Case Report

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Tonsillolith: An Incidental Finding in an OPG

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Abstract

Tonsillolith is a rare dystrophic calcification which results due to chronic inflammation of the tonsils.Although they may be asymptomatic, some may cause halitosis, cough, dysphagia, and foreign body sensation, as well as otalgia. These tonsilloliths can be detected on panoramic radiographs as radiopaque lesions, and can mimick the radiographic picture of many other pathologies. Hence, a dentist should be familiar with radiographic characteristics of this type of calcification.

Keywords: Tonsillolith; Tonsil Concretions; Panoramic Radiography; Soft Tissue Calcifications.

Introduction

The deposition of calcium salts, in the form of calcium phosphate, is seen to occur in the skeleton. But when it happens in an unorganized fashion in soft tissue, it is referred to as heterotopic calcification, which is of 3 types: metastatic, idiopathic or dystrophic. Metastatic calcification occurs when minerals precipitate into normal tissue as a result of higher than normal serum levels of calcium (hyperparathyroidism) or phosphate (chronic renal failure). It generally occurs bilaterally and symmetrically. Idiopathic calcification refers to the deposition of calcium in normal tissue despite normal serum calcium and phosphate levels (chondrocalcinosis and phleboliths). Dystrophic calcification is a pathologic entity and is seen to occur in degenerative and dead tissues despite normal serum calcium and phosphate levels. Tonsilloliths are calcified concretions that develop in the tonsillar crypts and are a type of dystrophic calcification.

Case Report

A 50 years old male patient reported with a chief complaint of mobility in upper and lower front teeth since 1 year. History of insidious onset of mobility associated with mild intermittent pricking type of pain which aggravates on chewing food, no relieving factors reported. His medical history was non-contributory. On general physical examination, he was moderately built and was well oriented to time, place and person. Bilateral submandibular lymph nodes were palpable, solitary, oval, 3mm in diameter, mobile, soft and non-tender on palpation. On intra-oral examination, generalized mild marginal gingival inflammation was present with 3-4mm periodontal pockets present irt 11, 12 and 21. Teeth 11, 17, 21, 27, 32, 37, 42 and 47 were grade I mobile and 31 and 41 were grade II mobile. A panoramic radiograph was taken which showed an incidental finding of solitary, roughly oval in shape,radiopacities measuring approximately 3mm in diameter present bilaterally at the angle of the mandible. The radiopacities have well-defined borders and are homogeneously radiopaque. A Working diagnosis of soft tissue calcifications was made(Fig. 2). Later, a retrograde, detailed, clinical examination of the patient was done. Tissues which were related to the parotid-mesenteric areas were clinically painless and normal in tone when they were palpated (Fig.1). Considering the radiographic location and appearance of the lesion on an orthopantomogram, the differentials given were tonsillolith, calcified lymph nodes and phleboliths. Further, ultrasonography was done which revealed calcification in the right tonsil measuring 3.4mm and in the left tonsil measuring 4.3mm (Fig. 3). An ENT consultation was taken, which did not reveal any positive signs of pathology on clinical examination.

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As the patient was asymptomatic and as the tonsiloliths were bilateral and small, patient was kept under observation and follow-up.

Fig. 1: clinical picture of the tonsillar region

Fig. 2: OPG

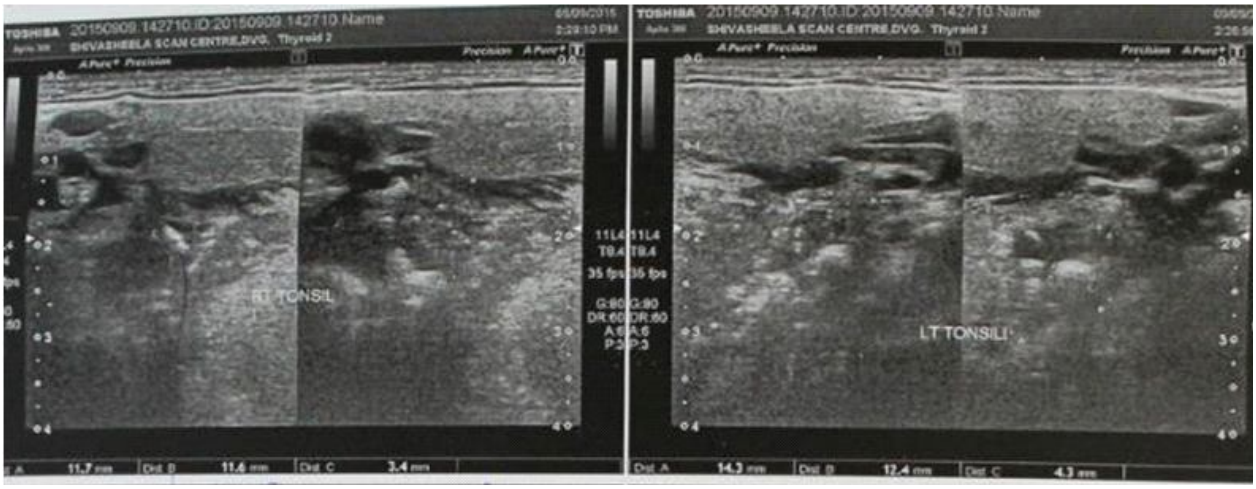

Fig. 3: Ultrasound

Discussion

The earliest known description of oropharynx concretions is stated in 1560 [1]. Tonsillar calcifications, or tonsilloliths, are calcified structures of bacteria and organic debris that mostly develop in the tonsillar crypts, within the substance of the tonsil or around it. They are composed of calcium salts like hydroxyapatite or calcium carbonate, oxalates, and other magnesium salts, and are a result of chronic inflammation of the tonsils [2].

