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RETRO AND PROSPECTIVE ANALYSIS OF COMPLEX TREATMENT OF A PATIENT WITH A POLYOSTOTIC FORM OF OSTEOCLASTOMA OF THE MAXILLOFACIAL REGION: CLINICAL OBSERVATION

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РЕТРО- И ПРОСПЕКТИВНЫЙ АНАЛИЗ КОМПЛЕКСНОГО ЛЕЧЕНИЯ ПАЦИЕНТА С ПОЛИОССАЛЬНОЙ ФОРМОЙ ОСТЕОКЛАСТОМЫ ЧЕЛЮСТНО-ЛИЦЕВОЙ ОБЛАСТИ: КЛИНИЧЕСКОЕ НАБЛЮДЕНИЕ

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In global literature there is not sufficient information on the course of the polyostotic form of osteoclastoma and methods of its treatment. For this reason, the analysis of this clinical case may be interesting for oncologists, maxillofacial surgeons and dentists of various specialties, who can reveal both the onset and recurrence of the disease. A characteristic feature of the course of this disease is the relapse of neoplasms with localization of foci in various parts of the upper and lower jaw.

A clinical case of polyostotic form of jaw osteoclastoma and patient's management tactics from 2006 to 2024 are described in the article. The disease was first diagnosed in 2006, when a neoplasm was revealed in the

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right part of the lower jaw. The neoplasm was removed by resection and mandibular defect was replaced by a carbon implant with further prosthesis.

In 2011 a new neoplasm was detected on the left side in the frontal part of the upper jaw. At the same time a relapse of the disease was diagnosed with a new tumor focus in the lower jaw on the right. Surgical treatment was performed. Firstly, the neoplasm in the frontal area of the upper jaw was removed with replacement of the defect with a resection prosthesis. And secondly, a removal of the tumor on the lower jaw with resection of the chin within healthy tissues and replacement of the defect with an implant made of carbon-carbon material "Uglecon M" were performed.

In 2023 the patient was invited to the dental hospital of the Clinical Multidisciplinary Medical Center of E.A. Vagner Perm State Medical University for dispensary observation and evaluation of the results of the treatment.

The obtained results indicate the need for medical follow-up of patients after surgery for osteoblastoclastoma. The effectiveness of jaw implants made of carbon-carbon composite material "Uglecon M" was proved as well.

Keywords. Polyostotic form of osteoblastoclastoma, osteoblastoclastoma of the jaw bones, relapse, carbon implant, complex treatment.

В отечественной и зарубежной литературе недостаточно сведений о течении полиоссальной формы остеокластомы и методах лечения пациентов при ее выявлении. В связи с этим разбор данного клинического случая может представлять интерес для челюстно-лицевых хирургов, онкологов и для стоматологов разного профиля, которые могут выявить как дебют, так и рецидив заболевания. Особенностью течения полиоссальной формы остеокластомы является повторное появление новообразования после удаления с локализацией очагов в различных участках верхней и нижней челюсти.

Представлено описание клинического случая и тактика ведения пациентки с полиоссальной формой остеокластомы челюстей в период с 2006 по 2024 г. Заболевание у пациентки впервые диагностировано в 2006 г., когда было выявлено новообразование в области нижней челюсти справа. Лечение заключалось в удалении опухоли путем резекции нижней челюсти, замещении дефекта челюстным имплантатом из углерод-углеродного материала «Углекон-М» и последующего протезирования. В 2011 г. было обнаружено новообразование во фронтальном отделе верхней челюсти слева и диагностирован рецидив заболевания в виде нового очага опухоли в области подбородочного отдела нижней челюсти справа. Проведено оперативное лечение – удаление новообразования в области фронтального отдела верхней челюсти слева с замещением дефекта резекционным протезом и на нижней челюсти – удаление опухоли с резекцией подбородочного отдела в пределах здоровых тканей и замещением дефекта имплантатом из углерод-углеродного материала «Углекон-М».

В 2023 г. пациентка была вызвана в стоматологическую больницу Клинического многопрофильного медицинского центра Пермского государственного медицинского университета имени академика Е.А. Вагнера Минздрава России (далее – КСБ ПГМУ) для проведения диспансерного наблюдения и оценки результатов проведенного лечения.

