Case 15164

Thyroglossal duct cyst involving the floor of the mouth
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Section: Head & neck imaging
Area of Interest: Head and neck
Procedure: Diagnostic procedure
Technique: CT
Technique: MR
Special Focus: Congenital Case Type: Clinical Cases
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Patient: 26 years, male

Clinical History:
A 26-year-old man with odontogenic abscesses underwent an orthopantomogram, which showed periapical hyperlucency in teeths 2.5 and 2.6. Antibiotic treatment was initiated. Due to persistent symptoms Computed Tomography (CT) was performed, revealing an incidental finding in the floor of the mouth. He had no relevant personal and family history.

Imaging Findings:
Contrast enhanced-CT showed an oval, homogeneous, hypodense and non-enhancing lesion in the floor of the mouth (Fig.1a-c).
Magnetic Resonance Imaging (MRI) was performed to further characterise the lesion, and was acquired using the following sequences: axial T1 weighted imaging (T1WI) with and without fat saturation (FS); axial T2 weighted imaging (T2WI); axial, coronal and sagittal STIR; and axial, coronal and sagittal T1WI with FS after gadolinium. MR showed a homogeneous, hypointense T1WI (Fig.2a) and hyperintense T2WI lesion (Fig.2b). With FS the lesion maintained its signal intensity (Fig.2c). After gadolinium administration a non-enhancing rim was revealed (Fig.2d).
The lesion deviated to the right, located between the geniohyoid and genioglossus muscles. A small communication with the foramen caecum was delineated.
A normally located thyroid gland was identified.
These findings suggested the diagnosis of a thyroglossal duct cyst in the floor of the mouth.
Surgery was not considered necessary due to its asymptomatic nature and benign imaging features.

Discussion:
Thyroglossal duct cysts are the most commonly encountered congenital neck mass. They result from persistence of embryonic remnants of the descending thyroglossal duct and can be found anywhere between the foramen caecum and the thyroid gland. Nearly 80% are located at or below the level of the hyoid bone and 20% above it [1]. As the floor of the mouth is separated from the traditional migration route of the gland it is uncommon to find thyroglossal duct cysts in this region [2, 3]. 75% are located in the midline and 25% slightly off-midline (less than 2 cm) [1].

Thyroglossal duct cysts of the floor of the mouth are associated with respiratory, feeding, swallowing and pronunciation difficulties [4]. They typically move upwards with tongue protrusion [1].
On all radiological modalities uncomplicated cysts appear as a mass in the midline of the anterior neck. On ultrasound (US), typically they present as an anechoic lesion with a thin outer wall. Often they are hypoechoic
with increased through-transmission. They can be either heterogeneous or homogeneous. On CT they appear as a smooth, well-circumscribed mass, with a thin wall and homogeneous fluid attenuation. After contrast administration peripheral rim enhancement may be observed. On MR they appear as a low signal intensity T1WI lesion with high signal intensity on T2WI. A non-enhancing peripheral rim may also be observed. In cases complicated by infection or haemorrhage atypical features may be observed [1]. Epidermoid cysts and dermoid cysts can also occur at the base of the tongue and may be differentiated from thyroglossal duct cysts by their restricted diffusion or fat content, respectively [5].

The recommended surgical approach for lesions in the neck is complete excision of the cyst via a Sistrunk procedure, because simple enucleation virtually always leads to recurrence [1]. The procedure removes not only the duct but also the tissues surrounding it, including portions of the hyoid bone, the mylohyoid and geniohyoid muscles, and the foramen caecum [6]. In the oral cavity recurrence is not seen following simple enucleation [4].

Approximately 1% of thyroglossal duct cysts are associated with thyroid carcinoma arising from ectopic rests of thyroid tissue within the duct and not from the duct itself.

Some authors recommend that patients with thyroglossal duct cysts should undergo regular follow-up to exclude recurrence [3].

**Differential Diagnosis List:** Thyroglossal duct cyst in the floor of the mouth, Dermoid cyst, Epidermoid cyst, Cystic hygroma

**Final Diagnosis:** Thyroglossal duct cyst in the floor of the mouth

**References:**


**Description:** Axial post-contrast CT shows an oval, hypodense lesion just off midline in the floor of the mouth. **Origin:** Hospital São José, Centro Hospitalar Lisboa Central, E.P.E., Departamento de Radiologia
Description: Sagittal contrast-enhanced CT shows an elongated, hypodense lesion in the floor of the mouth. Origin: Hospital São José, Centro Hospitalar Lisboa Central, E.P.E., Departamento de Radiologia
Description: Coronal contrast-enhanced CT shows a spherical, hypodense lesion (star) in the floor of the mouth, between genioglossus (asterisk) and geniohyoid (arrow) muscles. Origin: Hospital São José, Centro Hospitalar Lisboa Central, E.P.E., Departamento de Radiologia
Description: Axial T1-weighted image shows a hypointense lesion (star) between the geniohyoid (arrow) and genioglossus (asterisk) muscles, slightly to the right of midline. Origin: Hospital São José, Centro Hospitalar Lisboa Central, E.P.E., Departamento de Radiologia
Description: Axial T2-weighted image shows a hyperintense and homogeneous lesion. Origin: Hospital São José, Centro Hospitalar Lisboa Central, E.P.E., Departamento de Radiologia
Description: Axial STIR images confirm the lesion as highly hyperintense, indicating a simple cyst.

Origin: Hospital São José, Centro Hospitalar Lisboa Central, E.P.E., Departamento de Radiologia
Description: Axial T1-weighted image with fat suppression after gadolinium administration shows a non-enhancing thin wall. Origin: Hospital São José, Centro Hospitalar Lisboa Central, E.P.E., Departamento de Radiologia
Description: Sagittal STIR reveals an elongated hyperintense lesion, in communication with the foramen caecum. Origin: Hospital São José, Centro Hospitalar Lisboa Central, E.P.E., Departamento de Radiologia
Figure 3

Description: Dotted line depicting the tract along which a thyroglossal duct cyst can develop. The floor of the mouth is slightly anterior to the usual migration route of the thyroid gland. Origin: Hospital São José, Centro Hospitalar Lisboa Central, E.P.E., Departamento de Radiologia