

## CASE OF THE MONTH

# **An atypical cause of trigeminal neuralgia and panhypopituitarism**

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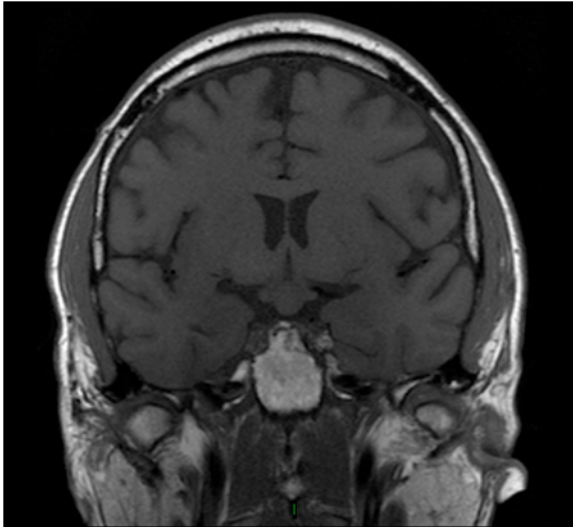
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### **Contributions**

All three authors have contributed to the preparation and writing of this article in equal measure.



### **An atypical cause of trigeminal neuralgia and panhypopituitarism**

A 63-year-old man presented to the hospital accident and emergency department with an episode of syncope. He also gave a history describing several weeks of left-sided facial pain, which was initially thought to be secondary to a tooth abscess. On systemic enquiry the patient also reported having intermittent episodes of night sweats and mild anorexia, but he was otherwise well. Physical examination revealed the patient to have significant postural hypotension, allodynia affecting all three divisions of the trigeminal nerve and a palpable

liver edge. Laboratory biochemistry investigations revealed profound panhypopituitarism. An MRI with gadolinium contrast of the brain subsequently revealed a hypothalamic mass sitting posterior to the optic chiasm and wrapping around the floor of the third ventricle, with extension into the infundibulum. A second mass was also observed within Meckel's cave extending towards the foramen ovale. The masses appeared radiologically similar but anatomically separate (Figures 1 and 2).

### **Diagnosis**

Radiological assessment of the lesions initially suggested the possibility of: a) metastatic lesions including lymphoma; b) two coincidental lesions *e.g.* hypothalamic astrocytoma and trigeminal schwannoma; or c) granulomatous pathology such as neurosarcoidosis.

CT imaging of the chest and abdomen revealed a 5 cm lesion in segment III of the liver encasing the structures at the porta hepatis (Figure 3a). A 2 cm low-attenuation nodule was also observed in the left lobe of the thyroid (Figure 3b).

An ultrasound-guided biopsy of the liver lesion was undertaken and subjected to immunohistochemical analysis. The biopsy sample demonstrated extensive replacement of the liver parenchyma by diffuse infiltrative blast cells. Immunohistochemistry revealed the blasts were CD20 positive (B-lineage) and there was also evidence of co-expression of CD10, CD21 and bcl6\*. Immunohistochemical staining with the proliferating marker Ki67 showed a proliferation index of approximately 80%. In view of the histological features a diagnosis of diffuse large B-cell lymphoma was made.

### **Discussion**

Diffuse large B-cell lymphoma can occur at any point in life, but peak incidence occurs within the seventh decade [1]. Within the head and neck the condition has a predilection for Waldeyer's ring, the salivary glands, nasal cavity, paranasal sinuses, thyroid and orbit.

Compression of the trigeminal nerve within Meckel's cave is usually caused by a trigeminal schwannoma. Lymphomatous involvement of this region with similar clinical manifestations is unusual, with only a handful of reported cases. Pituitary failure secondary to a lymphoproliferative disorder is also relatively uncommon. To our knowledge there are no other reported cases of diffuse large B-cell lymphoma presenting as trigeminal neuralgia and panhypopituitarism.

Primary central nervous system (CNS) lymphoma is a relatively rare extranodal form of non-

Hodgkin's lymphoma, with 90% of lesions being B-cell lymphomas (CD20+), usually of diffuse large-cell, large-cell immunoblastic, or lymphoblastic subtype [1]. Interestingly, the incidence of primary CNS lymphoma has increased within recent decades, an observation that is not explained by advances in neuroimaging or tumour diagnosis [1]. Although primary CNS lymphoma only accounts for approximately 2% of intracranial neoplasms, there has been a notable increase in incidence in both immunocompromised and immunocompetent patients [2]. In the case we have described, a histological analysis of tissue suggested a diagnosis of diffuse large B-cell lymphoma with evidence of both intra and extracranial disease. It is possible – given the histological nature of the lesion – that it represented a primary CNS lymphoma with secondary systemic involvement, although primary CNS lymphoma is thought to rarely spread out with the CNS [1]. It is more likely that the lesion metastasised from a primary site within the thyroid or liver. Although the patient had evidence of disease elsewhere within the body, it was the relatively strict anatomical confines of the brain that caused the clinical presentation.

The differential diagnosis of Vth cranial nerve palsy and panhypopituitarism include metastatic carcinoma, neurosarcoidosis, chordoma and separate coincidental pathologies such as a trigeminal schwannoma co-existing with a hypothalamic astrocytoma. This atypical presentation of diffuse large B-cell lymphoma underscores the importance of considering the condition in a differential diagnosis of intracranial mass lesions. Certain radiological features of the tumour such as comparable signal intensities to brain parenchyma, its homogenous nature and homogenous enhancement with gadolinium may raise suspicion of the existence of a non-Hodgkin's lymphoma [3]. The existence of a dural tail similar to that seen in meningioma is another radiographic feature indicative of lymphoma reported previously [3, 4].

When a lymphoma is suspected within the CNS, both the primary and secondary forms of the condition should be considered. An investigation into the existence of other disease loci is crucial when planning the most efficacious treatment. When planning chemotherapy treatment regimens for CNS lymphomas, agents that cross the blood brain barrier should be considered. In this regard both high-dose methotrexate and high-dose cytarabine are the drugs of choice [5]. Although the tumour is responsive to radiation and chemotherapy, the prognosis of primary CNS lymphoma remains poor with mean survival times of patients

receiving treatment of 15–45 months [6]. Remission of the patient's disease was achieved following several cycles of CNS-targeted chemotherapy. Presently the patient remains well on endocrine replacement therapy with a negative end of treatment PET-CT scan.

### **Acknowledgements**

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**Figure 1.** Coronal  $T_1$  weighted MRI scan of the brain (a) pre- and (b) post-gadolinium contrast enhancement. The white arrows highlight the two distinct enhancing masses. There is a 1512 mm hypothalamic mass that wraps around the floor of the third ventricle. The mass lateral to the cavernous sinus is situated within Meckel's cave and is likely to account for the left trigeminal nerve symptoms.

**Figure 2.** Sagittal  $T_2$ -weighted MRI scan with a white arrow highlighting the hypothalamic mass lesion, which exhibits some extension into the infundibulum. The panhypopituitarism that resulted led to a clinical presentation of Addison's disease.

**Figure 3.** (a) Axial CT scan demonstrating a 5 cm lesion in segment 3 of the liver encasing the structures of the porta. (b) Axial CT scan demonstrating a 2 cm low-attenuation nodule in the left lobe of the thyroid.