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Imaging features of maxillary sinus diseases: report of three cases using a CBCT examination

I. Farizka¹, F. Oscandar².

¹Oral Maxillofacial Radiology Department, Faculty of Dentistry, Trisakti University, Jakarta, Indonesia

²Oral Maxillofacial Radiology Department, Faculty of Dentistry, Padjadjaran University, Bandung, Indonesia.

Diseases associated with maxillary sinus include inflammatory disease, odontogenic cyst, bone dysplasia, benign and malignant neoplasm. We described 3 cases composed of 2 types of inflammatory disease and a malignant neoplasm. Cone Beam Computed Tomography (CBCT) examination is well suited to demonstrate entire portions of maxillary sinus. Objective of this article is to distinguish 3 types of maxillary sinus diseases according the imaging features.

CBCT images from 3 patients demonstrated retention pseudocyst, sinusitis, and squamous cell carcinoma (SCC). Imaging finding of retention pseudocyst revealed well-defined and non-corticated border, dome-shaped, radiopaque mass that form on the floor of the right maxillary sinus. Sinusitis with sinus perforation was suspected in other patient who had prior tooth extraction accompanied by nasal discharge. CBCT images showed almost completed radiopacities within the left sinus. Oro-antral fistula was also present. The patient that was suspected of SCC showed slightly swelling below the left eye. Soft tissue radiopaque mass occupied entire left sinus, and extended to nasal cavity and alveolar bone through the destruction of nasal wall and bony structure of sinus.

The advantage of CBCT has an ability to evaluate entire portions of sinus and presence of adjacent structures involvement. A typical characteristic of retention pseudocyst is dome-shaped radiopaque mass with well-defined & non-corticated border on sinus floor, whereas sinusitis characteristic is thickened mucosal around the sinus wall leading to almost complete or complete radiopacification of the sinus. Both lesions are unable to destroy surrounding structure. Regarding a destructive nature of malignancy lesion, SCC which constitute soft tissue mass may destroy sinus walls, extend to nasal fossa and cause alveolar bone destruction.

Observation to distinguish between each lesion should encompass border and shape; internal structures whether they are soft tissue mass, thickened mucosa or accumulation of secretion; and effect of surrounding structures.

Keywords: Maxillary sinus diseases, Pseudocyst, Sinusitis, SCC, CBCT