American Journal of Medicine and Medical Sciences 2024, 14(2): 356-359
DOI: 10.5923/j.ajmms.20241402.42

The Results of A Comprehensive Examination of Patients with Deformities of the Upper and Lower Jaw of Different Types of Face

Qurbonov Farxod Raximovich

Center for the Development of Professional Qualifications of Medical Workers of the Republic of Uzbekistan, Tashkent, Uzbekistan

Abstract Large-scale scientific research is being conducted all over the world to identify and determine the prospects for early diagnosis of deformations of the jaw system during orthodontic treatment, as well as to improve the efficiency of diagnosis, treatment and preventive measures. Scientific research is being conducted to develop the most approximate approach to the early diagnosis and treatment of jaw deformities, obtaining a stable aesthetic result in the treatment of orthodontic patients and reducing the number of relapses.... However, existing diagnostic methods are insufficient, which creates an urgent need for additional research methods. In this regard, it is important to develop diagnostic and therapeutic measures aimed at improving the quality of orthognathic surgical care for patients.

Keywords Dentistry, Orthodontics, Jaws deformities, Osteotomy

1. Introduction

To date, early diagnosis and effective treatment of congenital and acquired jaw defects is one of the urgent problems in the field of orthognathic surgery. The elimination of functional and aesthetic deficiencies caused by a violation of the shape of the jaws has led to effective treatment of psychological and orthodontic changes that occur in patients during their lifetime, as well as to the restoration of social dental health and improvement of quality of life. Scientific work in this field has found practical application. However, in recent years, according to the scientific literature, 22-76% of patients have various complications of orthognathic operations. According to experts, "... deformities of the jaws account for 60-65% of the prevalence of dental diseases in orthodontic dentistry. According to some scientists, these complications are observed in the preoperative period, during surgery and after it at different times and negatively affect the results of treatment. In order to improve the mental and aesthetic condition of the patient and the quality of life in the preoperative period of jaw deformities, one of the daily tasks of specialists in this field is to recommend orthognathic operations and their application in orthodontic practice.

Large-scale scientific research is being conducted all over the world in order to identify and determine the prospects for early diagnosis of deformities of the jaw system in orthodontic treatment, as well as to improve the effectiveness of diagnosis, treatment and preventive measures. Scientific research is underway to develop the most approximate approach to the early diagnosis and treatment of jaw deformities, to obtain a stable aesthetic result in the treatment of orthodontic patients and to reduce the number of relapses. However, the existing diagnostic methods are insufficient, which creates an urgent need for additional research methods. In this regard, it is important to develop diagnostic and therapeutic measures aimed at improving the quality of orthognathic surgical care for patients.

The aim of the study is to develop an algorithm for preparing patients with jaw deformities for orthognathic surgery in an outpatient setting with the participation of a dental surgeon and specialists.

Research objectives:

to study the mental health and aesthetic sensitivity of patients with jaw deformities;

to study the prevalence of foci of chronic infection and pathological changes of various genesis in patients with jaw deformities in the oral cavity, dentists, and specialists;

to study the prevalence of pathological changes in the areas adjacent to the oral cavity in patients with jaw deformity with the participation of a dental surgeon and specialists;

development of an algorithm for the treatment of pathological changes in the oral cavity and adjacent anatomical areas in patients with jaw deformity with the participation of a dental surgeon and specialists;

improvement of compactosteotomy and reconstructive operations of the small oral cavity for optimal orthodontic

Received: Jan. 15, 2024; Accepted: Feb. 6, 2024; Published: Feb. 12, 2024
Published online at http://journal.sapub.org/ajmms

treatment in patients with jaw deformities

The object of the study was 64 patients aged 16 to 58 years with various deformities of the jaws, who were treated at the CCMRM and the Children's Dental Clinic in Urgench in 2008-2021.

The subject of the study was materials on the study of the anthropometric condition of the studied jaws suffering from various deformities of the jaws.