Полученные результаты свидетельствуют о необходимости диспансерного наблюдения пациентов после оперативного вмешательства по поводу остеобластокластомы, а также об эффективности использования челюстных имплантатов из углерод-углеродного композиционного материала «Углекон-М».

Ключевые слова. Полиоссальная форма остеобластокластомы, остеобластокластома челюстных костей, рецидив, углеродный имплантат, комплексное лечение.

INTRODUCTION

Currently, benign tumors and tumor-like bone lesions account for 40–50 % of all cases of bone neoplasia. However, these figures may be reduced due to the difficul-

ties of differential diagnosis and the possible long-term asymptomatic course of the disease [1–7]. One example of such tumors is osteoblastoclastoma (osteoclastoma), localized in various parts of the skeleton, often in the jaw bones, especially in the

body of the lower jaw. The prevalence of this disease in women of reproductive age (18 to 35 years) is twice as high as in men.

There are cellular, cystic and lytic forms of osteoblastoclastoma, which differ in growth rates and the nature of bone tissue lysis. Resection of the affected bone areas with simultaneous reconstructive restoration of the integrity of the jaw is the optimal and most rational surgical method for treating this pathology [1; 2]. Malignant variants of osteoblastoclastoma are less common and are classified by origin and degree of lytic destructive activity [8–10].

The literature, both domestic and foreign, covers in detail aspects of surgical technique and tactics of managing patients with osteoblastoclastoma of the jaw bones [3]. However, there is very little information on the treatment of the polyostotic form of the disease. In this regard, the analysis of the presented clinical case is relevant.

The aim of the study is to analyze a clinical case of complex treatment of a patient with a polyostotic form of osteoclastoma of the jaw bones.

CLINICAL CASE

Patient M., 19 years old, came to the clinical dental hospital of Perm State Medical University in 2006 with complaints about the presence of a neoplasm in the area of the lower jaw on the right (Fig. 1, *a, b*), mobility of the lower teeth and paresthesia in the area of the lower lip on the right.

The diagnosis of osteoclastoma of the lower jaw on the right (ICD code – D 16.5) was verified by performing an incisional biopsy followed by pathohistological examination.

An individual comprehensive treatment plan was developed by an interdisciplinary team consisting of a maxillofacial surgeon, an orthopedic dentist and an anesthesiologist, and consisted of the following stages: planning the resection zone; conducting an anthropometric study to select an implant; preliminary orthopedic preparation for surgery; planning anesthesia; surgical treatment; delayed prosthetics; rehabilitation.

At the stage of choosing surgical treatment options, autoplasty, replacement of the postoperative defect with a reconstructive plate or an orthotopic implant made of carbon-carbon material "Uglekon-M" were considered. Taking into account the properties of implant systems made from the "Uglekon-M" material, in particular high biological inertness, dimensional stability over time, compliance of the structure and physical and mechanical characteristics with the native bone indicators, the possibility of restoring the shape of the face, and the absence of the need for additional surgical interventions, the choice was made in favor of this implant material.

At the first stage, preliminary orthopedic preparation was carried out, which consisted of the manufacture and fixation of a non-removable orthopedic structure to hold the fragments of the lower jaw. Then we proceeded to the next stage – the surgical treatment itself. Under endotracheal anesthesia, the tumor was removed with partial resection of the lower jaw and simultaneous replacement of the postoperative defect with an orthotopic carbon implant "Uglekon-M" (Fig. 2), wound suturing and drainage installation. Since the implant was individually



Fig. 1. The patient's appearance before complex treatment: a – full face, b – profile (2006)

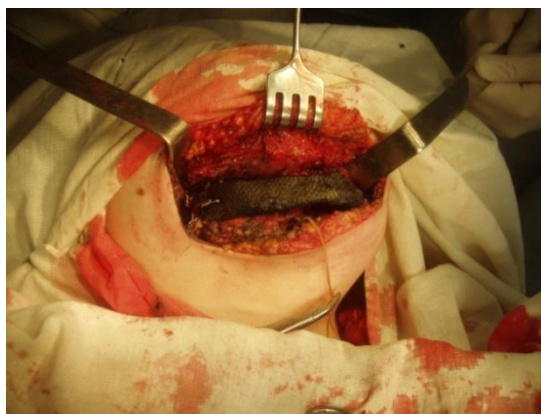


Fig. 2. Installation of an orthotopic implant made of Uglekon-M material

modeled according to the shape and dimensions of the suspected defect, a good aesthetic and functional result was ensured.

