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CLINICAL RECORD

Internal carotid artery aneurysm presenting as orofacial pain

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Abstract

Objectives: We report a case of an internal carotid artery aneurysm presenting as orofacial pain.

Method: Case report and discussion.

Results: A 59-year-old patient presented with a four-year history of chronic oral pain accompanied by a right-sided occipital headache. No local organic pathology was detected, and a provisional diagnosis of persistent idiopathic facial pain was made. A neurosurgery referral was made to exclude neurovascular pathology, which resulted in the detection of an aneurysm originating from the right posterior communicating artery. This was successfully treated by coil embolisation, with subsequent resolution of symptoms.

Conclusion: In this patient, an atypical history of pain with no other neurological signs or symptoms, other than accompanying occipital headache, led to the discovery of an intracranial aneurysm. This case highlights the need for appropriate referral and imaging in cases in which the clinical history and findings are not classical, and also emphasises the need for interdisciplinary management.

Key words: Pain; Facial Pain; Intracranial Aneurysm; Trigeminal Nerve

Introduction

Chronic pain is a frequent reason for presentation to a physician or dental practitioner. The management of orofacial pain has been and remains a pivotal part of both medical and dental practice, and it is also a common source of referrals to ENT, oral medicine and maxillofacial units.[1]

The purpose of this report is to highlight the need for vigilance and appropriate investigation for patients presenting with a complaint of chronic orofacial pain.

Case report

A 59-year-old woman was referred by her general dental practitioner to an oral medicine consultant due to chronic, intermittent toothache and facial pain.

The patient had a four-year history of oral pain in the region of the right maxillary alveolus, accompanied by a right-sided occipital headache. The patient reported that she had previously had three maxillary teeth extracted as they were believed to be potential causes of the pain; however, there had been no improvement in symptoms. No other neurological symptoms were reported, and there was no additional history indicative of sinusitis or other sinus pathology.

Clinical examination was unremarkable apart from allodynia noted along the edentulous right maxillary tuberosity. Cranial nerve examination was normal.

Initial radiographic examination revealed incomplete permanent dentition, with no obvious dental cause for the pain. A provisional diagnosis of persistent idiopathic facial pain was made, and arrangements were made for subsequent magnetic resonance imaging (MRI) to exclude any central nervous system or vascular pathology.

An initial MRI scan and subsequent computed tomography angiogram revealed a bi-lobed, wide-necked aneurysm arising from a large right posterior communicating artery (a branch of the internal carotid artery), measuring approximately 10 mm in diameter (Figures 1 and 2). The aneurysm lay in very close proximity to the trigeminal nerve ganglion, located within Meckel's cave, and was compressing the trigeminal nerve, accounting for the pain felt within the distribution of the peripheral branches of the maxillary nerve.

A neurosurgery referral was organised. Definitive management with endovascular aneurysmal coil embolisation was completed successfully (Figure 3), with no peri- or post-operative complications.

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FIG. 1
Pre-operative computed tomography angiogram showing the aneurysm arising from the right posterior communicating artery; measured dimensions are also shown.

Following treatment of the aneurysm and relief of the compression neuropathy, the patient's orofacial pain and headache did not recur.

Discussion

Most chronic orofacial pain is caused by local organic or functional causes, with temporomandibular disorders being the most common. In cases of idiopathic facial pain, an interdisciplinary approach involving both medical and dental practitioners is often required in order to establish a clear diagnosis. The International Classification of Headache Disorders (second edition) describes persistent idiopathic facial pain, also known as atypical facial pain, as a persistent facial pain that does not have the classical characteristics of cranial neuralgias, and for which there is no obvious aetiology.[2]

- **A patient with an internal carotid artery aneurysm presented with orofacial pain**
- **In patients with an unusual pain history and no local cause, further imaging is needed**
- **Appropriate referral and interdisciplinary care of such cases is required**

The aetiology of chronic pain is not well understood, and it can pose a diagnostic and management challenge for both medical and dental practitioners.[1] Therefore, the diagnosis requires exclusion of organic pathology in the head and neck. Although the vast majority of cases are not secondary to intracranial pathology, vigilance is required in abnormal presentations such as the reported case.[3,4]

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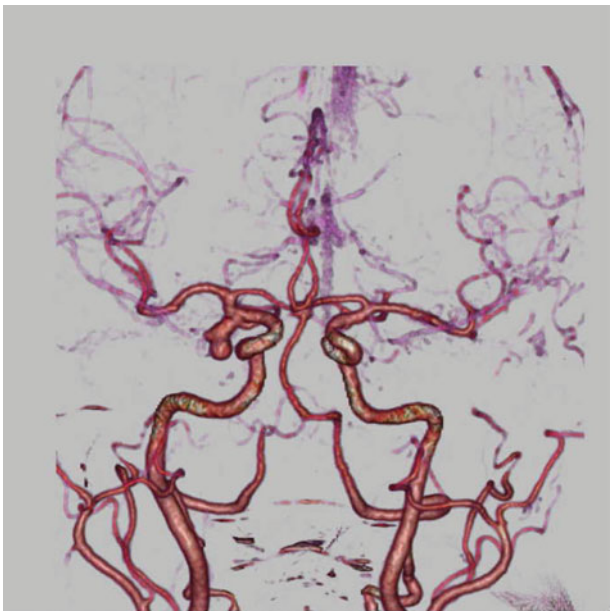

FIG. 2

Pre-operative, coronal computed tomography angiogram of the carotid arteries, showing the position of the aneurysm in comparison with the contralateral side.

FIG. 3

Post-treatment computed tomography angiogram showing the coil in place.

Conclusion

In this case, an atypical pain history with no other neurological signs or symptoms, other than accompanying occipital headache, led to the discovery of an intracranial aneurysm. This case highlights the requirement for appropriate referral and imaging for patients whose clinical history is not classical and in whom no local pathology exists. Chronic pain is complex and multifactorial. Patients with idiopathic facial pain require an interdisciplinary approach in order to provide appropriate management.

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