

endonews

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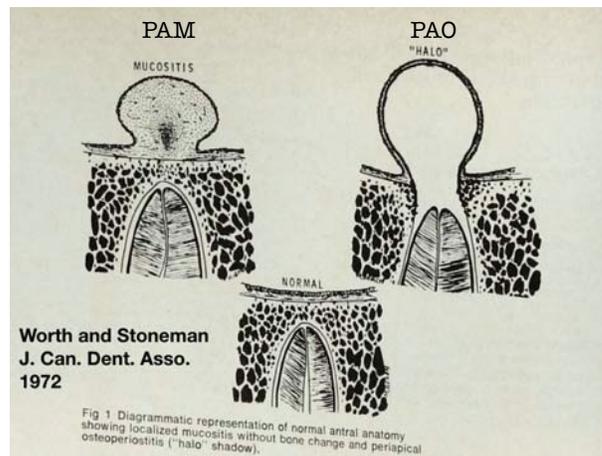
Maxillary Sinusitis of Endodontic Origin (MSEO)

MSEO is a new term that is being introduced to those cases of sinusitis secondary to periradicular disease of endodontic origin. In general, MSEO remains localized to the floor of the maxillary sinus without sinonasal symptoms, however, complete opacification and obstruction of the maxillary sinus can develop. This inflammatory process may extend into the other paranasal sinuses including ethmoid, frontal, and sphenoid through ostiomeatal complex (OMC). Diagnosis of MSEO can be made by clinical dental examination and the radiological examination using CBCT which allows precise visualization of the complex anatomical structure in the posterior maxilla. There are two distinct CBCT findings associated with MSEO. They are effects of periradicular inflammation on the sinus periosteum and antral mucosal tissues are distinctly different than that of disease found in osseous tissues.

A. *Periapical Osteoperiostitis (PAO): The presence of apical periodontitis adjacent to the maxillary sinus cortical floor will often expand the sinus periosteum, displace it upward into the sinus, and subsequently induce a periosteal reaction that continues to deposit a thin layer of new bone on the inner periphery of the disease process as it expands. The periosteum is a dense connective tissue membrane consisting of an outer fibrous layer and an inner cellular layer called the *cambium*. The cambium contains progenitor cells that develop into osteoblasts and begin to produce new bone when irritated by inflammatory stimuli. This thin, hard tissue dome on the sinus floor has been termed *periapical osteoperiostitis (PAO)* and presents on radiographs and CT images as a radiopaque "halo" appearance. If the inflammatory process continues, the bone deposits can become thicker and expand deeper into the maxillary sinus. PAO lesions may be accompanied by varying degrees of adjacent mucosal edema and sinus fluid levels, particularly if a break or perforation occurs in the periosteum and osseous halo or dome. In some cases, acute symptoms can appear in the presence of fluid level and the accumulation of the purulent material.

B. *Periapical Mucositis (PAM): Infected roots that are in direct contact with antral mucosa or periapical inflammation that has perforated the periosteum can produce a localized tissue edema in the mucosa without causing osseous damage. This localized odontogenic edema of the sinus mucosal tissue has been termed *periapical mucositis* and is often seen on periapical radiographs and CT imaging as a mucosal thickening or soft tissue expansion in the floor of the sinus directly adjacent to the infected root apex. Periradicular inflammation from dental roots not directly adjacent to the sinus mucosa can also cause PAM without any evident inflammatory bone resorption via extension of inflammatory mediators through bone marrow, blood vessels, and lymphatics.

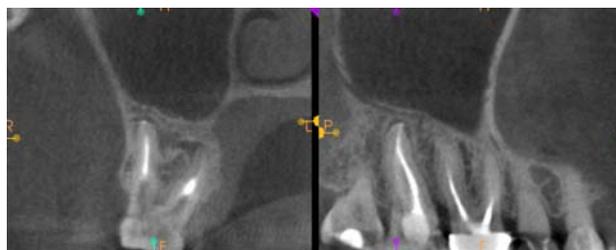
*REFERENCE: Roderick W. Tataryn, Chapter 12. *Art and Science of Contemporary Endodontic Surgery*, Torabinejad.



PAM Before Root Canal Retreatment



PAM Healed After Root Canal Retreatment



Treatment of MSEO: Treatment should be aiming at the elimination of the source of the problem - root canal infection. Non-surgical RCT, Retreatment and Surgical RCT can provide predictable outcome in healing of the inflammatory diseases in the maxillary sinus and safeguard the patient from serious complications.