

Orofacial Pain Associated with Vasospastic Angina: A Case Report

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The primary symptom of ischemic heart disease is typically chest pain, but in some cases, this pain may radiate to the maxillofacial region. This article describes the case of a 44-year-old man with orofacial pain of cardiac origin. The patient was suspected to be suffering from cardiac disease by the oral and maxillofacial surgeon and was referred to a cardiologist, where he received a heart examination. The patient was diagnosed by means of cardiac catheterization as having coronary spastic angina. During catheterization, intracoronary ergonovine maleate induced orofacial pain that was almost the same in character and intensity as the patient's first episode. The orofacial pain was considered to be telalgia from coronary spastic angina. The patient started medication on the same day as the diagnosis. There was no recurrence of any symptoms. These findings indicate that in such cases, the dentist may contribute to identifying ischemic heart disease and should refer the patient to a cardiologist. *J Oral Facial Pain Headache* 2017;31:e1–e3. doi: 10.11607/ofph.1768

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Coronary artery spasm is defined as a condition in which the coronary artery exhibits an abnormal contraction, which plays an important role in the pathogenesis of some kinds of ischemic heart disease, vasospastic angina, and myocardial infarction. The characteristic symptom of ischemic heart disease is chest pain, which may radiate to the shoulder, arms, and neck. This cardiac pain may also spread to the maxillofacial region or present as tooth pain.¹ Misdiagnosis can lead to redundant dental treatment, such as endodontic treatment or tooth extraction.²

This article describes the case of a patient with the chief complaint of intolerable generalized orofacial pain. Further detailed examination led to a diagnosis of vasospastic angina. The clinical course and considerations are described below.

Case Report

A 44-year-old man presented to the emergency room of Asahi University Murakami Memorial Hospital and complained of acute facial pain, as well as pain in all of his teeth. He also reported feeling pressure in the maxillofacial region for 30 minutes. He had not previously experienced these symptoms, and his past medical history reported that he had previously suffered from Behçets disease. Upon inspection, the patient was otherwise healthy, and there were no traumatic lesions or inflammatory symptoms in the head and neck region. Therefore, magnetic resonance imaging (MRI) was performed to examine the intracranial region. There were no lesions attributable to any neurologic or organic dysfunction.

The next day, he was referred to the Department of Oral and Maxillofacial Surgery to further investigate the cause of the pain in the teeth and maxillofacial region. Facial and neck findings were normal, and there was no induced pain when the infraorbital foramen and mental

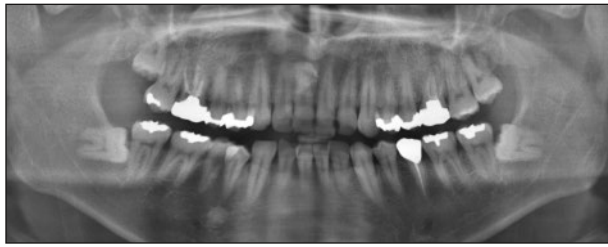


Fig 1 (above) Panoramic radiograph revealing no dental caries, periodontitis, or intrabony lesions.



Fig 2 (right) Chest radiograph showing no abnormalities. Normal cardiac shape and size and normal pulmonary vasculature and lung field are visible.

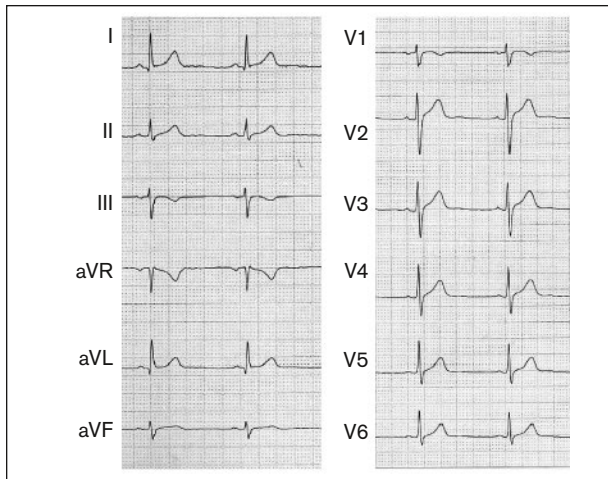


Fig 3 Electrocardiogram (ECG) revealing no specific changes.

foramen were pushed. Upon intraoral examination, no lesions could be seen that could have been causing his symptoms. Panoramic radiography revealed that there were no dental caries, periodontitis, or intrabony lesions (Fig 1). Although there were impacted wisdom teeth, they were not the cause of any of his symptoms. His atypical symptoms were suspected to be of cardiac origin, and he was therefore referred to the Department of Cardiology.

