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SCIENTIFIC LETTER

A not so insignificant appointment at the dentist

Una cita no tan insignificante en el dentista

Dear Editor,

A 51-year-old woman was admitted to the emergency room for headache, paresis of the left upper limb and binocular diplopia. She had grade 1 obesity (body mass index [BMI], 32 kg/m^2) and high blood pressure, for which she was taking irbesartan at 150 mg/day. Two months before to admission she had undergone multiple dental treatments for periodontitis.

Clinical examination revealed a Glasgow Coma Score of 15. There were no signs of meningeal syndrome, but a proprioceptive deficit was found in the left lower limb. The patients had no fever.

Laboratory tests revealed hyperleukocytosis at 10 G/L with neutrophil polynuclear cells, but a normal C-reactive protein level (<5 mg/L).

The results of lumbar puncture were inconsistent with meningitis. There was no evidence of endocarditis on transesophageal cardiac ultrasound. Cerebral magnetic resonance imaging (MRI) revealed a hypointense lesion with circumferential enhancement located in the right lateral midbrain. Similarly, the diffusion sequence disclosed a signal restriction in the central part of the lesion strongly suggesting a brainstem abscess (Fig. 1). Biopsy was performed for further work-up. Microbiological analysis revealed the presence of an oral bacterium, *Aggregatibacter aphrophilus*. The patient rapidly improved after treatment with amoxicillin 12 g/day was started.

A. aphrophilus is an obligate oral Gram-negative organism, a normal component of the commensal oral microbiota belonging to the HACEK group of bacteria. Bacteria may reach the brain by different routes, i.e. systemic hematogenous bacteremia, direct venous drainage, the lymphatic route or directly through the fascial spaces.[1] Our patient had severe periodontitis and poor dental hygiene. The recent dental procedures were probably responsible for migration of the bacteria to the brain. Diabetes is a major risk factor for periodontitis, and the risk of periodontitis increases threefold in diabetic versus non-diabetic individuals. Our patient had no impaired blood glucose levels. However, obesity itself has been reported to be associated with periodontitis.[2] Although the mechanisms underlying this association remain unclear, insulin resistance developing as a consequence of a chronic inflammatory state and oxidative stress may modulate the association between obesity and periodontitis.[3] A Korean study reported a significant association between periodontal disease and waist circumference, but there was no correlation with BMI.[4] Visceral adipose tissue is prone to secretion of proinflammatory adipokines, which induce low-grade inflammation and may lead to the development of insulin resistance. The roles of leptin, adiponectin and resistin, which are dysregulated in both periodontitis and obesity, must also be clarified. Although cerebral abscesses resulting from odontogenic foci remain relatively rare, especially at the brainstem area, the functional consequences may be serious, and the mortality rate may reach 30% in some series.[5] The need for good dental hygiene and regular dental check-ups in obese subjects should be strongly emphasized.

Ethics approval

All procedures performed in studies involving human participants were in accordance with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent

Written informed consent for the study was obtained from the patient.

Availability of data and materials

Not applicable.

Code availability

Not applicable.

Funding

None to declare.

Conflicts of interest

The authors declare no conflict of interest.

