

# Cysts of Thyroid Cartilage in a Hemodialysis Patient: Case Report

## Bir Hemodiyaliz Hastasında Tiroid Kartilaj Kistleri

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**ABSTRACT** Laryngeal cysts originating from the thyroid cartilage are extremely rare. There is one case in the literature that was thought traumatic in origin. A case that has two cysts in the thyroid cartilage of the larynx was reported here in. A 19 year-old man who has been undergoing hemodialysis for chronic kidney disease who two incidental asymptomatic cysts were seen in his ala of thyroid cartilage on CT examination to rule out parathyroid adenoma was referred to US examination. The diagnosis was confirmed by US and MR imaging. It is propounded that the etiologic factor of these cysts is amyloid deposition due to hemodialysis in chronic kidney disease, because the patient had no history of trauma or any other predisposing factor.

**Key Words:** Larynx; cysts; thyroid cartilage; amyloidosis; renal insufficiency, chronic

**ÖZET** Tiroid kartilajı kaynaklı laringeal kistler oldukça nadir görülen kistlerdendir. Literatürde travma sonrası olduğu düşünülen yalnızca bir olgu mevcuttur. Burada larinkste tiroid kartilajında iki kist bulunan bir olgu sunuldu. Paratiroid adenomu araştırılmak üzere yapılan boyun BT incelemede rastlantısal olarak tiroid kartilajının bilateral kanatlarında 2 adet asemptomatik kistik görünüm izlenen kronik böbrek yetmezliği nedeniyle hemodiyaliz uygulanmakta olan 19 yaşındaki erkek olgu US incelemeye gönderildi. Tanı US ve MRG incelemeler ile doğrulandı. Travma veya başka bir predispozan faktör bulunamadığından olgudaki kistlerin etiyolojik faktörünün kronik böbrek yetmezliği dolayısıyla yapılmakta olan hemodiyalize bağlı olarak biriken amiloid olduğu düşünüldü.

**Anahtar Kelimeler:** Larinks; kistler; tiroid kıkırdak; amiloidoz; böbrek yetmezliği, kronik

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Laryngeal cysts originating from the thyroid cartilage are exceedingly rare.<sup>1-3</sup> The etiology is unclear, and there is one case in the literature that is presumed to be traumatic in origin.<sup>1-3</sup> An asymptomatic case with bilateral thyroid cartilage cysts of the larynx detected incidentally in a patient with chronic kidney disease undergoing hemodialysis therapy was reported.

### CASE REPORT

A 19-year-old man who had been undergoing hemodialysis for chronic kidney disease for 5 years was referred to ultrasonography (US) examination for ruling out parathyroid adenoma due to the high level of parathyroid hormones detected during routine laboratory follow-up and detection of two incidental asymptomatic cysts seen in his ala of thyroid cartilage in previous neck computed tomography (CT) examination (Figure 1A). US, using a color Doppler scanner (Toshiba SSA 370A, Tochigi, Japan) with a 10 MHz compact linear array transducer, disclosed two hypoechoic and well defined cystic masses that showed cortical expansion with posterior acoustic enhancement in the bilateral thyroid cartilage alae (Figure 1B). For further characterization of the masses, magnetic resonance (MR) imaging of the neck with a quadrature neck coil at 1.5 T (Gyrosan; Philips, Best, the Netherlands) was performed. The MR images revealed two cystic masses in thyroid cartilage alae, measuring

approximately 13 mm on the right side and 8 mm on the left side (Figure 1C). The right-sided mass had high signal intensity and left-sided low intensity on T1-weighted spin-echo images (TR/TE, 521/15); and both had very high-signal-intensity on T2-weighted spin-echo images (TR/TE, 3154/90) similar to that of water. Cysts of the thyroid cartilage were confirmed with these findings. Laboratory findings were: PTH: 350 pg/ml; Ca: 6.7 mg/dl and P: 9 mg/dl; BUN: 81 mg/dl; Cr: 4.4 mg/dl; uric acid: 10 mg/dl. Patient had no history of trauma or laryngeal symptoms. Physical examination of the larynx obtained after the radiologic diagnosis was featureless. A control US examination performed 8 months later revealed no interval change. No interventional application was performed because he had no laryngeal symptom.

## DISCUSSION

Laryngeal cysts are relatively rare benign lesions.<sup>1-3</sup> Several classifications of laryngeal cysts were previously made based on different criteria such as their locations within the larynx, being congenital or acquired; or neoplastic or not.<sup>2</sup> In their comprehensive study, DeSanto et al. classified laryngeal cysts as saccular, ductal and thyroid-cartilage foraminal cysts.<sup>2</sup> Saccular cysts result from the cystic distension of laryngeal appendage, but ductal cysts are caused by the retention of mucus in the collecting ducts of the submucosal gland. The third group, thyroid-cartilage foraminal cysts, appears to be distinct and extremely rare lesions that

were postulated to arise by the extension of respiratory epithelium into thyroid cartilage. Of the 238 cysts, only a single case belonged to the third group. As seen, this classification does not include cartilaginous cysts originating from thyroid cartilage.

Burgess and Yim reported a case of degenerative cartilaginous cyst originating from the thyroid cartilage and called them “true cysts” which can be classified under the third group of DeSanto’s classification.<sup>3</sup> They reported that the case was the first true cyst of the thyroid cartilage.

It is supposed that the etiologic factor of the cysts in this patient is amyloid deposition due to hemodialysis in chronic kidney disease, because the patient had no history of trauma or any other predisposing factor. In literature search, any other similar case could not be found.

Dialysis-related amyloidosis is a well-recognized complication in patients on long-term hemodialysis therapy. It results from local amyloid deposits, preferentially in the musculoskeletal tissues including the bones, cartilages other joint structures and periarticular soft tissues. This amyloid protein has been identified to be beta-2-microglobulin. Imaging techniques detects these cystic and destructive lesions of bone and joints.<sup>4</sup>

In summary, this case revealed that two incidental cysts of the thyroid cartilage of the larynx, probably had resulted from dialysis-related amyloid deposition.



**FIGURE 1:** Axial A) CT, B) US and C) T2-weighted spin-echo MR images shows well defined two cystic structures (arrows) in the bilateral thyroid cartilage ala.

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