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N.P. Makhlynets, Z.R. Ozhogan, V.M. Soldatyuk, M.V. Pyuryk
Ivano-Frankivsk National Medical University, Ivano-Frankivsk

IMPROVING THE QUALITY OF DIAGNOSIS WITH MAXILLOMANDIBULAR ANOMALIES IN THE BACKGROUND OF CHRONIC HABITS

e-mail: makhlynets11@yahoo.com

Improving the effectiveness of the diagnosis of maxillomandibular anomalies among patients with pathological occlusion, and existing oral habits is relevant due to the spread of social stress among young people and the search for its compensation through the development of bad habits. We conducted clinical and radiological methods of examination of 60 patients aged 15–17 with acquired maxillomandibular anomalies, deformities, and 15 people in the comparison group. We studied the data of computer tomograms, performed stereotopometric analysis (three-dimensional cephalometry), determination of the thickness of the masticatory muscles in symmetrical areas of the face. Patients underwent a secret questionnaire to identify stressors that affected the body, studied the relationship between the presence of stress and the appearance of changes in cephalometric parameters. Clinical studies and survey results have shown that 95 % of patients surveyed have oral habits that are associated with chronic social stress. The results of examination of cephalometric analysis and photoprotocol confirm the expressed disproportions of one of the jaws, where there is an oral habit; confirm the presence of acquired rather than congenital deformity of the facial skeleton, which is associated with changes in the thickness of the masticatory muscles on the side of the deformation.

Key words: stress, sleeping habits, tongue habits**,** cephalometry, face, orthodontic, deformities.

Н.П. Махлинець, З.Р. Ожоган, В.М. Солдатюк, М.В. Пюрик

ПІДВИЩЕННЯ ЯКОСТІ ДІАГНОСТИКИ ПАЦІЄНТІВ ІЗ ЗУБОЩЕЛЕПНИМИ АНОМАЛІЯМИ НА ФОНІ ХРОНІЧНИХ ЗВИЧОК

Підвищення ефективності діагностики зубощелепних аномалій у пацієнтів із патологічним прикусом, наявними шкідливими звичками є актуальним через поширення серед молодих осіб соціального стресу та пошуки його компенсації через розвиток шкідливих звичок. Нами проведені клінічні, рентгенологічні методи обстеження 60 пацієнтів із набутими зубощелепними аномаліями, деформаціями віком 15–17 років, та 15 осіб групи порівняння. Вивчали дані комп'ютерних томограм, проводили стереотопометричний аналіз (тривимірна цефалометрія), визначення товщини жувальних м'язів в симетричних ділянках лиця. Хворим проводили таємне анкетування з метою виявлення стресових чинників, які впливають на організм, вивчали залежність між наявністю стресового фактора та появою змін цефалометричних показників. Клінічні дослідження, результати анкетування показали, що у 95 % обстежених пацієнтів наявні шкідливі звички, які пов'язують з наявністю хронічного соціального стресу. Результати обстеження, цефалометричного аналізу та фотопротоколу підтверджують виражені диспропорції із однієї щелеп, де наявна шкідлива звичка; підтверджують наявність набутої, а не вродженої деформації лицевого скелету, яка поєднана із зміною товщини жувальних м'язів зі сторони деформації.

Ключові слова: стрес, шкідливі звички під час спання, шкідливі звички язика**,** цефалометрія, обличчя, ортодонтія, деформації.

The study is a fragment of the research project "Clinical and experimental justification of diagnosis and orthopedic treatment of patients with diseases of the maxillofacial region", state registration no. 0122U200053

A number of scientific studies have shown that modern children are in a state of constant social stress. In recent years, it is studied in the context of complex systematic relationships and it is believed that stress is a frequent component in the development of pathological conditions [3, 6, 7]. Persons who are in stressful conditions for a long time (distance learning in the event of a pandemic and martial law in Ukraine, isolation in their own home, infrequent meetings with friends, information pressure) or experiencing acute stress (illness, death, life in an emergency) tend the body to develop oral habits [5, 13]. Recent years have negatively affected the state of the child's body: first it was quarantine due to covid-19, and now the state of war in the country. Such life is filled with a large number of acute and chronic stressors, which affect the quality of life of patients [3, 6]. Doctors are increasingly monitoring emotional instability due to long life in chronic stress. Studies show that to reduce the impact of stress, children use oral habits: in the same position resting his head on his hands, causing chronic injury in this area, sitting in front of a monitor with his mouth open, despite a positive breath test (presence of nasal breathing), sucking fingers, biting nails, pencils or pens. It is believed that bad habits are an element of adaptation to existing chronic stress [7, 8]. However, parents and children often neglect the impact of oral habits on the appearance of maxillomandibular anomalies and acquired deformities in the face.

