SYNOVIAL CHONDROMATOSIS OF THE TEMPORO-MANDIBULAR JOINT. A CASE REPORT

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Abstract

The study describes a rare clinical case of synovial chondromatosis of the temporo-mandibular joint, in a 53 year-old patient. In the prehospital stage, the patient was examined by additional diagnostic methods – 3D CT and subsequent computer simulation, in view of subsequent surgery. In January 2015, partial synovektomy of the right temporo-mandibular joint with removal of cartilaginous impurities was performed under general anesthesia. After histopathological confirmation of the clinical diagnosis, the patient was discharged in satisfactory condition, with recommendations for further examination and radiological control. Synovial chondromatosis of the temporo-mandibular joint is a disease characterized by impaired formation of cartilage or of intraarticular, cartilaginous, and relatively rare bone impurities. An important role in the diagnosis of joints’ synovial chondromatosis is played by the instrumental research methods, especially X-ray. Surgical treatment is recommended as a function of the prevalence of lesions.

Keywords: synovial chondromatosis, temporo-mandibular joint, diagnosis, computer tomography, coronal approach

1. INTRODUCTION

Tumors of the temporomandibular joint (TMJ) are quite rare. There are only a few reports in the literature of the field describing malignant and benign tumors and tumor diseases of TMJ described as chondroma, osteoma, synovial chondromatosis, osteochondritis, chondrosarcoma [1-3].

According to literature data, synovial chondromatosis is a benign tumor, clinically manifested by the appearance of small mobile tumors. The disease does not limit the mobility in the joint, being accompanied by slight crunching symptoms and periodic, dull pain. Deformation of the articular fossa and the presence of free radio-opaque bodies are possible. The final diagnosis is established after histological studies of the synovial membrane and free bodies. According to Murphy and co-authors (1962), fibroblasts lose their functional properties, the cells are round, and a delayed hondromutsyn appears. Further on, single-core, dual-core, multi-core, round or irregularly-shaped clusters of chondrocytes are formed, after which the chondroic tissue gradually undergoes ossification [3-6].

In the active stage of synovial chondromatosis, synovial proliferation - that forms numerous folds of cartilage islands - appears. The islands segregate into the joint cavity as numerous free intrabodies. Some cartilages continue to be formed and grow, being fed on the synovial fluid, while bones are formed inside [1,3,9,10].

According to Jafle (1958), accurate diagnosis of synovial chondromatosis can be made by cartilaginous metaplasia in the synovial membrane. The surgical treatment recommended includes removal of the free bodies and of the affected joint bags within the healthy tissue [4,5].

2. CLINICAL OBSERVATION

Patient M., 53 year-old, entered the clinic with complaints of 1/12/2015, tumors in the right
parotid region and crackle in the right TMJ. The right parotid tumors plots, first noticed six months ago, were painless and had a very slow growth. Later on, the clear clinical picture evidenced the severity of facial asymmetry, progressing slowly. Objectively, patient’s moderately severe facial asymmetry was observed due to the presence of tumors in the right parotid region and in TMJ projection. Palpable tumors had a soft-elastic consistency, with sizes of about 40x25x20 mm, not in contact with the skin and not movable. The color of the skin over the tumor was not changed. When the mouth was opened to 45 mm, a marked crunch was observed in the right TMJ area. The mucous membrane of the mouth showed no visible pathological changes.

In the series of 3D computer tomograms (CT), a contrasting growth was observed on the right TMJ, mainly on the front and lateral 8-shaped side surfaces with a general size of 41x24x21 mm, spread through the lower jaw in clipping the wing-palatine space. A structure of soft tissue tumors, with signs of vascularization and rare inclusions of lime density, is present. Hyperostosis of the lateral surface of the mandible bone growth of up to 15 mm was observed at the level of neoplasm. Also noticed was that the crack of the right TMJ, filled with a heterogeneous content (Fig. 1), unevenly expanded to 4 mm.

![Fig. 1. Series of 3D CT scans and computer modeling for surgery: 1-3 - computer modeling, 4 - axial projection 5 - sagittal projection 6 - coronal projection (arrows show neoplasms)
3. PRESUMPTIVE CLINICAL DIAGNOSIS OF TUMORS IN THE RIGHT TMJ

For planning the surgery, the stereolithographic model of the skull was drawn by necessary measurements and defined surgical access.

On January 13/2015, the patient was put under general anesthesia with endotracheal intubation through the nose for partial synovektomy of the right TMJ cartilage removal of inclusions. To this end, the semicoronal and parotid approach was applied to the temporal fossa approach arc (Fig. 2). The temporal muscle fibers were partially crossed and peeled off, thus offering access to the infratemporal areas where the front and side sections of tumors were found in a dense capsule, permitting dissection, for identifying multiple solid inclusions in the form of cartilaginous grains (Fig. 3). Within the healthy tissue, the growths were removed, along with part of the synovial capsule and multiple cartilaginous inclusions. Macroscopic preparation appeared as a solid tumor with a relatively smooth surface and about 100 small inclusions, cartilaginous consistency and sizes from 5 to 30 mm (Fig. 4). The soft tissue flap replaced it, and the wound was stitched with layers. The postoperative period proceeded without complications. There was minor paresis of the frontal and temporal fossa branches of facial nerve functions, restored on the 8th day after surgery. Postoperative temporal swelling of the temporal fossa and parotid areas lasted for 8 days. On January 20, histopathological conclusion was received: the tumor is composed of hondroidic matter with ossification areas, myxomatosis, multi-cells being observed. There are also numerous areas of sclerotic changes with granulation and numerous cartilage areas. The final clinical diagnosis was established as right chondromatosis of the synovial joint. The patient was discharged in satisfactory condition, further examination and radiological control being recommended.
4. DISCUSSION

Hondromatosis of bones and joints is a rare disease, characterized by the formation of cartilage or breach of intra-formation cartilage.

The patients affected with chondromatosis joint - both men and women – show similar degrees of suffering. The etiology is unknown, being possibly caused by a reactive process - metaplasia of the synovial membrane of certain cells, leading to some cartilaginous islets that are initially associated with the synovial membrane and then released, becoming free intra bodies. The areas of the synovial membrane are defined macroscopically. Intra cells with different disconnecting (often round) shape are present in large numbers (tens and hundreds). When a tumor of the chondromatosis joints occurs, it takes the form of rolling structures whose size can be up to 3-5 cm.

Clinical chondromatosis in joints is marked by monosynovitis or monoarthritis. Prolonged current pathological processes contracture causes malnutrition periarticular muscles. As a result of the constant injuries of the articular cartilage, secondary osteoarthritis develops.

5. CONCLUSIONS

The instrumental methods play an important role in the diagnosis of chondromatosis joints. To determine the localization of the superficial areas in synovial membrane lesions, to detect the pathologic cartilaginous structures and their relationship to the surrounding soft tissues, computed tomography, magnetic resonance imaging and ultrasound conduct joint are recommended.

With the accumulation of cells in chondromatosis calcium (osteohondromatosis), chondromic cells are clearly visible on radiographs. The final diagnosis is established by arthroscopic joint study or during open surgery of TMJ.

The TMJ treatment of chondromatosis is a surgical one. If chondromic cells, free in the cavity of the joint, appear, they are removed by the arthroscopic technique. A radical help for the patient involves removal of the metaplasal sites in the synovial membrane or total synovektomy. TMJ arthroplasty is conducted in cases of degenerative modifications.

The joint function depends on the prevalence of lesions.

References

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