

Calcification of the epiglottis presenting as foreign body sensation in the neck

Sunil Jeph^{1*}, Michael Aidi¹, Ahmed Shah², Thu-Thao Ly¹, Oleg Bronov¹

1. Department of Radiology, Geisinger Medical Center, Danville, USA

2. University of Toronto, Ontario, Canada

* Correspondence: Sunil Jeph, MD, Department of Radiology, Geisinger Medical Center, 100 N. Academy Ave., Danville, PA 17822-2007, USA

(✉ sjeph@geisinger.edu)

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ABSTRACT

The epiglottis plays an important role in preventing food of different consistencies from entering the airway during swallowing. Calcification of epiglottis can, potentially, alter and limit its movement causing aspiration amongst other swallowing problems. Isolated calcification of the epiglottis and its clinical presentation remains a poorly understood entity for radiologists as well as clinicians. Therefore, it is important to recognize the imaging features of epiglottic calcification, and its known clinical presentations to help clinicians with early diagnosis and management.

CASE REPORT

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A 55-year-old male presented to his otolaryngologist with the chief complaint of right-sided hearing loss. During the visit, he mentioned that he had been experiencing a globus sensation in the throat. Upon further investigation, he said, this sensation began after he ate a piece of salmon for dinner approximately one week prior, and believed that a bone had lodged in his throat. He denied dysphagia, odynophagia or hemoptysis. He described that his throat felt “sore,” but there was no associated pain. There were some days when he did not experience soreness.

His past medical history was significant for Factor V Leiden (heterozygous), gastroesophageal reflux disease, hyperthyroidism, atrial fibrillation and end-stage renal disease with a secondary hyperparathyroidism, status post kidney transplant in 2010.

Physical examination of the oral cavity was unremarkable. There was no pain on neck palpation. Cranial nerve II-XII were intact.

A fiberoptic exam of the larynx and esophagus (laryngoscopy/esophagoscopy) was performed the next day. It revealed two separate areas of hyperemia located at the junction of the base of the tongue and the lateral wall of the hypopharynx, each approximately 0.5 cm large, where the endoscopist believed there could have been possible mucosal injury or prior hemorrhage. No fish bone was visualized. A neck computed tomography (CT) obtained the same day showed no foreign body. Instead, the patient had diffuse, multiple small calcific densities scattered throughout his entire epiglottis without edema [Figure 1]. There was no evidence of the mucosal break or inflammatory changes. A neck CT from nine years' prior was normal and did not show any signs of epiglottic calcification [Figure 2]. CT of trachea and costochondral junctions did not show any evidence of abnormal calcification. [Figure 3].

At his follow-up exam two weeks later, he was still feeling the globus sensation. Another fiberoptic exam was done in the office, which was negative for any foreign bodies. Further, two weeks later, he continued to feel the globus sensation in the throat, and another unremarkable fiberoptic exam was done.

DISCUSSION

Etiology & Demographics:

Isolated calcification of epiglottis is a poorly understood entity with unknown etiology. There are only 3 case reports in the literature. All three reported cases were in males who were at least 55 years old [1-3].

Clinical & imaging findings:

One of the cases was a 57-year-old male who presented with dysphagia and aspiration of liquid foods for one year. The contrast-enhanced CT of the neck showed diffuse, asymmetric, amorphous calcification. The authors concluded that epiglottic calcification resulted in impairment of the normal elasticity and mobility of the epiglottic cartilage, resulting in dysphagia and aspiration [1].

Another case described a 70-year-old male who received a neck radiograph for evaluation of a para-pharyngeal phlegmon showed linear calcifications of the epiglottis. Subsequent, contrast enhanced CT of the neck showed it involving the central region of the epiglottis. He was asymptomatic and experienced no dysphagia or globus sensation [2].

The third case was a 68-year-old male whose voice had “come and gone” for years. On exam, erythema of his vocal cords was noted. He also had a Zenker’s diverticulum and weak pharyngeal constrictor muscles. The anteroposterior and lateral radiographs of the neck showed isolated calcification of the epiglottis with a branching pattern. The authors concluded that the calcification of epiglottis did not cause any change in morphology. However, they noticed altered movement with epiglottis bending more acutely just superior to the calcification. They postulated that spillage from his diverticulum might have at least partly played a role in his symptoms. They also mentioned that a colleague had seen plaques of calcification in the epiglottis following radiation treatment of the larynx [3].