The purpose of the study was to increase the effectiveness of the diagnosis of maxillomandibular anomalies among patients with pathological occlusion and existing oral habits, to study the relationship between oral habits and acquired deformities of the maxillofacial area.

Materials and methods. We performed clinical, radiological methods of examination of 60 patients aged 15–17 with acquired dental anomalies and deformities and 15 people in the comparison group. We used clinical methods of examination to confirm the existing oral habit was conducted a photoprotocol.

The patient was photographed face to face, in profile with closed lips and above, to visualize the face from top to bottom (from the frontal area to the chin); as well as with closed dentitions in the front and both side projections with superimposed rotor dilator. Before the study, anthropometric points were marked on the patient's face. Photographs of the patient were taken on a digital camera with available macro photography at a distance of 1.5 m. The patient sits straight and looks at the imaginary horizon line running parallel to the floor surface. To measure the patient's face it was increased to the size of the monitor screen. Measurements were performed using AutoCAD 2007.

Muscle hypertonia musculus oblicularis oris was determined. The presence of such pathology indicates problems with swallowing (excessive muscle tension), speech and rest. When the increased tone of the circular muscle of the mouth was detected, the process of swallowing 48-th movement was recorded in videos, followed by processing of the results.

The breath test was performed during an external oral examination and consisted of detecting nasal breathing in patients. The doctor closed one nostril with his finger and put a paper napkin on the other nostril, asking the patient to inhale and exhale. The movement of the napkin in two directions (inward and outward) indicated the presence of nasal breathing.

We studied and analyzed the data of computed tomograms of 60 patients with acquired maxillomandibular anomalies, deformities and 15 tomograms of persons in the comparison 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 35. Kanyura O. Poshyrenist ta struktyra zuboschelepnykh anomaliy u ditey (za materialamy analizu zvernen za ortodontuchnoyu dopomogoyu). Problemy viyskovoyi okhorony zdorovya. 2014; 1: 510–515. [in Ukrainian]

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 examination method 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. We used modified method of cephalometric and stereotopometric analysis [12].

Results of the study and their discussion. The results of a secret survey showed that 95 % of the surveyed patients (57 people) have oral habits (supporting the head with hands – 49 people, sitting in front of a monitor with open mouth – 5 patients, keeping fingers in the mouth, pencils – 3 people). Patients attribute the progression of the habit to constant living in quarantine, martial law and online learning. We concluded that the presence of chronic social stress stimulates the development of oral habits, and their use causes the patient a sense of relief and calm.

The results of the photoprotocol in most patients indicated the presence of facial asymmetry in the formation of unilateral or bilateral cross-bite, shortening of the mandible with the formation of medial occlusion. In the comparison group, the face of all patients was symmetrical and proportional in all respects. 25 % (15/60) of patients were diagnosed with muscular hypertonia musculus oblicularis oris, while in the comparison group only one person ($p<0.01$). In the presence of hypertension in patients, the dentition narrows and shortens. This pathological condition is one of the etiological factors in the development of maxillomandibular anomalies, in particular, the accumulation of teeth in the frontal jaw. With hypotonia musculus oblicularis oris, the dentition lengthens and there is a tendency to develop distal occlusion. Myogymnastics and electromyostimulation are recommended to correct the pathological condition in this category of patients. At the time of the breath test, only 65 % (39/60) had a positive test on both sides, indicating nasal breathing and proper sinus formation. Other patients had nasal breathing disorders and were referred to an ENT. The results of the clinical study were confirmed by cephalometric analysis, which indicated impaired formation of the maxillary sinuses (unilateral or / and bilateral) in those patients who do not have nasal breathing due to the anatomical structure of the nasal passages or inflammation in the sinus. Therefore, we recommend that you include these indicators as mandatory – in the diagnosis of maxillomandibular pathology.

