

Conference paper

Modern Approach to Treatment of Patients with Odontogenic Cyst of Jaw

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Abstract

Contrary to existing contraindication for cystectomy, we can conclude that extensive odontogenic cysts of jaw with involved of more than 2-3 intact teeth and with loss of lower bone wall for more than 1 cm isn't the only sign for cystotomy. Application of correctly selected bone and plastic materials (in our case nickelid titanium granules in combination with PBRP) contributes to restoration of large-scale bone defects with formation of organotypical bone, corresponding to anatomy of the part, in optimal period of time which shortens the postsurgical rehabilitation period of patients and contributes to early functional loading to organ

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1 Introduction

Modernization of odontogenic jaw cyst treatment methods continues to be the relevant problem of surgical stomatology. This is determined by wide distribution of illness and possibility of cause of such complications as cyst suppuration, development of osteomyelitis, jaw deformation, loss of teeth, rise of pathological break and even so called central jaw cancer from cyst wall epithelium, and even often occurrence of recurrences after surgical treatment [3, 4].

The main types of surgeries during treatment of extensive jaw cyst are cystotomy, cystectomy and two-stage surgery. The indication for cystotomy are vast cysts of maxilla which grow to maxillary sinus with destruction of bone fundus and palatine plate, extensive cysts of mandible with significant loss of jaw-bone walls, old age of patient or presence of severe accompanying illnesses. The indication for cystectomy are cysts of small sizes within the limits of 1-2 intact teeth, extensive cyst of mandible when teeth are absent in its zone and sufficient thickness (up to 1 cm) of jaw is preserved, cyst of large sizes in the maxillary with preserved bone walls of nose fundus and genyantrum [2, 6, 8].

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However, after cystectomy the question of restoration of formed bone defect by bone-plastic material arises since when large-scale defects and cyst suppuration occur, the organization of grume doesn't happen, it is being infected and lysed [5, 7, 8].

The experience of clinical observations has shown the low level of efficiency of some materials, especially during significant scale of bone defects since they aren't always replaced by bone but encapsulated by connecting tissue, support chronic inflammation, strengthen bone resorption or partially tear away [1, 6] Because of that, the correct selection of bone-plastic materials for fill-up of bone defects during odontogenic cysts of jaw play the leading role for favorable rehabilitation of patients.

The aim of research is to increase the efficiency of patient surgical treatment using materials with shape-memory alloy on the base of nickelid titanium in combination with blood plasm rich of platelets during odontogenic cysts of jaw.

2 Material and methods

During 2012-2016, under our observation there were 65 patients with odontogenic cyst of jaw out of which 10 (15,3%) were classified as extensive, the radicular cysts were met in 23 (35.4%) cases, follicular in 8 (12,3%) patients, cystogranuloma in 24 (37.0%) patients. Out of total number of patients with odontogenic cysts of jaw, men are 38, women are 27 which are in the age of 18 to 64.

The patient complaints with not suppurated cysts were observed with jaw deformation or fistula in alveolar appendix, and in mandible, 6 patients were observed with numbness of lower lip. During suppuration of cyst, the general condition of patient was worsened and patients had complaints on pains and intumescences.

The diagnostics of odontogenic cysts were conducted by puncture biopsy method, X-ray inspection (orthopantomogram) and, if necessary, computed tomography. During cyst puncture, the opalescence transparent liquid was obtained. During cyst suppuration, the pus was appeared in puncture.

Roentgenologic cyst picture is characterized by rarefaction of bone tissue of round form with concrete borders. In case of follicular cysts, the cyst cavity is projected with impacted tooth corona or the whole tooth itself.

All of the patients went through cystectomy surgery with fill-up of rest of bone cavity with small granule nickelid titanium in combination with plasm blood rich of platelets (PBRP). Five patients with cyst formation which grew through maxilla went through vasotomy of maxilla cyst with sinus cavity fill-up with iodine-filled turunda.

10 patients with extensive cyst formations went through surgery under general anesthesia, the rest had local anesthesia (Sol. Ubistesini forte 4 %, Articaini 4%, Mepivacaini 2%, Lidocaine HCL 2%).

Cystectomy was applied to all of patients by classical method. Removal of cysts in these cases was conducted by enucleation. Teeth, the roots of which were in cyst cavity and represented functional value, were preserved. Preliminary, the depulcation and endodontic treatment was conducted. After complete removal of cyst membrane, the formed bone cavity was treated by antiseptics and fill-up with nickelid titanium granules and the top was covered by super elastic slim profile nickelid titanium tissue of 40-50 micrometer thickness, with PBRP. The wound was taken in tightly.

3 Results and their discussion

Dynamic inspection of patients included, first of all, clinical inspection which was conducted by the general practice method on 2nd-7th, 14th day after 1,3,6 months and one year after surgery. Roentgenologic control included panoramic roentgenography of jaws. During the first days, the expressed infiltration of wound margins was observed in 2 patients. Elimination of post-surgical edema was observed on 6th-7th day. Gaping during post-surgical period wasn't observed in any case.

During repeated observation after 1 month and following observation periods, patients didn't complain, the mucous coat in the surgical area was pale pink without edema.

On the 6th month, the complete defect restoration was observed roentgenologically, however, homogeneity wasn't observed. Mature organ-typical bone tissue was observed through defect periphery. In central parts, the bone picture didn't have signs of organ type: formed canals of osteon, typical bone picture and bone mineralization weren't observed. In one year, during control roentgenography, in all of the patients the complete restoration of bone defect with organotypical structure and mineralization were observed. The height reduction of bone tissue wasn't observed in any case which is very important for further implantology rehabilitation of patients.