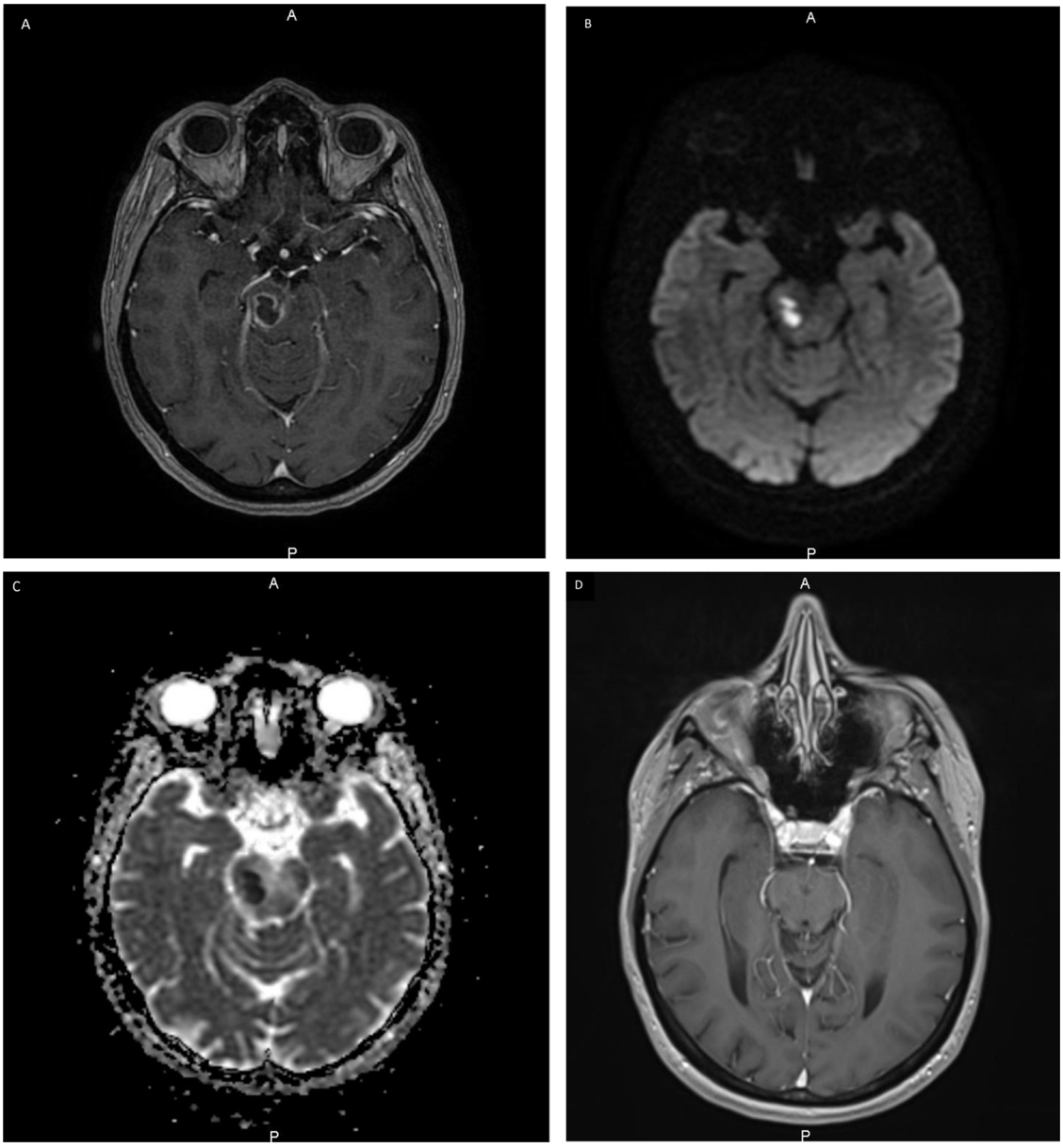

Figure 1 MRI shows a brainstem lesion. (A) Axial post-contrast T1-weighted MR image shows a right midbrain lesion with circumferential enhancement. (B) Axial diffusion MR image shows a high-signal-intensity area. (C) Axial diffusion with apparent diffusion coefficient (ADC) MR image shows a low-signal-intensity area. (D) Axial post-contrast T1-weighted MR image after 6 months showing a small residual hypointense sequela of the midbrain without contrast enhancement that correlated with the effectiveness of the antibiotic treatment.

