Cervical thymic cyst in an adult
Published on 13.09.2015

DOI: 10.1594/EURORAD/CASE.12955
ISSN: 1563-4086
Section: Head & neck imaging
Area of Interest: Head and neck
Procedure: Diagnostic procedure
Imaging Technique: Ultrasound
Imaging Technique: Ultrasound-Colour Doppler
Imaging Technique: CT
Special Focus: Cysts
Case Type: Clinical Cases
Patient: 36 years, female

Clinical History:
A 36-year-old female patient presented to our department with an asymptomatic progressively growing left-sided neck swelling. There was no history of pain, dysphagia, hoarseness of voice, dyspnoea, cough or fever. Clinical examination revealed a left-sided mass medial to the anterior border of the sternocleidomastoid muscle with cystic consistency, restricted mobility and without inflammatory signs.

Imaging Findings:
Ultrasound grayscale revealed a 49 mm thin-walled unilocular anechoic cystic mass in the lower left part of the neck. Homogeneous posterior acoustic enhancement was noted. No vascularity was noted on colour Doppler ultrasound. Ultrasound grayscale of the thyroid gland showed no cystic lesions. Subsequent Computed Tomography study showed a well-defined, homogeneous low-density (mean density value = 6 Hounsfield units), nonenhancing mass, measuring 4 x 4 x 3 cm, in the lower left anterior part of the neck in close association with the carotid sheath. The Computed Tomography images showed no relationship between the mass and the thyroid gland. Aspiration of the cystic lesion was not performed once the patient refused it. Surgery was done because the patient started to feel uncomfortable with the left neck swelling. Histopathological examination of the resection specimen showed a benign thymic cyst.

Discussion:
Cervical thymic cyst (CTC) is an unusual lesion, representing 0.3% - 1% of all congenital neck masses [1], usually presenting in the first decade of life. CTC is very rare in adults [2]. CTC is a benign unilateral lesion of the neck [3] and has male preponderance [3, 4]. CTC can appear at any level of the normal thymic descent from the mandible to the mediastinum (50% are continuous with the mediastinal thymus) [2], usually on the left lateral aspect of the neck [2]. Usually, they are located in the vicinity of the carotid sheath (between internal jugular vein and carotid vessels) [4] and deep to the middle third of the sternocleidomastoid muscle [2]. A CTC is usually unilocular [4]. There are two different theories to explain the pathogenesis of the thymic cyst, the theory of congenital origin, due to persistence of the thyropharyngeal duct and the theory of acquired origin, due to degeneration of Hassall’s corpuscles within the remnants of ectopic thymus [5]. CTC is usually asymptomatic [2, 6], because it has a slow and painless growth pattern [4]. However, in 6–13% of the cases patients may present with stridor, hoarseness of voice or dysphagia [6], due to compression of neighbouring structures [7]. The diagnosis of cervical thymic cysts is rarely made preoperatively. Imaging modalities are used to locate the
lesion and, when typical, can suggest the diagnosis [2]. Ultrasound examination can discriminate between a cystic and a solid lesion, it also helps identifying thymic tissue and can assess proximity of the lesion to the carotid sheath [8]. On contrast-enhanced Computed Tomography (CT) the CTC appears as a homogeneous hypodense mass with minimal rim enhancement [9]. If CTC becomes infected, its protein content increases, and this is seen on CT as an increase in attenuation [7]. CT gives the specific anatomic location of the lesion and provides information regarding proximity to vital structures that optimizes surgical planning [9]. Likewise, Magnetic Resonance Imaging studies are useful in the determination of the relationship between the cyst and mediastinal thymus [10] and the surrounding structures [7]. CTC displays low T1 signal and high T2 signal [10]. The definitive diagnosis is made with histopathologic examination [6].

The treatment of choice of symptomatic CTC is surgery [2]. Recurrence, myasthenia gravis, and malignant transformation are rare [4].

There are few reported cases in the literature about CTC in adults. A correct diagnosis of thymic cyst based only on imaging is usually impossible. In this case, the cystic nature, slow progression and absence of any history of malignancy suggest CTC as a possible diagnosis.

**Differential Diagnosis List:** Cervical thymic cyst, Thyroid cyst, Parathyroid cyst, Second branchial cleft cyst, Fourth branchial anomaly, Lymphatic malformation, Cystic thymoma, Abscess

**Final Diagnosis:** Cervical thymic cyst

**References:**


Description: Ultrasound grayscale examination showing a 49 mm thin-walled unilocular anechoic cystic mass, with posterior acoustic enhancement, in the lower left part of the neck. Origin: Department of Radiology Centro Hospitalar Tondela-Viseu, Portugal
Figure 2

Description: Colour Doppler ultrasound showing no vascularization in the cystic mass. Origin: Department of Radiology Centro Hospitalar Tondela-Viseu, Portugal
Figure 3

a

Description: Well-defined, homogeneous non-enhancing mass in the lower left anterior part of the neck, located medially to the sternocleidomastoid and anteriorly to the left common carotid artery and jugular vein. 

Origin: Department of Radiology Centro Hospitalar Tondela-Viseu, Portugal

b

Description: The cystic mass causes discrete tracheal deviation to the right of the midline. 

Origin: Department of Radiology Centro Hospitalar Tondela-Viseu, Portugal
Description: A well-defined, homogeneous low-density cystic mass that extends from the anterior mediastinum. Origin: Department of Radiology Centro Hospitalar Tondela-Viseu, Portugal
**Description:** A well-defined, homogeneous low-density mass (arrows), in close association with the carotid space, that extends from the anterior mediastinum into the lower neck along the course of the thyrompharyngeal duct. **Origin:** Department of Radiology Centro Hospitalar Tondela-Viseu, Portugal
Figure 5

**Description:** Image showing no cystic lesions on the left thyroid lobe. **Origin:** Centro Hospitalar Tondela-Viseu, Department of Radiology, Portugal.
Description: Image showing cleavage plane between the left lobe of the thyroid (blue arrow) and the cystic lesion (yellow arrow). Origin: Centro Hospitalar Tondela Viseu, Department of Radiology, Portugal.
Description: Image showing no relationship between the cystic mass (yellow arrow) and lower pole of the left thyroid lobe (blue arrow). Origin: Centro Hospitalar Tondela-Viseu, Department of Radiology, Portugal.
Description: Image showing the cervical portion of the cystic lesion (yellow arrow). Origin: Centro Hospitalar Tondela-Viseu, Department of Radiology, Portugal.