According to the data of the three-dimensional cephalometric examination presented in table 1 in patients aged 15–17 with acquired anomalies of jaw development revealed disproportions distinctive of the gnathic part of the facial skeleton. Comparative analysis of maxillofacial parameters presented in patients with acquired upper micrognathia showed the presence of shortening to 42.03±0.873 mm of the length of the base of the upper jaw (ns) or VPOK – (pns), which was reflected in the presence of mesial occlusion and typical of this type violation of the profile of the face, namely the depression of the upper lip and its base. The

above changes were also confirmed by reducing the facial angle F to 79.67±1.124. Shortening of the base of the upper jaw and reduction of the facial angle was combined with a change in the ratio of the chin bones and alveolar process of the upper jaw, which was reflected in the increase to 119.21±1.033 zygo-maxillary angle. This type of disproportion in patients with acquired upper micrognathia was reflected in the change of facial profile: smoothness and flattening of the relief of the chin bones and occipital areas. Clinical examinations were confirmed by the results of cephalometric analysis. These patients had bad habits (sucking the tongue and/or fingers, sleeping with the mouth open), hypotonia of the circular muscles of the mouth, lack of new breathing. Patients with genetic factors in the development of medial occlusion were not included in the study.

Table 1

Parameters of linear cephalometric indicators in members of controlled group and patients with acquired lower and upper micrognathia

Measured Index	Pathology under study		
	Upper micrognathia	Lower micrognathia	Norm
N – Se	66.19±1.409	66.84±0.752	66.94±0.789
	p>0.05	p>0.05	
Mart.63 Biom G2	0.93±0.952	33.18±0.979	33.49±0.931
	p>0.05	P>0.05	
The distance between greater palatine foramen	32.63±0.644	31.39±0.672	31.51±0.606
	p>0.05	p>0.05	
(ns) or VPOK – (pns)	42.03±0.873	46.85±0.879	47.45±0.776
	p<0.001	p>0.05	
The position of the upper jaw in the skull from the point “0”.	Y=42.16±1.379	Y=42.21±0.463	Y=42.29±0.419
	p>0.05	p>0.05	
The position of the upper jaw in the skull from the point “S”	Y=51.19±1.809	Y=53.25±1.21	Y=53.29±1.068
	p>0.05	p>0.05	
The position of the point “0”	Y=9.20±0.738	Y=12.13±0.641	Y=11.81±0.676
	p<0.05	p>0.05	

Notes: p – significance in compared groups during follow-up period

Table 2

Parameters of angular cephalometric indices in members of controled group and patients with acquired lower and upper micrognathia

Measured Index	Pathology under study		
	Acquired upper micrognathia	Acquired lower micrognathia	Norm
Angle F or front angle	79.67±1.124	82.45±0.538	82.71±0.569
	p<0.01	p>0.05	
The position of the plane of the Frankfurt horizontal	Within the axial base plane	Within the axial base plane	Within the axial base plane
Position of the plane of the base of the upper jaw	Within the axial base plane	5.17±0.435	Within the axial base plane
Position of the mandibular plane in the transverse plane	Within the axial base plane	7.74±1.356	Within the axial base plane

Notes: p – significance in compared groups during follow-up period

Comparative analysis of the parameters of the facial skeleton in patients with acquired lower micrognathia showed the presence of malformations of its lower third (tabl. 2). The expressed disproportions, as a rule, were noted in disturbance of development of both one, and symmetrically of two parties of a lower jaw. In the first case, a significant underdevelopment of the mandibular branch was combined with the existing bone ankylosis of the temporomandibular joint. In the second case, a significant symmetrical shortening of the mandibular branches was usually combined with intact temporomandibular joints. In both nosological units there was a shortening to 49.89±0.91 mm in the height of the mandibular branch. The latter type of pathology was usually combined with a reduction to 66.21±1.019 mm of the projection length parameter from the corners, and reducing to 108.19±2.454 mm of the total mandibular length. The above parameters were confirmed by distal occlusion and their characteristic facial profile, namely the beveled type of facial configuration silt in which the lower third of the face is shortened, the chin is shifted to the buttocks – “bird's face type”, the lower lip is turned out, on which in most cases the upper incisors are located, the labial fossa is extremely well expressed, the lips do not close. The results of cephalometric analysis were confirmed by a photoprotocol, which on all indicators traced the shortening of the branches of the mandible. Such patients reported having an oral habit of leaning on their chin with their hands or sucking/biting their lower lip.