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Parasitic thyroid nodules: The differential diagnosis

Nódulos tiroideos parasitarios: diagnóstico diferencial

Introduction

Ectopic thyroid is a rare entity defined as any thyroid tissue not located in its usual position anterior to the laryngeal cartilages. Most frequent ectopic thyroid is due to the absence of regression from the thyroglossal duct. However, others ectopic thyroid tissues can be found during differential diagnosis of neck nodules.[1] Parasitic thyroid nodules, also called sequestered, detached or accessory thyroid nodule are separated thyroid nodules from the main thyroid gland located in the lateral neck area.[2] Therefore, differential diagnosis of thyroid tissue outside the thyroid gland may involve a complex process.[3] Here, we present a patient with parasitic thyroid nodule.

Case presentation

A 49-year-old woman was referred to our department in 2016 due to a goitre detected during a dysphagia differential diagnosis. Cervical ultrasonography discovered a multinodular goitre with a predominant hypervascularised 30 mm isthmic thyroid nodule. Subsequent fine needle aspiration biopsy (FNAB) showed follicular proliferation. Finally, she underwent a total thyroidectomy with histopathological results of lymphocytic thyroiditis and nodular hyperplasia. A single 3 mm papillary thyroid microcarcinoma was discovered incidentally in the right thyroid lobule. During the follow-up, a clinically thyroglobulin (Tg) rise was detected (supressed Tg from 4.6 to 18 ng/mL) with persistently high anti-Tg antibodies (levels close to 300 U/mL). Consequently, Tg was measured following TSHhr stimulation showing a rising to 43 ng/mL. Cervical ultrasonography showed three concurring suspicious bilateral level-IV lymphadenopathies. Patient did not undergo a lymph node FNAB washout for Tg because it was not yet a widely established technique in our hospital. Thus, extended bilateral lymphadenectomy was performed one year later. Histopathology demonstrated no features of malignancy. In the neck dissection, there were sixteen normal lymph nodes and two bilateral nodules (12 mm and 15 mm) of hyperplastic thyroid tissue not related to lymph nodes. These nodules showed benign histological features with lymphocytic thyroiditis (Fig. 1). There were no nuclear features of papillary thyroid carcinoma. Galectin 3, CK19 and HBME1 immunohistochemistry was negative. Hence, the nodules were classified as benign parasitic nodules.

Discussion

Our case entailed a complex differential diagnosis of thyroid tissue outside the thyroid gland, finally due to parasitic nodules. The parasitic thyroid nodule occurs when thyroid tissue located in the lateral neck has no relationship or association with the lymph nodes, and may be defined as a thyroid nodule entirely separate from the thyroid or attached to it by a narrow pedicle, presenting the same histology and in the same facial plane as the thyroid, and should not be associated with lymph nodes.[3] About one hundred cases of parasitic thyroid nodules have been described, most of them are single subcentimetric isolated nodules.[4] Patient parasitic thyroid nodules were not associated with lymph nodes or the thyroid gland. Similar histology (lymphocytic thyroiditis) to main thyroid tissue was also confirmed.

The differential diagnosis of the case with two parasitic thyroid nodules proved to be complex and next possible diseases were considered: thyroid rests from embryological origin, metastatic thyroid cancer lymphadenopathies, seeding from prior thyroid surgery and thyroid tissue cleft-ing. Firstly, thyroid rests from embryological origin are often located in the neck midline, whereas our suspicious images were detected in cervical level IV, laterally to

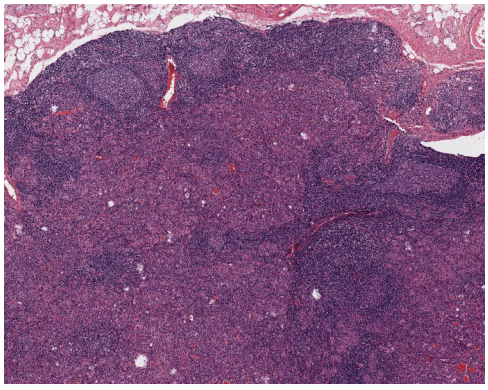

Figure 1 Thyroid tissue in a lymphoid reactive background with germinal centres (H&E, 40×).