

DIAGNOSING ODONTOGENIC SINUSITIS OF ENDODONTIC ORIGIN

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Abstract

Nowadays, ensuring the complete recovery of patients diagnosed with odontogenic sinusitis is one of the urgent problems. That is, in this disease, a dentist and an otorhinolaryngologist must carry out joint treatment. Dentists are required to carry out quality treatment. In this case, it is also important to use quality fillers.

Keywords: apical and marginal periodontitis, maxillary sinusitis, odontogenic sinusitis, periapical lesion, depulstation, adseal.

Introduction

Bacterial odontogenic sinusitis (ODS) refers to maxillary sinusitis, with or without extension to other paranasal sinuses, secondary to either adjacent infectious maxillary dental pathology, or iatrogenic injury from dental procedures [3]. Studies have shown that ODS could account for 25–40% of all chronic maxillary sinusitis, and 45–75% of unilateral maxillary sinus opacification on computed tomography (CT).

Despite its relatively high prevalence, ODS has received significantly less attention in the literature compared to other forms of sinusitis, and diagnosing ODS has not been discussed in recent sinusitis guidelines or position paper [10]. While dental evaluation is generally required to confirm ODS, these patients often have more prominent sinonasal symptoms compared to dental complaints [9]. It is therefore critical that clinician's suspect ODS in these scenarios, to ensure patients are referred to dental providers.

A variety of dental pathologies can lead to ODS, including endodontic disease, periodontitis, oroantral fistula (OAF), or dental treatment-related foreign bodies. Endodontic disease is a common cause ODS, and begins with bacterial invasion of the pulp space causing pulpitis, and pulpal necrosis if left untreated [5]. Bacteria proliferate within pulp tissue and may progress to root apices to cause apical periodontitis (AP), which is inflammation or infection of the apical periodontium [8]. Initially AP is symptomatic with pain on biting, but may become asymptomatic over time. AP may or may not progress to cause a periapical lesion (PAL). PAL is a radiographic term that can represent a periapical cyst, granuloma, or abscess around a tooth apex, and can be subtle or overt [1-3]. AP with or without a PAL may also occur after failed endodontic treatment. Another condition that can result in ODS from pulpal necrosis and AP is a vertical root fracture. These microscopic fractures occur vertically along the outer root surfaces through the dentin, and into the pulp chamber [4]. They occur due to occlusal trauma, usually in the setting of tooth weakening after prior root canal therapies, but can also occur from bruxism, large coronal restorations, or absence of other teeth causing extra loading on remaining dentition.



Characteristically, they lead to local infection, and imaging displays alveolar bone erosion adjacent to the fractured root, but the fracture itself is rarely seen [2].

Diagnosing endodontic disease causing ODS can be challenging, and requires meticulous endodontic examination and high-quality periapical imaging. Evaluation involves clinical pulp testing (cold, hot, or electric) to determine pulp vitality, and examination for previous endodontic therapy quality, condition of existing dental restorations, root fractures, and canal anatomy []. Cold, hot, and electric responses are typically absent in ODS because infected teeth are usually non-vital, either from pulpal necrosis or prior endodontic therapy. Clinical pulp testing of all posterior maxillary teeth is essential when evaluating ODS, though not all pulp vitality tests are suitable for all clinical situations, and different test combinations may be required [6].

Periapical disease can be examined by assessing for tenderness with percussion and biting, but this may be absent in ODS due to periapical pressure being relieved by alveolar bone expansion and erosion. Intraoral edema and fistula tracts also rarely develop because posterior maxillary periapical infections often spread toward the maxillary sinus rather than the oral cavity. Periapical radiography (PAR) or cone-beam computed tomography's (CBCT) are used to detect periapical disease. When evident radiographically, AP causes PALs around root apices, possibly with periodontal ligament (PDL) space widening as well. However, diagnosing endodontic disease is additionally complex because AP may be subtle or absent radiographically. Due to the more complex anatomy and pathology of maxillary molars, management of such endodontic disease may require an endodontist [1]. While numerous ODS review articles have been published, none have synthesized the dental and medical literature in a multidisciplinary fashion to highlight how ODS is recognized and diagnosed. The purposes of this review were to report clinical and microbiological features of bacterial ODS to facilitate disease recognition, and diagnostic modalities used to confirm endodontic sources of sinusitis.

Methods:

We divided 10 patients suffering from odontogenic sinusitis into two groups and gave them treatment measures. Five patients in the first group underwent endodontic treatment. In this, the tooth root canals were completely filled up to the root tip. The second group of patients also underwent endodontic treatment. However, when the tooth root tips were filled, a certain amount of filling root The process was monitored together with otorhinolaryngologists.

Results:

According to the results obtained in the patients, after 2 weeks, the same changes were observed in them. That is, the amount of pus in the maxillary sinus has decreased. However, after 2 months, the recurrence of odontogenic sinusitis was detected in the patients who had fillings removed from the tooth root canals.

We used "Adseal" filling material for endodontic treatment in 10 examined patients. This filling material is a two-component epoxy sealant, the composition of which consists of epoxy resin, ethylene glycol salicylate, bismuth subcarbonate. As a catalyst, it consists of polyamino benzoate, triethanolamine, bismuth subcarbonate, and calcium phosphate, and is not absorbed for a long time.

When we used this filler in our patients, if the inflammatory process was going on, it was found that the pain was bothering them for several days. Patients should be warned about this situation.



The patients were warned about this situation. When the odontogenic sinusitis returned, it was found that the patient's pain increased again. The number of patients we treated by removing the filling from the root canals was 5, and they again experienced pain in the areas of the nose, forehead, and nose. We reported these results. taking into account, re-treatment of these patients was planned.

5 patients with no recurrence of odontogenic sinusitis were also monitored. No significant changes were observed in them.

When re-examinations were carried out in patients with relapsed odontogenic sinusitis, it became clear that the cause was the presence of a foreign body, i.e. filling, in the sinus cavity.

Conclusion:

Diagnosing ODS requires collaboration between otolaryngologists and dental specialists. Clinicians should suspect ODS when patients present with unilateral sinonasal symptoms, especially foul smell. Patients will generally have purulent drainage on nasal endoscopy, and both sinus opacification and overt dental pathology on CT. However, some patients will have subtle or absent dental pathology on CT. For suspected endodontic disease, endodontists should be consulted for at least cold pulp testing, and ideally cone-beam CT.

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