2. Research Methods

The study used clinical, clinico-functional, laboratory, instrumental, bacteriological and statistical research methods.

In complex methods of examination of patients with different types of face suffering from deformities of the upper and lower jaw, when viewed from the side, the face has a convex shape due to the indentation of the middle part and the extension of the lower part, as well as anthropometric measurements were - 190°-195°. In addition, according to the results of photometric measurements, the intersection of the Dreyfus line with the Frankfurt horizon, the Schwarz line and the line touching the lips were revealed, and the T-angle is less than 10o, there are cases of face tilting backwards, that is, curvature.

The revealed changes confirm the location of the upper jaw behind the base of the brain or its size is reduced and the lower jaw is enlarged, which is confirmed by the above results of the study. Contour measurements of the respiratory part of the nasal cavity on the zonagram of the middle part of the face were 35-40 mm2 in 19 patients with difficulty breathing through the nose and 40-48 mm2 in 19 patients.

It was found that in 20 patients, the ratio of dentition in the oral cavity was progenic, and the sagittal gap ranged from 5 mm to 10 mm. In 19 patients with difficulty breathing through the nose, the teeth were progenic, in 13 of them the vertical disproportion was 2-5 mm. When examining the dental arches, 37 (94.87%) of 57 patients had chronic periodontitis with anatomical and clinical damage to the crown below the neck and inability to recover.

In addition, 22 (56.41%) patients, 28 patients with chronic periodontitis during clinical X–ray examination revealed cystagranulomas and cysts at the root end of the teeth, among them 2 cases of maxillary cavity overgrowth and 1 case of iatrogenic sinusitis caused by filling material. One of these patients was diagnosed with polycystic mandible and the location of the teeth formed in them. According to the results of the examination, 8 (20.51%) of the examined patients were diagnosed with periodontitis of the teeth of the anterior segment of the lower jaw of 2-3-4 degrees.

In 19 (48.71%) of the total number of patients examined by ENT specialists, curvature of the nasal septum, narrowing of the nasal cavity, hyperplasia of the lower shells and, as a result, difficulty breathing through the nose were found, 12 (30.76%) had chronic tonsillitis (2 had hypertrophied form) and 7 (17.94%) people - chronic sinusitis and mucous cysts in the sinus cavity.

The process of preoperative preparation of patients with deformities in the jaw area is covered by various specialists from their point of view. When analyzing our clinical experience, it was found that in most cases, patients admitted to the hospital without rehabilitation of foci of chronic infection in the oral cavity and adjacent anatomical areas can lead to postoperative inflammatory complications. These complications indicate the lack of close interaction between dental surgeons and ENT specialists in the preoperative period. Orthodontists consider the main task in this process to be the complete treatment of dentitions using various devices or bringing them into a constructive bite position. The lack of influence of orthodontic devices on deformities of the jaw skeleton and non-impaired cooperation with maxillofacial surgeons lead to the fact that the treatment process is delayed for years and patients do not complete the treatment.

Scientists have emphasized that the removal of retented or dystopian teeth, the removal of soft tissue anomalies, and compactosteotomy operations in collaboration with dental surgeons lead to the creation of optimal conditions for the impact of orthodontic devices. As a result of tooth extraction by dental surgeons without the cooperation of an orthodontist, secondary defects and convergence or divergence of adjacent teeth, i.e. secondary deformities, are formed. The displacement of antagonists in the vertical direction creates the Popov-Hodon phenomenon.

In such cases, the participation of an orthopedic dentist is mandatory. However, the participation of an orthopedic dentist in the process of orthognathic treatment consists only in the manufacture of the last prosthesis or fixing device after surgery. Failure to eliminate secondary adentia and deformities of the dentition before surgery does not lead to optimal bite formation after surgery and can cause relapses. Based on the above data and the diagnostic sequence of pathological changes in the facial area created by us together with specialists, we have created an algorithm for preparing patients with deformities of the skeleton of the facial area for surgery in outpatient conditions.