Based on the results of the pathohistological examination, the diagnosis was confirmed: osteoblastoclastoma of the lower jaw.

On the control orthopantomogram, an implant is fixed in the area of the defect of the lower jaw on the right, the fixation is satisfactory. The shadows of metal-density ligature sutures are visible in the area of the

right lower jaw branch and the chin section of the lower jaw (Fig. 3).

The patient was discharged in satisfactory condition on the 10th day after the operation.

Six months after the surgery, a removable dental prosthesis with a metal base and clasp fixation was made and fixed to the patient's lower jaw. The patient had no complaints and did not attend examinations as part of the dispensary observation due to her residence in a remote area of the Perm Territory.

In 2011, during pregnancy, the patient noticed the appearance of a neoplasm and its growth in the frontal region of the upper jaw on the left. In the postpartum period he contacted the Clinical Hospital of Perm State Medical University.

A CT scan of the upper jaw was performed. In the area of the frontal part of the upper jaw on the left, a neoplasm of a non-uniform structure, cellular in shape in the projection of teeth 1.3–1.1, with a cuff-shaped thickening of the alveolar part was found (Fig. 4).

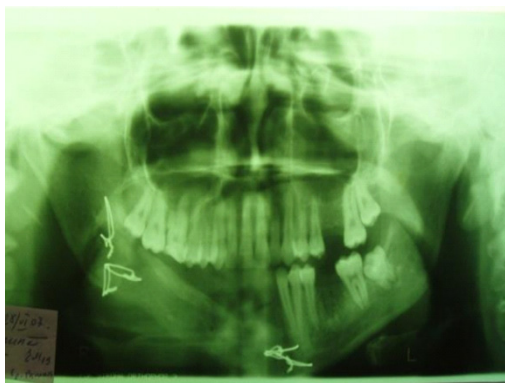


Fig. 3. Orthopantomogram, condition six months after surgery (removal of osteoclastoma of the lower jaw in the body area on the right with simultaneous replacement of the defect with an orthotopic carbon implant "Uglekon-M")

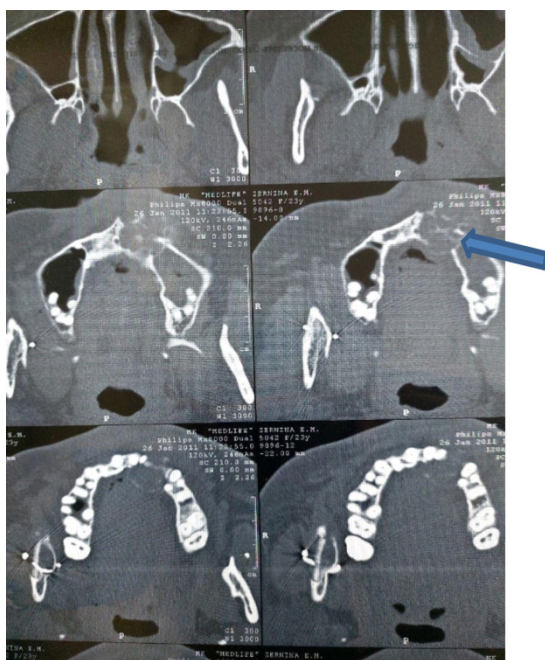


Fig. 4. CBCT: tumor in the upper jaw area, 2011

After receiving the results of an incisional biopsy, a diagnosis of osteoclastoma of the frontal maxilla was established (ICD 10 code – D16.4). A resection dentofacial prosthesis for the upper jaw was made according to the de-

finied boundaries of the partial resection of the upper jaw. Surgical treatment was performed – removal of a neoplasm in the area of the frontal part of the upper jaw on the left with partial resection of the upper jaw, with closure of the surgical wound with a flap from the mucous membrane of the cheek and one-stage replacement of the defect with a resection prosthesis. In the postoperative period, a course of anti-inflammatory therapy was administered. As a result of additional examination, a control CBCT scan revealed a neoplasm in the frontal part of the lower jaw on the right side from the lingual side. An incisional biopsy was performed. The diagnosis was established: D16.5 – osteoclastoma of the lower jaw on the right, relapse (Fig. 5), confirmed by the results of pathohistological examination.

