

## COMPARISON OF TWO DIAGNOSTIC IMAGING TECHNIQUES FOR DIAGNOSING SYNOVIAL CHONDROMATOSIS OF THE TEMPOROMANDIBULAR JOINT

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### Abstract

Asymptomatic pathological formations sometimes can be revealed, when patients come to treat other dental issues such as caries or periodontal problems. The paraclinical diagnosis of synovial chondromatosis is a very rare finding, which is why the right diagnostic criteria are needed. The aim was to represent a paraclinical finding of synovial chondromatosis of the temporomandibular joint in a patient.

A 42-year old patient with severe periodontal changes came to the University Dental Clinical Centre "St. Panteleimon"-Skopje, searching for a prosthetic rehabilitation. After anamnesis was taken, clinical extraoral and intraoral examinations were performed, paraclinical analysis were needed. After receiving the ortopantomographic image, a team of dental specialists have realized the presence of a pathological formation without definitive diagnosis. A computer tomography was performed, for definitive differential diagnosis.

Oftentimes patients visit the dentists when they have aesthetic issues. When detailed analysis are needed, it is sometimes rare to discover changes such as synovial chondromatosis. Literature data has confirmed our finding that this condition is often discovered by chance, because of the lack of symptomatology when other analysis are performed. That is why ortopantomography should be followed by computer tomography. Once the diagnose for synovial chondromatosis is formed, the surgeons decide whether to surgically remove or follow the changes in the temporomandibular joint.

The imaging techniques are of crucial importance to help the final diagnosis of pathological changes in the temporomandibular joint.

**Key words:** synovial chondromatosis, lack of symptoms, paraclinical examinations, computer tomography.

### Introduction

The World Health Organization defines the synovial chondromatosis as a benign nodular cartilaginous proliferation arising from the joint synovium, bursae or tendon sheaths<sup>(1)</sup>.

This condition synovial chondromatosis may affect any joint, commonly large joints and, rarely, small joints, including the temporomandibular joint.

Synovial chondromatosis is described as a benign chondrometaplasia of the synovial membrane, in which cartilaginous nodules form. These benign formations can become loose bodies within the joint space. When these bodies become loose that can cause many problems, and pathological processes to the patients<sup>(2)</sup>.

Patients usually experience periauricular swelling, pain in the ear, temporal region and restricted movement of the mandible. The diagnosis is a crucial factor for both the therapists and the patients to determine the therapy protocol. When a suspicion is made, from subjective aspects of the patient, objective

imaging features that are the key to diagnosis are widening of the joint space, presence of cartilage loose bodies which may be calcified, irregularity of joint surface, and sclerosis or hyperostosis of the glenoid fossa and mandibular condyle<sup>(3)</sup>.

Today we have advanced imaging techniques that help us evaluate the pathological changes with the help of three dimensional imaging techniques. Orthopantomographic images are initial techniques that need precise analysis, because after them other imaging techniques such as Computer Tomography (CT), ultrasonography analysis or magnetic resonance should be taken in consideration<sup>(4)</sup>.

With CT images, a precise diagnosis can be obtained, with the dimension of the pathological changes, their current localization and the parameters will predict the outcome of the therapy. Some authors state that the only possible treatment is by surgical removal of the synovial chondromatosis, while others state that with the imaging techniques early stages can be monitored frequently because of the possible chances of recidivisms.

### **AIM**

This article aims to represent a rare case study of discovery of a synovial chondromatosis, of a 42 year female patient with two paraclinical imaging techniques.

### **Material and Methods**

For a material a 42 year old patient came to the University Dental Clinical Centre „St. Panteleimon“ in Skopje, N. Macedonia for an aesthetic solution of her remaining teeth, and for a regular evaluation of her periodontal tissue.

The patient gave anamnestic data of presence of partial edentulism. From previous dental history the patient said that she had benign hematoma on her right side of her face, more specifically in her buccal region. She had severe periodontal problems, however, her teeth were not luxating.

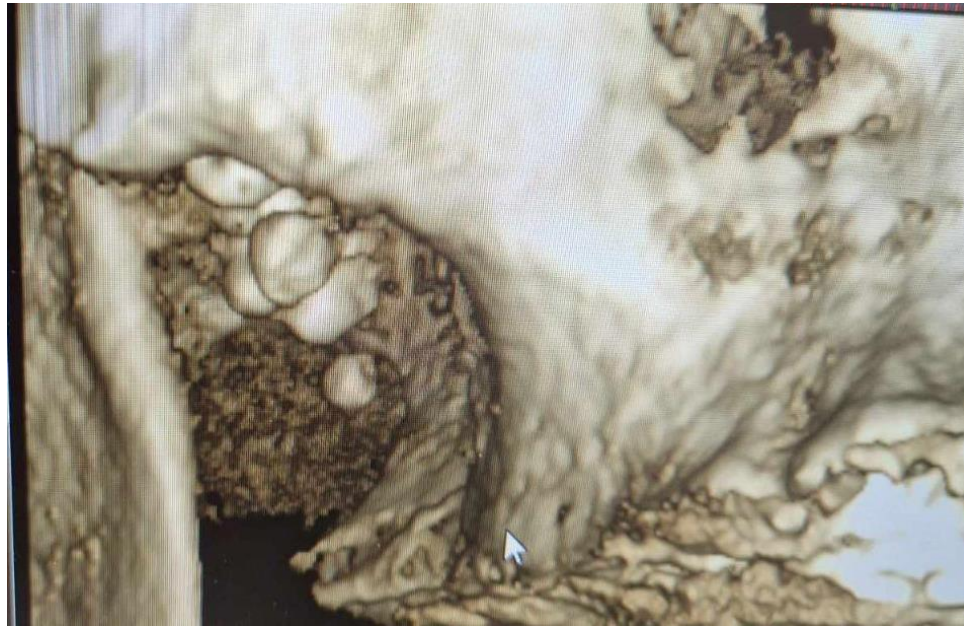
The team of specialists, dental prosthodontist, periodontal surgeon have made a mutual decision that before the beginning of the treatment, an orthopantomographic radiograph is needed (figure 1).