When examining patients according to the proposed algorithm, after contacting the clinic, they were diagnosed with a concave type of face, lower macrognathia and upper micrognathia, grade 3 according to Engel.

In addition, 25 patients have bimaxillary syndrome; among them 5 - osteotomy of the upper jaw with osteoectomy according to LE-FOR-1, 5 - fragmentary osteotomy of the frontal part of the upper jaw, cutting osteotomy in the branches and corners of the lower jaw, 3 - fragmentary osteotomy of the upper jaw in combination with genioplasty of the lower jaw. Also, 11 people underwent fragmentary osteotomy of the distal maxilla with osteoectomy, of which 5 had these operations performed in combination with genioplasty. In 1 patient, the treatment was completed at the preoperative stage.

No recurrence of inflammation and deformities of the jaws was observed during the preoperative and final comprehensive examination. This indicates the optimality of the algorithm for preparing for orthognathic operations in outpatient settings, which requires cooperation and step-by-step participation of specialists. Thus, the results of therapeutic and preventive measures for both groups of patients with concave and convex faces, based on the algorithm, formed the basis of the fourth conclusion, which will be presented for defense: the algorithm of outpatient preparation of patients for orthognathic operations, providing for the cooperation of specialists, allows to identify chronic foci of inflammation in the maxillofacial region, pathological changes in dental rows, oral cavity and adjacent areas.eliminates and prevents recent complications after surgery and significantly reduces their number.

3. Conclusions

1. Most patients with jaw deformities from a mental position are motivated by contacting an orthognathic surgeon due to an aesthetic deficiency of the face.
2. Of these deformations, the upper micrognathiais observed separately in 41% of cases and together with the lower micrognathia in 59% of cases. Upper macrognathiawas observed separately in 24% of cases and in combination with lower micrognathia in 76% of cases.
3. In patients with concave and convex faces with deformities of the jaws, foci of chronic infection in the oral cavity and adjacent anatomical areas occur in 48.5% and 40% and 25% of cases, respectively, and in 66% of them various degrees of difficulty in nasal breathing were detected.
4. 84% of patients with jaw deformities have dystopia and retentive teeth, almost 88% have secondary adentia and deformities of the dentition, and 25% have shortening of the tongue, lip folds and other anomalies.
5. The process of preparing patients with jaw deformities for orthognathic surgery on an outpatient basis includes first the elimination of foci of chronic infection in the maxillofacial region, and then the elimination of primary and secondary pathological changes.
6. For patients with jaw deformities not affected by orthodontic devices, the improved method of compactosteotomy and small jaw surgery, on the recommendation of an orthodontist, reduces the preparation process for orthognathic surgery from six months to one year. Preoperative elimination of secondary adentia improves the adhesion of tubercles in the dentition, functional and aesthetic results are achieved.

REFERENCES

[1] Eshbadalov Kh.Yu., Kichkinakov Kh., Kurbonov F.R., Eshmurodov K. The use of Farglas and Bakstims in complex treatment for periostitis of the maxillofacial area // Bulletin of the Association of Doctors of Uzbekistan. -Tashkent. 2011- No. 2- P. 71-73. (14.00.00; No. 17).

[2] Kurbonov F.R., Eshbadalov Kh.Yu. Normurodov B.K., The use of supersorbicide in the complex treatment of boils and carboncules of the maxillofacial area // Bulletin of the Association of Doctors of Uzbekistan. - Tashkent. 2011- No. 3 - pp. 69-71. (14.00.00; No. 17).

[3] Eshbadalov Kh.Yu., Kichkinakov Kh., Eshmurodov K., Kurbonov F.R. The influence of the drug Farglas on the microflora of periostitis in the maxillofacial area // Bulletin of the Association of Doctors of Uzbekistan. - Tashkent. 2011 -№4- P. 60 -61. (14.00.00; No. 17).

