



ORIGINAL RESEARCH PAPER

Pediatrics

USE OF CBCT IN DETECTION OF MULTIPLE BILATERAL TONSILLOLITHS

KEY WORDS:

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ABSTRACT

Soft tissue calcifications are rare in the maxillofacial region and generally are found on routine extra oral radiographic examinations. These calcified shadows on the radiographs may be misleading, mimicking several pathologies within the same area. They may appear as ghost images in such radiographs requiring meticulous diagnostic follow up to rule out pathologies. Tonsilloliths are rare dystrophic calcifications formed due to chronic inflammation of tonsillar crypts and tonsils. The present case report shows a incidental finding of tonsilloliths, which mimicked the appearance of sialolith of parotid and submandibular gland along with a misleading history. With the help of advanced three-dimensional radiography the accurate diagnosis of tonsilloliths could be made.

INTRODUCTION:

Soft tissue calcifications are rare in the maxillofacial region and are found generally on routine extraoral radiographic examinations. Tonsillar calculi or tonsilloliths are oropharyngeal concretions derived from a reactive foreign nidus, like organic debris, foreign body, bacteria and other microorganisms.^{1,2} Prior chronic tonsillitis can be the cause in most of the cases.¹ These calcifications are generally seen in the tonsillar, peritonsillar areas and enlarged tonsillar crypts, where most of them are non-self-cleansing areas, which attract accumulation of organic debris, food substances and foreign material which eventually may calcify.³

Tonsilloliths are dystrophic calcifications with normal serum calcium and phosphate levels. The exact etiopathogenesis of tonsillolith is unclear. According to the literature, the age group of patients with tonsillitis range from 10- 77 years, with predominance in 4th and 5th decade. Frequent episodes of inflammation may result in fibrosis surrounding the openings of the tonsillar crypts which further attract accumulation of epithelial and bacterial debris, contributing to the formation of retention cysts. Subsequently, this may result in calcification due to accumulation of inorganic salts and further enlargement of the concretion. Actinomyces with pus cells can also serve as ideal location for stone formation. Saliva contributes to the phosphate, magnesium and carbonate of lime of the tonsilloliths.⁴

CASE REPORT:

A 23 year old male patient presented with pain in the left lower back teeth region since one day. The pain was sudden in onset, continuous, dragging type, which aggravates on chewing and relieves by itself. Patient had history of hypertension since ten years and he was on medication, and also had history of renal stone (nephrolith) for which he used medication. He had history of reduced salivation. There was no cervical lymphadenopathy. Intraoral examination revealed halitosis and no evidence of hyposalivation, in contrast to what patient had mentioned in his history. There was an impacted 38 with periapical abscess in relation to 37. A panoramic radiograph was advised for the impacted 38. Incidentally, the radiograph showed bilateral multiple radiopacities, on the middle one-third region of right and left mandibular ramus which were ovoid and small, measuring approximately 2mm in size. (Fig: 1 & 2) These radiopacities were seen scattered around the mandibular foramen on either side. Calcifications were also seen at the mental foramen region, bilaterally, also corresponding to submandibular gland region and the tongue shadow. Provisionally they were initially thought to be

sialoliths arising from parotid and submandibular salivary glands.

A thorough clinical examination suspecting presence of sialoliths was performed. As the calcifications were present in the parotid area, bilateral parotid glands were checked and the parotid region showed no abnormality. Examination of soft palate, pharyngeal region, right and left tonsillar area revealed small, grayish-white, nodular like calcified mass of about 1mm on the superficial aspect of palatine tonsil, on an erythematous base. (Fig 3) It non-tender and was firmly attached to the underlying mucosa. Suspecting tonsilloliths, the patient was probed for history of difficulty in swallowing, tonsillitis, or tonsillar abscesses from childhood, till his presentation at our clinic. History was non contributory.

Further, a Cone Beam Computed Tomography (CBCT) of maxilla and mandible images was acquired from both sides to determine or locate the exact position of the calcified masses. The 3D and axial views of CBCT (Fig 4 & 5) showed bilateral multiple radiopaque masses in the area of both the tonsils, confirming diagnosis of tonsilloliths. Thus other soft tissue calcifications including sialoliths, lymphnode calcifications and phleboliths could be excluded. Patient was referred to ENT specialist for management and follow up revealed that as the patient was asymptomatic, surgery was deferred.

Furthermore, patient was advised extraction of impacted 38, and root canal treatment of 37. The patient was asked to report back with any secondary changes like pain, and pus discharge with regard to tonsilloliths.

DISCUSSION:

Tonsilloliths are rare dystrophic calcifications formed due to chronic inflammation of tonsillar crypts and tonsils. Most of the patients with tonsilloliths do not present with symptoms and clinical signs, probably due to the small size of these calcifications; thus, mostly the calcifications are incidentally detected during panoramic radiographic examination.⁵ The present case also didn't show any symptoms. They are usually single and unilateral, but occasionally they may be multiple or bilateral.⁴ In this case, the tonsilloliths are multiple and are bilaterally present. T. Ansai et al found that tonsilloliths might have been a halitosis inducing factor.⁶ This was in accordance with our case, as the patient presented with halitosis, despite of decently good oral hygiene. The size of these tonsilloliths may range from few millimeters to several centimeters.