**Figure 1.** Orthopantomographic radiograph of the patient

The patient came without any symptoms, but from aesthetic reasons, because of the recession in her gum tissue, appropriated with resorption of the bone. On the orthopantomographic analysis in the upper jaw a circular dental bridge and periodontal problems were observed. When making analysis on her right

side a formation was accidentally found in her right sinus. The formation looked multinodular, with white shades and it was not clear what was the true diagnosis. A maxillofacial surgeon was consulted, but because the situation was not clear the patient was sent to make a 3D CT, on which a correct position of the formation was seen (figure 2).



**Figure 2.** CT of the synovial chondromatosis

A diagnose for synovial chondromatosis was confirmed, formed by multiple noduli. The localization of the nodules of the synovial chondromatosis was in the fossa temporalis.

The patient was questioned on the presence of symptoms. The patient denied having symptoms of any type. She had normal movement of her mouth, normal opening. She never experienced pain and swelling in her temporomandibular joint of in her preauricular region.

The consultation with the maxillofacial surgeon was made continuously, and the patient was followed for a period of time of one year.

### **Results and Discussion**

Correct diagnosis is of a crucial significance for proper following of a patient or a suitable therapy. We witness many rare diseases that remain hardly discovered. Also once a patient does not have any symptoms they do not feel the need to visit the therapist.

The appearance of synovial chondromatosis of the temporomandibular joint is a very peticular and rare finding for which contemporary imaging techniques are of great importance.

Once a 2 D imaging technique finds something suspicious it can not be ignored. With the CT and magnetic resonance imaging techniques it is much easier to make a proper diagnosis, evaluate the changes and measure them<sup>(5)</sup>.

The temporomandibular joint is a complex structure. The mandible is the only bone in the human body with two joints. And also it is one of the rare joints with reparatory and compensatory mechanisms. Once the space for temporomandibular joint is clear, movements of the mandible occur in all three dimensions. When this space is widened and filled with estrange bodies such as calcifiend noduli deriving from a condition of synovial chonromatosis, the patients experience a variety of symptoms.

Most of the times patients are not aware that they can have symptoms from their TMJ, because the localization is near the ear. That is why, they visit an otorhinolaryngologist. The ear, nose and throat specialist must be aware of this condition, and be prepared as to refer them to a maxillofacial surgeon.

The synovial chondromatosis is relatively nonspecific in terms of symptomatology. These symptoms vary from unnoticeable, to different kind of manifestations and of the main complains is association with pain. Other types of changes can be swelling, reduced motility of the mandible and sometimes sounds from the temporomandibular joint and locking of the temporomandibular joint<sup>(6)</sup>.

Bai et al. have stated that the way to treat synovial chondromatosis of the temporomandibular joint is with open surgery assisted with arthroscopy<sup>(7)</sup>.

In the literature Liu et al. state the significance of surgical treatment with classic open surgical approach method to the TMJ as a choice for treatment. They have discovered that this is the best possible treatment for the purpose of removing all of the loose bodies. One method they recommend is synovectomy when the synovial membrane and loose bodies are entirely removed from the joint space, often accompanied by articular disc resection and less frequently by condylar resection<sup>(8)</sup>.

As therapists we are more than happy when we have definitive diagnosis, because the accurate diagnosis leads us to the most acceptable treatment plan. As for now the patient in this case is being monitored and prepared for a surgical procedure as to influence her immune system. For any benign or malignant pathological change, the definitive diagnosis is confirmed with pathohistological examinations. After operation of the synovial chondromatosis, followed by the proper period of healing a detailed dental prosthetic rehabilitation will follow.

The fright for the recurrence of synovial chondromatosis stated by some literature data should be minimized, because if the operation is performed thoroughly entirely with complete removal of the changes with the help of new modern imaging techniques and surgical procedures, the healing process will be better and there will be no noduli left to calcify, and influence badly on the TMJ<sup>(9,10)</sup>.

## **Conclusion**

Synovial chondromatosis is a very rare condition on the smaller joints such as the temporomandibular joint. Sometimes maybe the orthopantomographic paraclinical radiological examinations should be a gold standard for every patient, because the lack of symptomatology can leave these changes undiscovered. Computer tomography, magnetic resonance, ultrasonography must follow once a suspicious pathological finding is discovered. They will confirm the diagnosis and a definitive surgical protocol will proceed followed by pathohistological analysis of the operated changes. This condition is recommended to be treated with the help of a team of dental specialists for improving the oral and the overall health of the patients.

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