ABSTRACT

TITLE- Assessment of TMJ morphological changes in rheumatoid arthritis patients using cone beam computed tomography

BACKGROUND- Rheumatoid arthritis is an autoimmune disorder, which can cause temporomandibular joint involvement with clinical symptoms such as pain, swelling, crepitation and movement impairment. Erosion of the components of TMJ is seen in two-third of the patients with RA. Other radiologic features for RA patients with TMJ include flattening, sclerosis, subchondral cyst and osteophytes. CBCT found to be efficient for diagnosing several osseous changes in the TMJ region.

AIM- The aim of the study is to evaluate osseous changes in rheumatoid arthritis patients with temporomandibular joint involvement (TMD) using Cone Beam Computed Tomography.

OBJECTIVES- To interpret the CBCT axial, coronal, sagittal and 3D images of involved condyle, glenoid fossa and joint space in rheumatoid arthritis patients, in relation to the osseous changes and to correlate the clinical findings with CBCT imaging features.

METHODOLOGY- Patients were diagnosed with rheumatoid arthritis based on laboratory values for rheumatoid factor antibody and anti-citrullinated protein antibodies. A clinical diagnosis of TMJ RA was made based on symptoms and CBCT for each patient involving 100 TMJ was taken.

RESULTS- When the clinical findings of pain at rest and motion at left TMJ was
compared to radiographic feature of osteophyte at left condyle \( (p < 0.05) \), showed statistically significant values. Crepitus heard at left TMJ was correlated to left condyle bony changes for presence of osteophyte results in \( p < 0.05 \) in coronal view. While crepitation at right TMJ, assessed for sclerotic changes in opposite side (left) of condyle, results in \( p \) value of 0.04 in axial, 0.01 in coronal and 0.00 in sagittal showed highly significant result.

**Conclusion**- Presence of osteophyte was found to be significant in sagittal section of CBCT at left condylar surface, in subjects with no pain at rest and motion at left condyle. Also, Clinical finding of crepitation is linked to increase evidence of osteophyte, and coronal view should be section of choice to assess this finding. Crepitus heard in one joint can be a reason for sclerotic changes in other joint.

**Key words**- Rheumatoid arthritis, Temporomandibular joint, Erosion, Osteophyte, Sclerosis, Cone beam computed tomography