One-sided disproportions are characterized by a violation of symmetry, which was confirmed by a shift of the sagittal plane to 3.71±0.686 mm compared with the norm (fig. 1, 2). With such anomalies it is indeed important to assess the masticatory muscles and symmetrical areas of the face. There is a decrease

in the thickness of the masticatory muscle, lateral and medial pterygoid muscles on the side where the patient has a habit of supporting the head. The results of cephalometric analysis are confirmed by indicators of the photoprotocol.

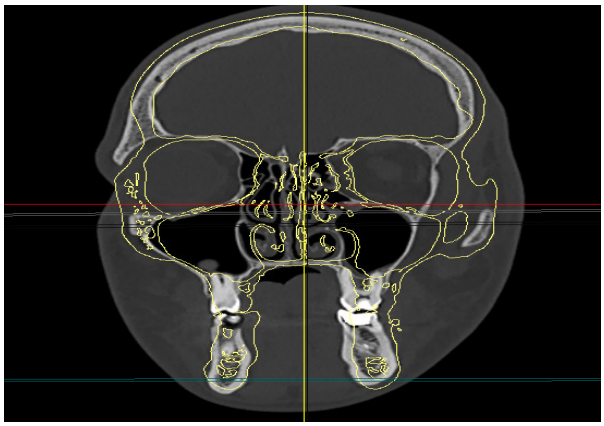

Fig. 1. Cephalometric examination. Patient, 17 years old, bad habit: leaning on his arm. Rotation of the middle zone of the facial skeleton in the transverse direction, as evidenced by the rotation of the Frankfurt horizontal.

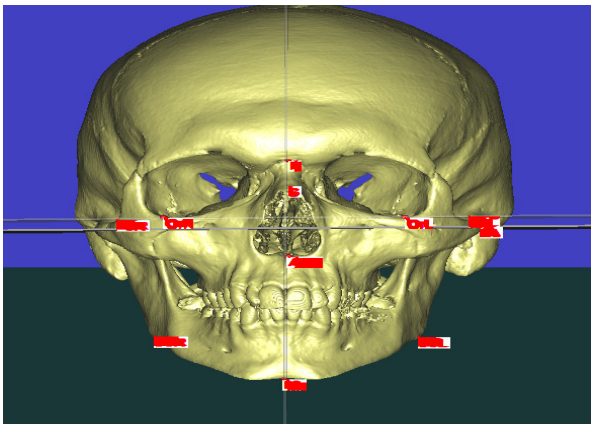

Fig. 2. SSD computer reconstruction of the skull (Patient, 17 years old, bad habit: leaning on the left arm).

Systematic use of oral habits during emotional struggle causes changes in the facial skeleton and maxillofacial area. Prolonged sucking of the tongue or fingers puts pressure on the palate and dentition, and as a result causes deformity, as evidenced by clinical and radiological studies. Such habits lead to the formation of an open bite, constant injury to the frontal group of teeth and periodontal tissues. The results of our clinical studies are similar to those obtained by other authors [4, 5, 8]. We support other scientists in claiming that the presence of foreign bodies in the oral cavity causes constant infection of the oral cavity, as evidenced by the increased percentage of infectious diseases of the oral cavity in people with open bites, and prolonged systematic placement of the hand under the cheek or other part of the facial skull causes its asymmetric development, frequent unilateral narrowing of the jaws or their shift in one direction or another [8, 9, 10]. In the presence of such an oral habit, cross-bite or deep bite develops. As a result, underdevelopment of the jaw bones and muscular apparatus of the face, narrowing and deformation of the dental arches, as evidenced by cephalometric analysis, which confirms the presence of imbalances in the maxillofacial area and violation of the thickness of symmetrical facial muscles in the presence of oral habits. Another common oral habit is sitting in front of the monitor with an open-mouth with nasal breathing (positive breath test). Under this condition, a child is more likely to develop an open bite. Parents often neglect such oral habits. However, it should be remembered that all habits have hidden dangers, in particular, those that cause acquired deformities of the jaw bones and facial skull.

