

OM because this tumor demonstrates a high recurrence rate. All 3 imaging modalities have inherent advantages and disadvantages; however, all of these modalities should be routinely used in the diagnosis of OM. Results of MRI can further help map the margins and greatly aid in resection with clear margins.

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QUANTIFICATION OF TMJ RHEUMATOID ARTHRITIS ON POSITRON EMISSION TOMOGRAPHY SCANS USING ROVER

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Background: Inflammation of the temporomandibular joint (TMJ) has a relatively high correlation (> 17%) to the late stages of rheumatoid arthritis (RA). RA is a chronic inflammatory autoimmune disease that causes cartilage and bone destruction. Cell activity of TMJ was measured by using 2 radiotracers, [18 F]-fluoro-2-deoxy-D-glucose (FDG) and [18 F]-sodium fluoride (NaF), for staging and surveillance of RA.

Objective: The aim of this study was to quantify the region of interest (ROI) volumes of FDG- and NaF-based TMJ positron emission tomography (PET) images by using the ROVER software.

Materials and Methods: Institutional review board (IRB) approval was obtained for 20 previously diagnosed patients with RA. From this cohort, 17 anonymized patients with NaF and FDG-PET/CT scans were reviewed by 3 calibrated investigators. When there was disagreement, a fourth investigator who is an expert in PET/CT, was used. The standardized uptake values corrected (SUV-Mean Cor) were calculated and recorded on ROVER. The collected data and literature review findings were collated and analyzed to provide a holistic comparison table. The clinical applications, advantages, and disadvantages of 8 imaging techniques were reviewed.

Results: The average ROI volumes differed between FDG- and NaF-based PET images in every case, showing a higher quantification for NaF-based scans. In 1 case, ROI mean total

corrected value was 23.25 when NaF-PET was used, as opposed to 6.7 when FDG-PET was used. There was a similar trend among other cases included in the study. The NaF-PET ROI values appeared higher than the standard FDG-PET ROI values in the cases where the RA activity was quantified. SUV can be obtained by dividing the ROI activity concentration (KBq/L) by the decay-corrected amount of injected FDG (KBq/L) times the weight of the patient in grams. ROVER automatically calculates the average and maximum SUVs for all patients.

Discussion: With the use of ROVER, it is possible to collect accurate measurements of TMJ disease activity from both FDG-PET and NaF-PET images. NaF-PET appeared to be a more sensitive technique.

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CLINICAL AND RADIOGRAPHIC MANIFESTATIONS WITH 3-DIMENSIONAL PRINTED MODEL OF TRUE BONY ANKYLOSIS OF

THE TEMPOROMANDIBULAR JOINT: A CASE REPORT M. PAHADIA, S. RAJMOHAN, A. VYAS, R. KATKAR, and H. GEHA, UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER SCHOOL OF DENTISTRY, SAN ANTONIO, TX; PRIVATE PRACTICE, INDORE, INDIA

Clinical Presentation: We present a case of a 20-year-old male who presented with facial asymmetry, severe trismus since early childhood, generalized physical weakness, and other skeletal deformities, including pigeon chest and kyphoscoliosis. No clear history of trauma was elicited. However, early childhood trauma was considered a possibility.

Differential Diagnosis: Severe trismus can be caused by various etiologies, including trauma, temporomandibular joint (TMJ) disorders, benign and malignant neoplasia, infections, and iatrogenic causes. However, with the history and clinical presentation, a TMJ condition, including bony and fibrous ankyloses, was considered.

Diagnosis and Management: Multidetector computed tomography (MDCT) was performed. Radiographic features were consistent with stage IV bony ankyloses of the left TMJ, according to the classification system of Sawhney et al. A 3-dimensional (3-D) printed medical model of the skull and the mandible was used for surgical simulation. Gap arthroplasty with interpositional temporalis muscle flap was performed, followed by vigorous physiotherapy. After surgery, mouth opening increased significantly from 0 to 35 mm. One year clinical follow-up was done.