Patient M. was re-hospitalized for planned surgical treatment.

Due to the presence of a polyostotic form of osteoclastoma of the jaw bones in the patient, autotransplantation was contraindicated. After conducting an anthropometric study and selecting an orthotopic carbon implant, the neoplasm was removed with partial resection of the chin section of the lower jaw and replacement of the carbon orthotopic implant of the lower jaw "Uglekon-M" with a new one.

During the surgical intervention, complete osseointegration was revealed and formation of a bone-implant unit with the ingrowth of bone tissue into the structures of the implant made of carbon-carbon composite material (Fig. 6).

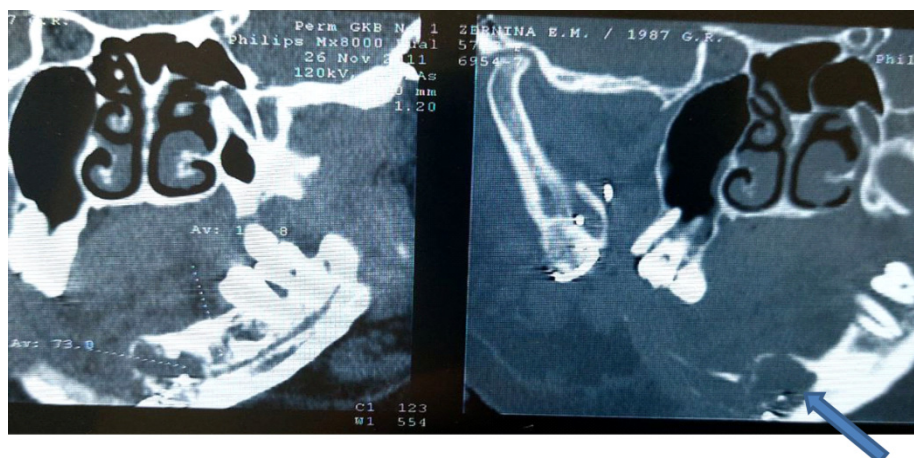


Fig. 5. CBCT: osteoclastoma of the lower jaw on the right, relapse, 2011



Fig. 6. Osteoclastoma of the lower jaw on the right, relapse (intraoperative), 2011

RESULTS AND DISCUSSION

In December 2023, the patient was called to the Clinical Hospital of Perm State Medical University for a follow-up examination. Upon examination, the facial configuration and shape of the lower jaw were satisfactory, the scar in the submandibular region was pink, smooth, and even. The movements of the temporomandibular joints are synchronous, smooth, and painless. The mouth opens freely, up to 4.0 cm. In the oral cavity:

the crown of tooth 3.7 is completely destroyed, its roots are pigmented. On the lingual side in the projection of tooth 3.7, a bulge of the outer cortical plate of a round shape with a diameter of up to 1.5 cm was found, painless upon palpation. Percussion of tooth 3.7 is moderately painful. The mucous membrane above the neoplasm is not changed in color, there is a pale pink scar in the area of the implant. The midline is located centrally, the defects of the dental arches are replaced by removable dentures for the upper and lower jaw. When palpating the lower jaw, no mobility is determined in the area of the bone-implant junction. The patient is satisfied with the achieved treatment result (Fig. 7).

When collecting the patient's life history, it was found that in 2016 there was a second pregnancy, which ended in childbirth. In the summer of 2023, the patient noticed a change in the shape of the alveolar part in the area of tooth 3.7, but did not seek medical help. CBCT was performed – a focus of bone rarefaction was found,