Scientists have proven that 3D cephalometric analysis helps the orthodontist to properly examine the patient to make a correct plan of comprehensive treatment and has a great advantage over all 2D diagnostic methods [1, 2, 11]. The results of our research showed the need for such an analysis, because thanks to it we can study the condition of the bones of the facial skull, temporomandibular joints, muscular system, determine congenital or acquired deformity during the study of skull bones, prove the relationship of oral habits with the existing acquired deformation of the maxillofacial area.

Conclusion

1. Our research has shown that bad habits progress in the presence of chronic social stress, which according to the survey results in 95 % of patients. Distance learning is the most important stress factor in most patients surveyed.

2. 3D cephalometric analysis should be included in the mandatory methods for the diagnosis of acquired deformities of the maxillofacial area.

3. Clinical and radiological research methods help the orthodontist to identify a whole range of interrelated etiological factors in the development of dental anomalies and acquired deformities of the maxillofacial area and make a correct plan of complex treatment.

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O.Sh. Mehraliev
Research Center of Azerbaijan Medical University, Baku, Azerbaijan

QUALITY OF LIFE ASSESSMENT IN PATIENTS WITH BREAST CANCER AND ITS COMPLICATIONS

e-mail: medstatnauka@mail.ru

To evaluate the effectiveness of the use of quality of life questionnaires in diagnosing and predicting the course of breast cancer, we used questionnaire data using the official versions of the EORTC EQ-5D-5L, QLQ-C30115 questionnaires of patients with breast cancer and metastatic lesions of the lymph nodes, divided into two groups – the main one, 45 patients with metastatic breast cancer with lymph node involvement and the control group, 70 patients without lymph node lesions. When evaluating the results of assessing the patients themselves of their own health status on a visual analogue scale in the main group, the results were significantly higher (81.8±0.27 points and 64.5±0.36 points, respectively, in the control and main groups, p=0.001). The values of the domains “Role functioning” and “Physical functioning”, reflecting the ability to engage in daily duties, results also turned out to be much higher in the control group than in the main group (91.9±1.16 and 77.4±1.92, p= 0.001, 87.9±0.65 and 74.5±1.13, p=0.001, respectively). Thus, studies have shown a pronounced negative effect of lymph node metastases on the psycho-emotional and physical condition of the examined patients.

Keywords: cancer, diagnosis, lymph node involvement, EORTC questionnaire EQ-5D-5L, QLQ-C30

О.Ш. Мехралієв

ОЦІНКА ЯКОСТІ ЖИТТЯ У ПАЦІЄНТОК ІЗ РАКОМ МОЛОЧНОЇ ЗАЛОЗИ ТА ЙОГО УСКЛАДНЕННЯМИ

Для оцінки ефективності застосування опитувальників якості життя в діагностиці та прогнозуванні перебігу раку молочної залози були використані дані анкетування за допомогою офіційних версій опитувальників EORTC EQ-5D-5L, QLQ-C30115 пацієнток, хворих на рак молочної залози та метастатичними ураженнями лімфовузлів, поділених на дві групи. основну, 45 хворих на метастатичний рак молочної залози з ураженням лімфовузлів та контрольну, 70 пацієнток без уражень лімфатичних вузлів. При оцінці результатів з оцінки самих пацієнтів власного стану здоров'я за візуально-аналоговою шкалою в основній групі результати виявились достовірно вищими (81,8±0,27 бала та 64,5±0,36 бала, відповідно в контрольній та основній групах, p=0,001). Значення доменів «Рольове функціонування» та «Фізичне функціонування», що відображають здатність займатися повсякденними обов'язками, результати також виявилися набагато вищими в контрольній групі, ніж в основній групі (91,9±1,16 та 77,4±1,92, p=0,001;87,9±0,65 і 74,5±1,13, p=0,001, відповідно). Таким чином, дослідження показали виражений негативний вплив ураження метастазами лімфатичних вузлів на психоемоційний та фізичний стан пацієнтів, що обстежуються.

Ключові слова: рак, діагностика, ураження лімфовузлів, опитувальник EORTC EQ-5D-5L, QLQ-C30

Malignant tumours, against the background of a multiple increases in morbidity and almost all localizations, occupy the second place in the structure of mortality in most economically developed countries of the world. The last decades have been marked by significant changes that have undergone existing approaches to treating tumours, including radiation and drug [11]. At the same time, it is important to note the low selectivity of the action of radiation therapy and cytostatic drugs, which are characterized