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## Unilateral tonsillolith: An incidental finding

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### Abstract

This case report aims to present the clinical and radiographic findings of a tonsillolith incidentally detected during a panoramic radiographic examination. A 51-year-old female patient without any systemic disease was seen at the Department of Oral and Maxillofacial Radiology at the Faculty of Dentistry, Selcuk University, for a routine dental examination. The patient's radiographic image showed a unilateral radiopaque formation on the left side. Cone Beam Computed Tomography (CBCT) sections revealed a unilateral hyperdense mass located in the left parapharyngeal region, measuring 8 x 9.8 x 8.3 mm. The patient was referred to the Department of Otorhinolaryngology with a preliminary diagnosis of tonsillolith.

**Keywords:** Panoramic radiography, tonsillolith, cone-beam computed tomography

### Introduction

The palatine tonsils, lingual tonsils, and pharyngeal tonsils (adenoids) constitute the three main tonsillar groups and form Waldeyer's ring together. Tonsilloliths are calcified deposits found within or around the crypts of the tonsils. Dystrophic calcifications can cause tonsillolith formation even with normal serum calcium and phosphate levels <sup>[1]</sup>. The exact mechanism of these calcifications has not been fully explained; however, they seem to result from the accumulation of food debris, desquamated cells, and foreign particles adhering to the tonsillar crypts, often associated with the proliferation of fungi and bacteria, particularly in cases of chronic purulent tonsillitis <sup>[1,2]</sup>. Histological studies have identified minerals such as ammonia, magnesium, and phosphorus, as well as components like calcium carbonate and hydroxyapatite in tonsilloliths <sup>[3]</sup>.

Tonsilloliths are most commonly found in the palatine tonsils and can vary in size, color, and shape. They are more frequently observed in adults than in children <sup>[2]</sup>. Typically, they are completely asymptomatic and often detected incidentally during routine panoramic radiographs <sup>[4]</sup>. However, large tonsilloliths may present with symptoms such as sore throat, earache, dysphagia, halitosis, bad taste, and the sensation of a foreign body during swallowing <sup>[5]</sup>.

This case report presents the clinical and radiological findings of an asymptomatic tonsillolith that was incidentally detected during a radiographic examination.

### Case Report

A 51-year-old female patient presented to the Department of Oral and Maxillofacial Radiology at the Faculty of Dentistry, Selcuk University, for a routine dental examination. Informed consent was obtained from the patient. Her medical history revealed no systemic diseases. Intraoral examination revealed crown restorations and fillings, along with swelling and redness in the left tonsil. No lymphadenopathy, asymmetry, expansion, or pathological skin changes were detected during the extraoral examination.

Upon evaluation of the patient's panoramic radiographic image (Kodak 8000 Panoramic system, Carestream Health Inc, Rochester, NY), a unilateral radiopaque structure was identified on the left side, superimposed on the mandibular ramus and adjacent to the left oropharyngeal airway. A ghost image of this radiopacity was observed on the right side (Figure 1).

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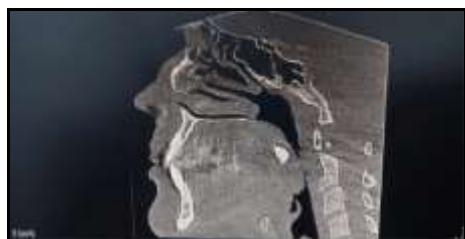
The patient was clinically asymptomatic. To determine the exact localization of the radiopacity, Cone Beam Computed Tomography (CBCT) was requested (Instrumentarium Dental device, Palo DEx Group Oy Nahkelantie, 160FI04300 Tuusula, Finland). The examination was performed in axial, coronal, and sagittal planes with 0.5 mm thick slices. A hyperdense mass measuring 8 x 9.8 x 8.3 mm was observed adjacent to the left oropharyngeal airway (Figures 2, 3). The patient was referred to the Department of Otorhinolaryngology with a preliminary diagnosis of tonsillolith. The tonsillolith was excised in this department, and the patient was placed under follow-up care.



**Fig 1:** Panoramic radiograph depicts unilateral left opacity and its ghost image.



**Fig 2:** Axial CBCT image: calcified round lesion in left tonsil.



**Fig 3:** Sagittal CBCT image.

## Discussion

Panoramic radiographs serve as the primary diagnostic tool for identifying radiopaque lesions in the jaws. On a panoramic image, tonsilloliths appear as single or multiple radiopacities [6]. Tonsilloliths are typically located in the middle portion of the mandibular ramus, where the dorsal surface of the tongue's image crosses the oropharyngeal air space, just below the mandibular canal [4, 6]. In this case, the tonsillolith was diagnosed through a panoramic radiograph taken during a routine dental examination. Due to the natural rotation of panoramic radiographs, ghost images of unilateral tonsilloliths may appear on panoramic images [7]. In this unilateral case, a ghost image was also present on the panoramic radiograph. Additional imaging techniques were required to determine whether the formation was bilateral. CBCT is a highly useful imaging method for accurately determining the location and size of tonsilloliths. However, due to its higher radiation dose compared to conventional radiographs, CBCT is not recommended for routine use and should only be employed in clinical situations where conventional radiography does not provide sufficient

information [1]. In the presented case, CBCT was utilized to determine the shape, size, and localization of the soft tissue calcification.

Tonsilloliths are more frequently observed in adults than in children, as seen in this case [8]. They are most commonly found in individuals between the ages of 20 and 68, with no gender predilection [2]. While small tonsilloliths may remain asymptomatic, they can sometimes cause pain during swallowing. Larger tonsilloliths can lead to multiple symptoms, such as recurrent halitosis, difficulty swallowing, tonsillar swelling, and sore throat [8]. Additionally, palatine tonsilloliths are suspected of being a factor in glossopharyngeal neuralgia or orofacial pain [1]. In the present case, the patient sought dental treatment, and the swelling in the left tonsil was asymptomatic. A study of 50 cases by Mesolella *et al.* [9] found that 69.7% of tonsilloliths were located in the tonsil tissue, 21.2% in the tonsillar fossa, and 9% in the palatal region. In this case, the tonsillolith was confined to the tonsillar tissue.

The differential diagnosis of tonsilloliths should include sialoliths, phleboliths, tonsillitis, calcified lymph nodes, stylohyoid ligament ossification, carotid artery atherosclerosis, and dystrophic calcifications from acne scars, all of which can cause radiopacity in the mandibular molar-ramus region [7, 10]. These conditions can be distinguished from one another through various imaging diagnostic tests based on their radiographic features, locations, and clinical evaluations [8]. In the present case, a differential diagnosis was made by evaluating the swelling in the left tonsil and utilizing CBCT imaging.

Multiple small calcifications require routine follow-up. Single large tonsilloliths, even if asymptomatic, should be surgically removed due to the potential for recurrent episodes of tonsillitis. Surgical excision can be performed through curettage, manual compression, or a simple incision to release the calcified mass [5]. In cases of recurrent infection or deep-seated tonsilloliths, the definitive treatment is unilateral tonsillectomy [5, 9]. In this case, although the patient was asymptomatic, the large size of the tonsillolith warranted surgical excision.

Tonsillolith is a common soft tissue calcification that may become more frequent with increasing age and is often incidentally detected during radiographic examination. As demonstrated in this case, even large tonsilloliths can remain asymptomatic.

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There was no conflict of interest in the related work.

## Conflict of Interest

Not available

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Not available

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