Chondrocalcinosis is a common phenomenon, occurring most often at the costochondral junction, larynx, trachea and temporomandibular joint disc [4]. It is believed that the epiglottis doesn’t calcify to the same extent as the laryngeal cartilages, owing to its elastic nature [2]. Kano et al. showed that calcium deposition within the epiglottis increases with age. Male sex was associated with a larger area of deposition [5].

In our case, the patient had end-stage renal disease, resulting in secondary hyperparathyroidism, parathyroid hormone level = 1472 pg/mL, (normal range = 10 – 65 pg/mL). Many nonspecific radiographic findings have been documented, such as arterial calcifications, sub-periosteal erosions, periosteal reactions, increased bone density at vertebral endplates (“Rugger Jersey” spine) and brown tumors. Extra-osseous calcification is more common in secondary hyperparathyroidism, with chondrocalcinosis as a known complication. Hyperparathyroidism is usually diagnosed

biochemically before any radiographic manifestations are seen. Calcification of epiglottis may be a rare sequela of advanced secondary hyperparathyroidism [6].

Treatment & Prognosis:

There is not enough information available about the treatment options available for this rare pathology. However, symptomatic treatment depending on the clinical presentation have been recommended. Patients presenting with dysphagia may benefit from finding the best possible positioning of head and neck while swallowing to allow the fullest passage of bolus. In unresponsive cases, surgical suture or flap techniques might be helpful. In severe or unresponsive cases of dysphagia and aspiration, surgical options including, supraglottoplasty or epiglottopexy should be considered [1,7].

Information regarding the prognosis is not available due to the lack of sufficient follow-up information on the reported cases.

Differential Diagnoses:

Epiglottic calcification: There is no mucosal break or associated inflammation. There is submucosal calcium deposition.

Foreign body: The foreign body is associated with mucosal break and inflammation.

TEACHING POINT

Isolated calcification of the epiglottis is a poorly identified and understood entity in the literature. It may present with dysphagia or aspiration in some patients and is asymptomatic in others. In our presented case, this is the probable diagnosis to explain the globus sensation in the throat.

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FIGURES



Figure 1: 55-year-old man with epiglottic calcification.

Findings: Axial (A) non-contrast CT of the neck with coronal (B) and sagittal (C) reformatted images demonstrate diffuse, nodular calcification of the epiglottis.

Techniques: Non-contrast axial CT of the neck obtained on a 64-slice CT scanner with coronal and sagittal reformatted images. mA = 75. kVP = 120. Slice thickness = 2.5 mm.