The routine conventional radiographs such as orthopantomograms, obtained for routine dental examination, may incidentally reveal dystrophic calcifications within the soft tissues that are present in proximity of the focal trough. However these shadows of calcifications on panoramic imaging, pose difficulty in diagnosis, as number of such similar conditions in cervicofacial region can produce such shadows. They include sialoliths, nasoliths, antroliths, calcified lymphnodes, phleboliths and foreign bodies.⁷ There was a similar confusion in the present case, as the history was misleading and hence CBCT of mandibular region was advised.

Moreover, due to the two dimensional image formation, magnification, distortion and superimposition of anatomical structures, panoramic images pose limitations in making an accurate diagnosis regarding soft tissue calcifications. Hence to assess the exact location and appearance, advanced diagnostic radiographs or 3D imaging like CBCT or CT are needed. According to a study done by BS Centurion et al, CBCT images are more suitable to diagnose tonsilloliths than panoramic images.⁸ In the present case, CBCT was helpful in locating the calcifications, exclude the other similar conditions and come to a diagnosis of tonsilloliths.

CONCLUSION:

Small tonsilloliths are usually ignored which may progress to giant-size tonsilloliths causing many symptoms. They act as source of recurrent infections in the tonsillar region. Few studies have reported pneumonia and rarely aspiration in older age group patients. Hence accurate diagnosis of tonsilloliths has to be made, with the help of advanced radiographic imaging, if needed, keeping the differential diagnosis in mind rather than labeling them as non-specific conditions.

Fig1: Panoramic radiograph showing bilateral multiple radiopacities on ramus of mandible

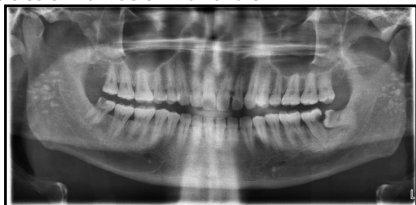


Fig 2: Cropped panoramic image showing multiple radiopacities on right mandibular ramus



Fig3: Intraoral picture showing whitish, ovoid, calcification in the left tonsillar crypt

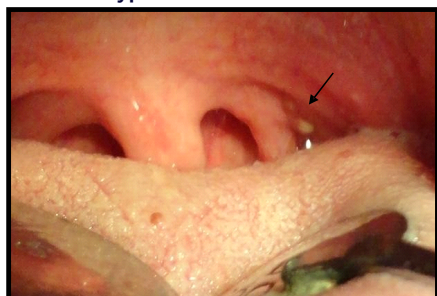


Fig4: CBCT images in 3D and axial section showing multiple, small, irregular hyperdense areas in the tonsillar area on left side

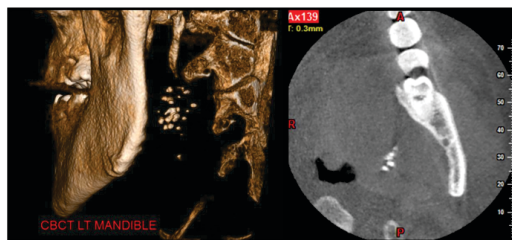
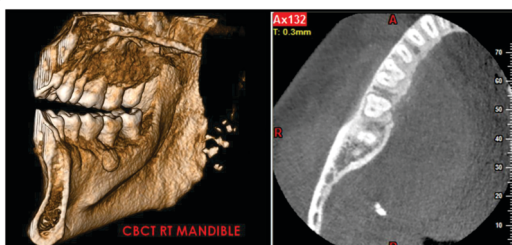


Fig5: CBCT images in 3D and axial section showing multiple, small, irregular hyperdense areas in the tonsillar area on right side



REFERENCES:

1. Robert P. Langlais and Olaf E. Langland. Principles of Dental Imaging. 1997.
2. Oda et al. Prevalence and imaging characteristics of detectable tonsilloliths on 482 pairs of consecutive CT and panoramic radiographs. BMC Oral Health. 2013;13:54
3. Janan Ghabanchi, Abdolaziz Haghnegahdar, Leila Khojastehpour, Ali Ebrahimi. Frequency of tonsilloliths in panoramic views of a selected population in Southern Iran. Dent Shiraz Univ Med Sci., June 2015; 16(2): 75-80.
4. Balaji Babu B, Avinash Tejasvi M.L, C.K. Anulekha Avinash, Chittaranjan B. Tonsillolith: Journal of Clinical and Diagnostic Research. 2013 Oct, Vol-7(10): 2378- 2379
5. Mariela Dura Gontijo de Moura, Davidson Fróis Madureira, Luiz Cláudio Noman-Ferreira, Evandro Neves Abdo, Evandro Guimarães de Aguiar, Addah Regina da Silva Freire. Tonsillolith: A report of three clinical cases. Med Oral Patol Oral Cir Bucal 2007;12:130-133.
6. T. Ansai and T. Takehara. Tonsillolith as a halitosis-inducing factor. British Dental Journal. 2005;198(5):263-264
7. Anil Kumar Bhoweer. A giant tonsillolith. Journal of Indian Academy of Oral Medicine and Radiology. 2008; 20(3):107-109
8. BS Centurion, TSN Imada, O Pagin, ALA Capelozza, JRP Lauris, IRF Rubira- Bullen. How to assess tonsilloliths and styloid chain ossifications on cone beam computed tomography images. Oral Diseases. 2013; 19: 473-478