Study of Three Dimensional Morphology of Mandibular Condyle Using Cone Beam Computed Tomography

Shubhasini AR, Praveen Birur N*, Shubha G, Keerthi G, Sumsum P Sunny, Darshana S Nayak

Email: praveen.birur@gmail.com

Abstract

Background: Radiographic examination using Cone Beam Computed Tomography (CBCT) can detect temporomandibular joint (TMJ) osseous abnormalities in three dimensions. Objectives: This study was conducted to assess morphology of mandibular condyle using CBCT coronal and sagittal sections, to correlate this with three dimensional (3D) reconstructed images and clinical examination. Methodology: This was a retrospective observational study. CBCT images from radiology archives were analysed for morphology of condyle. Patients were recalled for a second oral examination. Thirty-two patients formed our study group. Coronal and sagittal sections of images were analysed by two observers and classified. Condylar morphology was described in terms of percentages. Interobserver agreement was analysed using kappa agreement. Results: In coronal section, the most common morphology was angled. A different morphology i.e., a concave pattern was also found. In sagittal sections, the most common pattern was round, followed by flat, beaklike and erosion. Interobserver agreement was good. The 3D reconstruction of the mandibular condyle was not found to be reliable. Clinical examination revealed that the one patient with erosion had deviation and crepitus of TMJ. Conclusion An accurate visualization of the condyle is essential to provide an early diagnosis of TMJ disorder. CBCT facilitates an accurate examination of TMJ in three planes.

Keywords: temporomandibular joint; temporomandibular joint disorder; condylar erosion

Shubhasini AR
Reader, Department of Oral Medicine and Radiology, K.L.E.Society’s Institute of Dental Sciences and Hospital, Yeshwanthpur, Bangalore-560022

Praveen Birur N
Professor and Head, Department of Oral Medicine and Radiology, K.L.E.Society’s Institute of Dental Sciences and Hospital, Yeshwanthpur, Bangalore-560022

* Corresponding Author

Shubha G
Reader, Department of Oral Medicine and Radiology, K.L.E.Society’s Institute of Dental Sciences and Hospital, Yeshwanthpur, Bangalore-560022

Keerthi G
Senior Lecturer, Department of Oral Medicine and Radiology, K.L.E.Society’s Institute of Dental Sciences and Hospital, Yeshwanthpur, Bangalore-560022

Darshana S Nayak
Senior Lecturer, Department of Oral Medicine and Radiology Dayanand Sagar College of Dental Sciences, Bangalore-560078

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