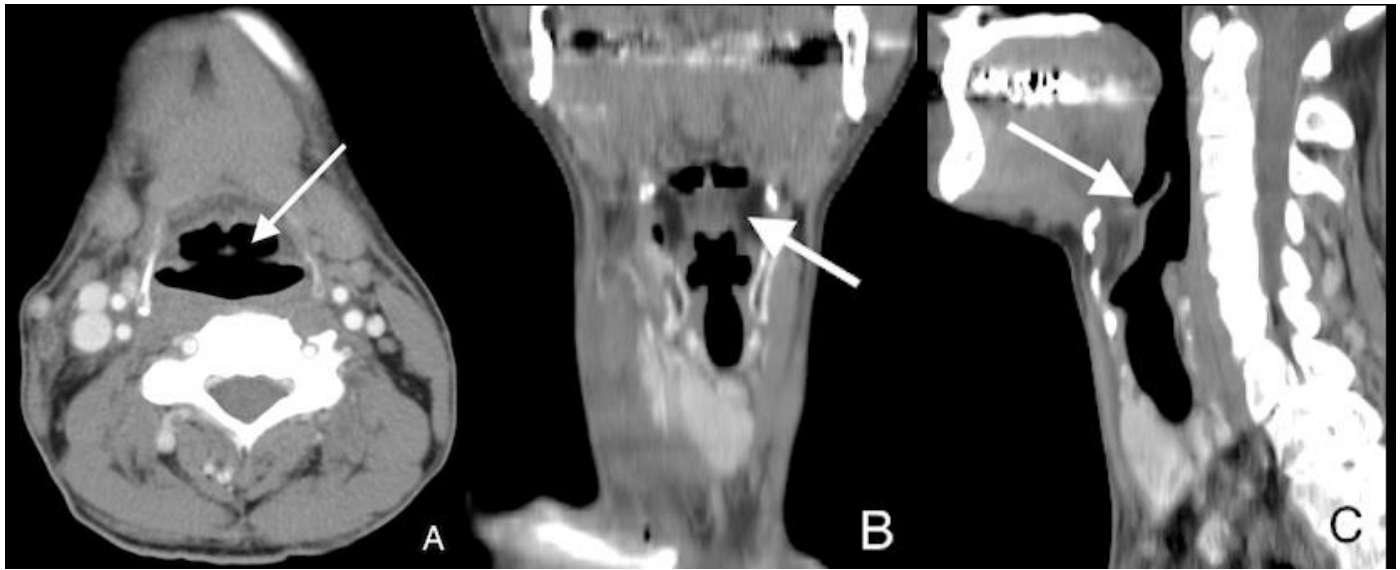


Figure 2: 46-year-old man with normal epiglottis without any evidence calcification. (Same patient, nine years ago.)
 Findings: Axial (A) contrast enhanced CT of the neck with coronal (B), and sagittal (C) reformatted images demonstrate normal appearing epiglottis without any evidence of calcification.
 Techniques: Arterial phase of contrast enhanced axial CT of the neck obtained on a 64-slice CT scanner with coronal and sagittal reformatted images. Contrast = Isovue-300, 100ml. mA = 76. kVP = 120. Slice thickness = 2.5 mm.

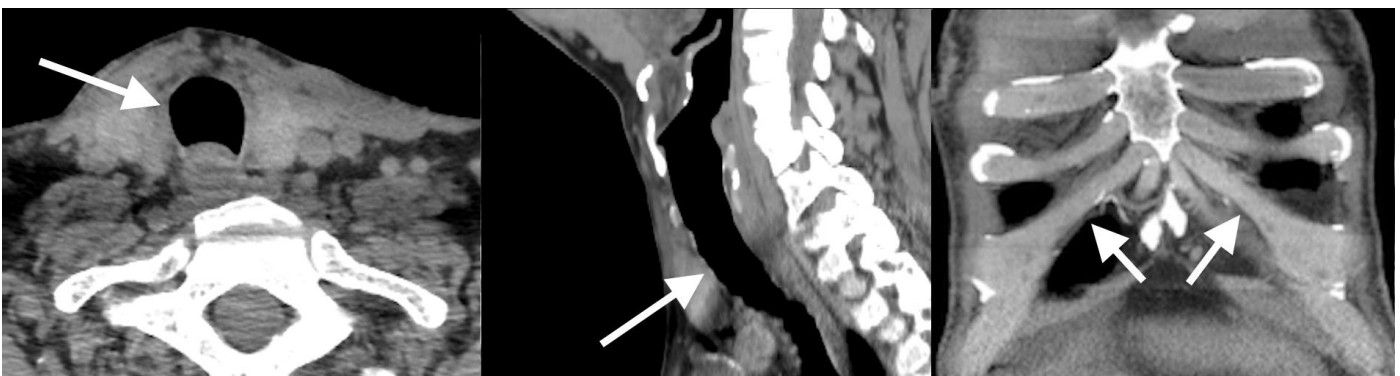


Figure 3: 55-year-old man with epiglottic calcification.
 Findings: Axial non-contrast CT of the neck (A) with sagittal reformatted neck images (B) show no evidence of calcification in trachea. Coronal reformatted images of chest (C) show no evidence of calcification of chondral cartilage or costochondral junction.
 Techniques: Axial non-contrast CT of the neck obtained on a 64-slice CT scanner with sagittal reformatted images. mA = 75. kVP = 120. Slice thickness = 2.5 mm.
 Coronal reformatted non-contrast CT of the chest obtained on a 64-slice CT scanner. mA = 705. kVP = 120. Slice thickness = 0.7 mm.

Etiology	Unknown etiology, poorly understood
Incidence	3 cases reported before our case
Gender ratio	All cases were males. Not females reported.
Age predilection	Old age. Everyone was at least 55 years old.
Risk factors	Poorly understood.
Treatment	Neck positioning maneuvers and surgery including supraglottoplasty or epiglottopexy
Prognosis	Not enough literature available.

Table 1: Summary table for epiglottic calcification.

	CT	X-Ray
Epiglottic calcification	Diffuse submucosal calcification without mucosal break	Diffuse calcification
Foreign body	Focal density with associated mucosal break	Focal radiodensity extending into the oropharyngeal lumen

Table 2: Differential diagnosis table for epiglottic calcification.

ABBREVIATIONS

CT = Computed tomography

KEYWORDS

Epiglottic calcification; dystrophic calcification; epiglottis; Computed tomography; neck

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