was bright pink with a pronounced vascular pattern. The symptoms of mucosal tension in the area of graft fixation was diagnosed

Figure 3. *Patient K., 16 years old. Diagnosis: acquired deformity of the lower jaw, high fixation of the buccal frenula. Fixed palatal graft in the buccal area, 3 month after surgical correction.*

Table 2. *Comparative analysis of cell differentiation index in patients with acquired maxillomandibular anomalies and disorders of the architectonics of the vestibule of the mouth (buccal frenum) (M±m).*

Indexes	Patent's group	Follow-up period after treatment	
		14-th day	21-th day
CDI (vestibule of the mouth)	I, n=15	451.43±4.48	479.53±5.34*
	II, n=15	501.26±6.32	506.29±5.43
CDI (hard palatine)	II, n=15	482.35±5.86	514.94±5.27*
CDI (vestibule of the mouth) I-II		p<0.05	p<0.05

*Notes: * – indicates statistically significant differences between periods of examination (p<0.05).*

in 1 person (6.7%). 4 people (26.7%) were diagnosed with exacerbation of inflammatory changes in the periodontal tissues, manifested by halitosis, bleeding, swelling, itching in the gums. After 6 months, 14 people (93.3%) had normotrophic scars, 1 patient (6.7%) had atrophic scars. 3 people (20.0%) were diagnosed with exacerbation of chronic catarrhal gingivitis. 12 months after the mucogingival correction of buccal frenum, the results of our study showed that 1 person (6.7%) was diagnosed with gingival recession of Miller's I class in the area of one tooth. Normotrophic scars were formed in 13 patients (86.6%), atrophic scars - in 1 patient (6.7%), and hypertrophic scars - in 1 patient (6.7%).

During the comparative characterization of the cytomorphometric study results, a significant difference in the CDI was observed between I and II groups at 14 and 21 days (p<0.05) (Table 2). The conducted studies testify to the advantages of using operations with primary tension, which is confirmed by cytomorphometric indicators and clinical characteristics of the operated area.

The patients of both groups were diagnosed with improvement of local blood circulation in the operated area within 12 months according to the qualitative and quantitative characteristics of the rheograms after corrective operations in the area of the vestibule of the mouth. However, the indicators of rheograms in I group of patients differed significantly from the results in the comparison group (p<0.05). There was a significant difference in the VTI, VOI, PRI, EBFI, RI venous outflow index, comprehensive blood flow index, and rheographic index in patients of I and II groups 6 months after treatment (p<0.05). The normalization of blood supply in the vestibule of the mouth in patients of II group was observed according to quantitative and qualitative indicators not only in the early, but also in the long term after treatment. It indicates a steady improvement of regional blood circulation.

Discussion.

A clinical examination of patients with maxillomandibular anomalies shows that all patients have disorders of the architectonics of the vestibule of the mouth. The results of our study correlate with the indicators of other authors [4,17,18]. We associate this situation with the lack of awareness of our patients' parents to timely correct ankyloglossia (in early childhood), labial frenulums (in the period before the eruption of permanent incisors at 6 years), correction of shallow mouth and buccal frenulums (after 12 years). We assume that this is related to the psycho-emotional state of parents and children who live in war conditions and do not consider these interventions to be urgently necessary for their children [19]. Scientists emphasize that buccal frenul cauase a number of accompanying pathologies [4,18]. That is why surgical correction of disorders of the architectonics of the vestibule of the mouth is a necessary stage of complex treatment. We believe that this is dangerous for patients with maxillomandibular anomalies due to the change in the position of a certain group of teeth and the recession of the gums in the projection of the frenum or the shallow vestibule of the mouth. We consider it more expedient to use operations with primary epithelization of the wound in the buccal area using palatal grafts due to their closeness in structure to the oral mucosa of the periodontal tissues [1,20]. During the comparative characterization of the cytomorphometric study results, a significant difference in the CDI was observed between I and II groups at 14 and 21 days (p<0.05). The conducted studies testify to the advantages of using preparations based on HA in the postoperative period, which is confirmed by cytomorphometric indicators and clinical characteristics of the operated area. HA in surgical practice is often the option of choice among medical agents, because it can be used in different age groups of patients. Gengigel has a pronounced wound-healing effect on the mucous membrane of the oral cavity and can be used in children's practice [7,8]. That is why, based on our results and indicators of other studies, we recommend the use of HA-based drugs in the postoperative period for the purpose of forming normotrophic scars on the oral mucosa of the oral cavity, which is important for patients with architectural disorders of the vestibule of the mouth. The results of our rheographic study indicate that the blood supply in the buccal region after surgical correction is normalized. Results are confirmed by indicators obtained by other scientists. They emphasize that active stages of orthodontic treatment and implantation are possible only if the blood supply is normalized [21,22].

Conclusion.

1. Surgical correction of disorders of the architectonics of the vestibule of the mouth is an important and necessary stage of complex treatment of patients with acquired maxillomandibular

anomalies. Buccal frenula plastic with use of palatal grafts is a prevention of abnormal position of premolars and gum recession in the area of canines and premolars. It is important for preventive dentistry.

2. Cephalometric analysis of the patient's palate due planning to take a mucosal graft helps to prevent complications during the operation.

3. The elimination of the traumatic factor in the area of the vestibule of the mouth ensures the normalization of blood supply according to rheographic characteristics, prevents the formation of recession after the end of active complex treatment of patients with acquired maxillomandibular anomalies against the background of the vestibule of the mouth.

4. The use of drugs based on hyaluronic acid in the postoperative period stimulates reparative processes in the operated area and contributes to the normalization of cytomorphometric indicators and the formation of a normotrophic scar in the operated area.

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