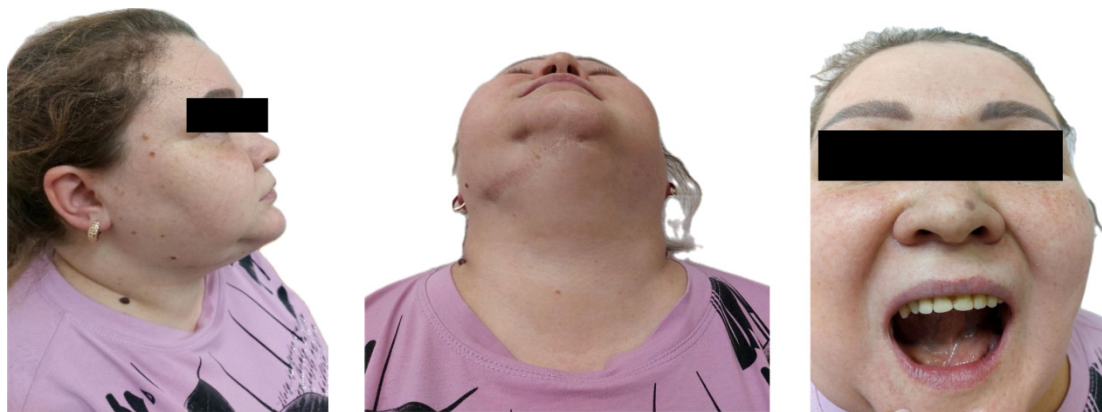


Fig. 7. Condition when viewed (side view, bottom view, straight), 2023

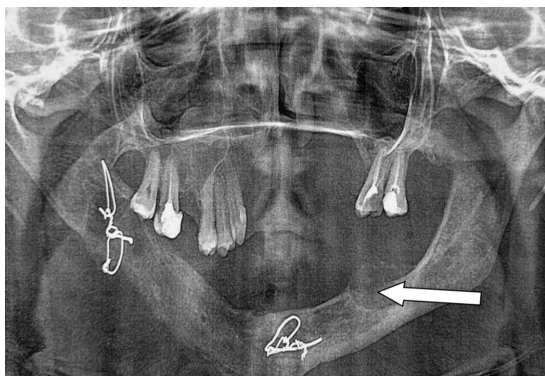


Fig. 8. OPTG: neoplasm in the lower jaw area on the left, 2023

heterogeneous in density in the projection of tooth 3.7, up to 1.5 cm (Fig. 8). Bulging of the cortical plate on the lingual side. here are no signs of relapse of the neoplasm in the upper jaw and in the area of implant fixation on the lower jaw. Osteointegration is observed at the border of the bone-implant unit. A preliminary diagnosis is chronic periodontitis of tooth 3.7, neoplasm in the area of the alveolar process of the lower jaw on the left.

Patient M. underwent extraction of tooth 3.7, scraping of the neoplasm was performed, the material was sent for cytological examination. Given the clinical pic-

ture of the polyostotic form of osteoclastoma, in terms of differential diagnostics, it was recommended to conduct an X-ray examination of all bone structures in order to exclude myeloma disease. After receiving the research results, myeloma disease was not confirmed.

As a result of X-ray, cytological examination and subsequent pathohistological examination, the diagnosis was established: fibroma of the lower jaw on the left, the presence of relapse of osteoblastoclastoma was not confirmed. In April 2024, the fibroma of the lower jaw on the left was removed at the Clinical Hospital of Perm State Medical University using intraoral access. At the time of discharge, the patient's condition was satisfactory, orthopedic treatment and further dispensary observation were recommended for the patient.

CONCLUSIONS

A rare clinical case of treatment of a patient with localization of osteoclastoma in the lower jaw on the right, in the frontal part of the upper jaw on the left, with re-

currence of the formation in the lower jaw on the right in the late stages after treatment is presented, which indicates the presence of a polyostotic form of osteoclastoma of the jaw bones in the patient.

The emergence of a new focus and relapse of the neoplasm occurred after a previous pregnancy, therefore, a connection between this pathology and changes in hormonal levels occurring during pregnancy cannot be ruled out, however, this factor has not been confirmed and requires study.

The analysis of the described clinical situation allowed us to prove that timely surgical treatment and verification of the diagnosis provide a good result, while regular dispensary observation in the form of examination at least once a year for patients who underwent surgery to remove osteoclastoma is strictly mandatory. Particular attention in this aspect should be paid to women of reproductive age.

The use of implants made of carbon-carbon composite material "Uglekon-M" in the polyostotic form of osteoclastoma is the method of choice, which has proven its effectiveness in replacing post-resection defects of the lower jaw.

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Author contributions:

S.I. Rapekta – research design, concept, collection, processing of the material and writing of the text.

N.B. Astashina – concept, processing of the material and writing of the text.

O.S. Tursukova – collection and processing of the material.

V.Ye. Kibanova – review of literature.

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