For illustration purposes, the clinical observation is presented. Patient R, 28 years of age, came to hospital in April of 2015 with complains of lower division of left cheek area. The patient considered himself sick since February 2015 when first time addressed to dental polyclinic where cyst new formation of maxilla was detected on roentgenogram which is why the patient was directed to maxillofacial surgery department of National Medical Center of RT. Patient went through clinical and

laboratory inspections according to traditional scheme. Locally, the facial asymmetry was observed because of intumescence of lower division of left cheek. The skin color was unchanged. During palpation, swelling of 3-4 cm size of thick consistency was detected. Mouth opening was free. Intumescence was observed in alveolar appendix on 23, 24 и 26 teeth level. Mucous coat was swollen and congested. Clarification of maxilla bone of oval formed with concrete contours, size of 3,5 4,5 cm and roots of 24th and 26th teeth which are in cyst cavity were visualized in panoramic roentgenologic picture. (Fig. 1).



Fig. 1.– Patient R., 28 years old. Diagnosis: radicular cyst of left maxilla. Roentgenologic picture before surgery

Diagnosis: radicular cyst of left maxilla. Cystectomy of left maxilla under local anesthesia was conducted. After which the formed bone cavity was treated with antiseptics and fill-up with nickelid titanium granules and top was covered with super elastic slim profile nickelid titanium tissue of 40-50 micrometer thickness with PBRP. Wound was taken in tightly. (Fig. 2).

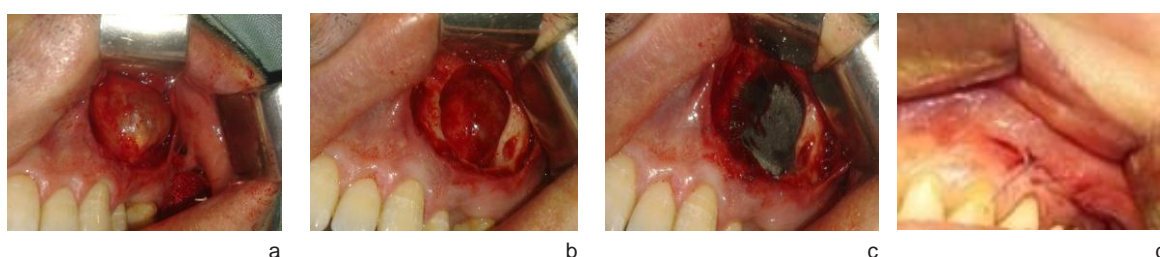


Fig. 2. – Patient R, 28 years old. Surgery stages: a –determination of cyst formation; b – bone cavity after cyst removal; c –cavity filled with granules, top covered with super elastic slim profile nickelid titanium tissue; d – wound stitching

Postsurgical period was without complications. Patient received antibacterial and antiphlogistic therapy. Wound healed by primary tension. Stitches were removed on 8th day.

After one month, the roentgenogram would show only clarification with concrete contours with heterogeneous structure (with signs of weak shadow in mental area). Patient wasn't complaining. Opening of mouth was free. Mucous cavity in transitional fold of mental division of left maxilla is pale pink and palpation is painless.

On third month, some reduction of cavity sized was roentgenologically observed, however, clarifications were in central parts. Mature bone tissue not differing by thickness from bordering maternal bone was observed on periphery. In the center of bone defects, parts which are characterized by insufficient structuring and mineralization were preserved. (Fig. 3).

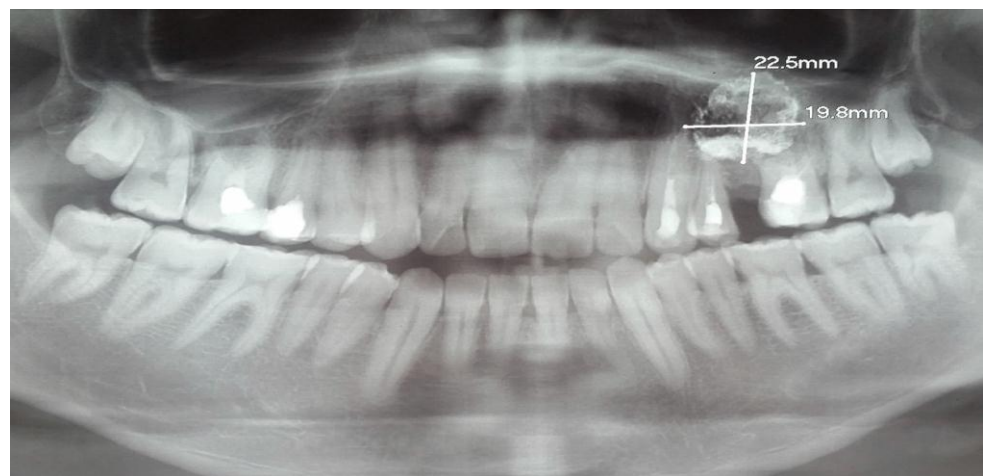


Fig. 3. – Patient R. 28 years old. Roengenologic picture in 3 months after surgery

4 Conclusion

Thus, contrary to existing contraindication for cystectomy, we can conclude that extensive odontogenic cysts of jaw with involved of more than 2-3 intact teeth and with loss of lower bone wall for more than 1 cm isn't the only sign for cystotomy. Application of correctly selected bone and plastic materials (in our case nickelid titanium granules in combination with PBRP) contributes to restoration of large-scale bone defects with formation of organotypical bone, corresponding to anatomy of the part, in optimal period of time which shortens the postsurgical rehabilitation period of patients and contributes to early functional loading to organ

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