Epidemiology

They occur between 20 - 77 years of age and are rare in pediatric age group [3]. In a review study by Ram et al, 26 cases of tonsilloliths were reported from 1920-2003, with the mean age of occurrence 46.2 years (age range: 16-77 years), a 2 : 1 male : female ratio and a preponderance located on the right tonsil; the heaviest and lightest tonsilloliths were reported to weigh 42 g and 300 mg, respectively (mean weight: 14.7 g) [4].

Etiopathogenesis

The exact pathogenesis of these calculi is unknown although there are many hypothesis on the formation of these. It has been stated that they originate as a result of repeated tonsillitis which lead to fibrosis of the ducts of crypts and retention of epithelial debris thereof. This epithelial debris forms the ideal media of growth of bacterial, actinomyces and fungi, such as Leptothrixbuccalis. Finally, dystrophic calcification occurs as a result of deposition of inorganic salts derived from the saliva secreted by major and minor salivary glands. Enlargement of the formed concretion takes place gradually, with phosphate and carbonate of lime and magnesia derived from saliva [5]. An alternative proposed mechanism is that when the calculi are located in the peritonsillar areas, such as existence of ectopic tonsillar tissue, the formation of calculi occurs secondary to salivary stasis within the minor salivary gland ducts in these locations or due to the calcification of abscessified accumulation [6].

Clinical Features

Clinical signs and symptoms are usually absent in small tonsilloliths and are usually detected incidentally during panoramic radiographic examination. Larger ones may present with foreign body sensation in the throat, recurrent halitosis, odynophagia and referred otalgia and can sometimes mimic abscesses or neoplasms. On throat examination, it may be seen embedded in the tonsillar crypt which may present as tonsil or tonsillar fossa swelling and can be palpated as a hard mass [7]. In a review by Mesolella et al, they were found to be located in the tonsillar tissue in 69.7%, in the tonsillar fossa in 21.2 and 9% were palatine in location. Only one case of calculi in the lingual tonsil has been reported in the literature [8]. They may be of variable shapes like round, oval, cylindrical, pyramidal or plurilocular and color also varies from grayish-yellow to dark gray, black or red brown [7]. Although tonsilloliths usually present as single stone of hard consistency, multiple bilateral small calculi are also observed, with a more friable consistency.

Radiographic Features

Calcification of various structures located in the head and neck region are detected accidentally on panoramic radiographs (OPGs) during routine examination of patients seeking dental care.OPGs are the first diagnostic tool to diagnose the radiopaque lesions in the jaws. In case of tonsillolith, it is revealed in an OPG as single or multiple defined radiopacites on the mandibular ramus, in the region where the dorsal surface of the tongue crosses the ramus in the palatoglossal or glossopharyngeal air spaces [9].

Transoral head-and-neck sonography allows for an effective physical examination that improves diagnostic accuracy and often removes the need for additional tests, studies, and procedures that are often more invasive or expensive.Transoral sonography can display the tonsil itself and enable the examiner to distinguish a lesion from the peritonsillar structures [10].

Differential Diagnosis

Prevalence of soft tissue calcifications is fairly common and these should be identified to distinguish innocuous lesions from pathologies. Important criteria to be considered are the anatomic location, number, distribution and shape of the calcification.When a soft-tissue calcification is adjacent to bone, it is sometimes difficult to determine whether the calcification is within the bone or the soft tissue. Differential diagnoses may be phleboliths, lymph node calcifications, sialoliths, calcified granulomas, scrofulas, malignancies, diseases such as tertiary syphilis, tuberculosis and deep fungal infections, foreign bodies and isolated bone or cartilage which was derived from embryonic rests, or an elongated styloid process could be also be suspected[11]. In panoramic images, calcifications

within the carotid artery appear in the soft tissue below the angle of the mandible and between the hyoid bone and the cervical spine. Lymph node calcifications occur most often in the submandibular region, near or below the mandibular angle. The majorities (83-94%) of sialoliths are found in the submandibular glands, although some occur in the parotid gland (4-10%) or sublingual gland (1-7%) and can be visualized on standard occlusal projections as well as panoramic radiographs. Ossification of the stylohyoid ligament can be seen in a panoramic image to extend from the mastoid process across the postero-inferior aspect of the ramus toward the hyoid bone [12].

Treatment

No treatment is required for small tonsilloliths. However, large tonsilloliths are usually removed under topical or local anesthesia. Vigorous mouth gargling daily helps in keeping the tonsil crypts clear of debris. In case of a large tonsillolith impacted within the tonsil or in chronic tonsillitis, tonsillectomy is indicated [2]. In recurrent tonsilloliths, laser cryptolysis can be done to decrease the surface area of the tonsils via laser surfacing. A scanned carbon dioxide laser selectively vaporizes and smoothens the surface of the tonsils and thus flattens the edges of crypts preventing trapped material from forming calculus [13].

Conclusion

Tonsilloliths can be an accidental finding on panoramic radiographs and are detected in nearly 5% of cases. They should be the first differential diagnosis when multiple radiopaque lesions with ill-defined borders, which are superimposed on the palatal uvula and the ramus region, are detected in an OPG. A correct diagnosis will eliminate the need for further evaluations.

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