[4] Kurbonov F.R., Abdukadirov A.A. Algorithm for outpatient preparation of patients for orthognathic operations with interdisciplinary participation // “Stomatologiya” scientific and practical journal. -Tashkent.2019. -No. 1 (74)-S. 14 – 18. (14.00.00; No. 12).

[5] Abdukadirov A.A., Kurbanov F.R., Kurbonov D.F. Morphofunctional and aesthetic changes in the midface in patients with jaw deformation and concave face type // New day in medicine. - 2021. -No. 5 - P. 243 -244. (14.00.00; No. 22).

[6] Kurbonov F.R., Abdukadirov A.A. Chronology of complications and postoperative rehabilitation of adult patients with jaw deformities // Iniernational Journal of Education, Social Science & Humanities. -2023. - Vol. -11. Issue-3. -P. -19-29. (IF- 6.786).

[7] Abdukadirov A.A., Kurbonov F.R., Abdukadyrov D.A., Mukhamedova F.Sh. Frequency and causes of complications of osteotomy of the branches of the lower jaw in patients with lower macrognathia and methods for their elimination // Scientific and practical journal “Actual problems of theory and practice”. -Russia. -2022. - No. 12 (2). -P.203 – 208.

[8] Kurbonov F.R., Abdukadirov A.A. Multifunctional condition of the nasal cavity and paranasal sinuses in patients with deformities of the midface // Innovations in dentistry. Kazakhstan. –Almaty. - 2013.-P. 65 -71.

[9] Abdukadirov A.A., Kurbonov F.R., Results of examination and treatment of adult patients with lower asymmetrical macrognathia // Materials of the international scientific and practical conference “Current issues and new technologies of maxillofacial surgery”. - Tashkent.-2020. pp. 4-5.

[10] Abdukadirov A.A., Kurbonov F.R. Error in the outpatient stage of preparing patients for orthognathic operations // Materials of the international scientific and practical conference “Current issues and new technologies of maxillofacial surgery”. -Tashkent. -2020. pp. 6-7.

[11] Abdukadirov A.A., Kurbonov F.R., Akhmedov M.Kh., Mukhitdinova D.R., Kurbonov D.F. Necrotic changes in the midface after suffering from Covid-19 // “Current problems of pharmacology and pharmacotherapy.” - Urganch. - 2021. P. 167 -168.

[12] Abdukadirov A.A., Kurbonov F.R., Gizatullina. Chronological

analysis of complications of vertical osteotomy of the branches of the lower jaw in patients with lower macrognathia and methods for their elimination // V International Congress of Dentists. - Tashkent. - 20223. - P. 46-48.

[13] Abdukadirov A.A., Kurbonov F.R. Outpatient preparation of adult patients with jaw deformities for orthognathic operations // “Dentistry dolzarb muammolari va yukori lab va tanglay kemtiklarni davolashning zamonaviy zhikhatlari” ilmiy amaliy anzhuman. - Jizzah. -2023. - B.29-30.

[14] Abdukadirov A.A., Kurbonov F.R. Zhag deformationlari boron patientlarni outpatient sharoitda orthogantic surgerylarga tayerlash usullari // Services tavsyanoma. Tashkent. -2023. - 26 b.

[15] Mukhamedova F.Sh., Abdikadirov A.A., Sayfutdinnov Z.A., Kurbanov F.R. Prevention and treatment of inflammatory complications after surgical interventions on the jaw bones using the antiseptic “ELUDRIL PLUS” // Methodological recommendations. -2023. -26 s.

[16] Abdukadirov A.A., Kurbonov F.R. Aesthetic and radiological changes in patients with upper micrognathia combined with lower macrognathia // Materials. XV International Scientific and Practical Conference “Ecology. Radiation. Health" dedicated to the 30th anniversary of its closure on August 28, 2021. G. Semey pp. 7-8.