There were no abnormalities in the chest radiograph, which revealed normal cardiac shape and size and normal pulmonary vasculature and lung field (Fig 2). The electrocardiogram (ECG) (Fig 3) and echocardiogram revealed no specific changes. Laboratory analysis of the peripheral blood showed the following findings: white blood cells = 5,700/ μ L; lactate dehydrogenase = 237 IU/L; C-reactive protein = 0.33 mg/dL; creatine phosphokinase = 92 IU/mL; creatine kinase MB = 7 mIU/mL; aspartate aminotransferase = 14 IU/L; Troponin T < 0.1 ng/dL; and brain natriuretic peptide = 5.1 pg/mL. These values were within normal ranges.

Cardiac catheterization was performed after obtaining informed consent. Baseline coronary angiography was normal (Fig 4a), but intracoronary ergonovine maleate induced coronary vasospasms and 90% stenosis at the second diagonal branch of the left anterior descending artery (Fig 4b). During the coronary vasospasms, the patient reported experiencing orofacial pain of character and intensity almost the same as the first episode, including pressure in the maxillofacial region. Soon after the intracoronary injection of isosorbide dinitrate, the vasospasms were improved. Finally, the patient was diagnosed as having coronary spastic angina, and the orofacial pain was considered telalgia from this disease. Medication was started within 24 hours of the initial onset of orofacial pain. The patient received pharmacotherapy for angina pectoris, and there was no recurrence of any symptoms.

Discussion

In angina pectoris and myocardial infarction, pain in the throat, neck, temporal region, head, infraorbital region, maxilla, and mandible can occur with or without chest pain. As the sole symptom of the present patient was orofacial pain, the patient was first seen by the oral and maxillofacial surgeon. The surgeon suspected cardiac disease, so the patient was referred to a cardiologist and received an examination. The patient was then diagnosed with coronary spastic angina by means of coronary angiography. Fortunately, the patient was diagnosed and started medication within 24 hours of the initial onset of orofacial pain; however, some case reports indicate that patients with atypical orofacial pain later found to be of cardiac origin had not been correctly diagnosed for several months to years by a number of clinicians.^{3,4}

Interestingly, it was possible to induce orofacial pain through intracoronary ergonovine maleate. This orofacial pain was almost the same as the patient's

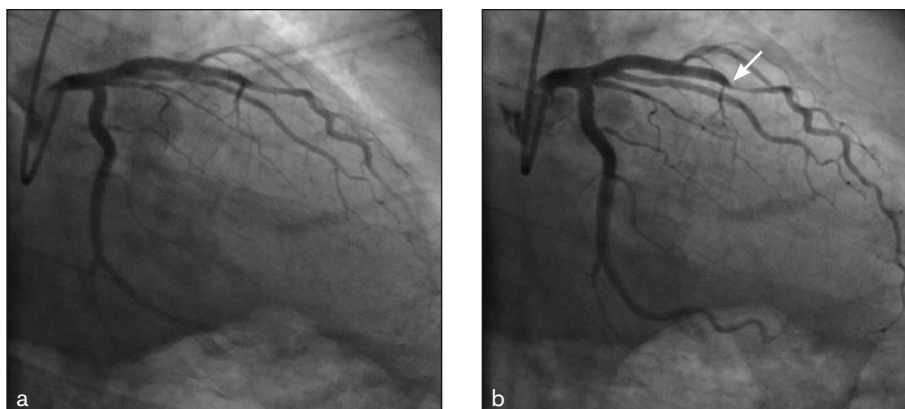


Fig 4 (a) Baseline coronary angiography. (b) Intracoronary ergonovine maleate induced coronary vasospasms and 90% stenosis at second diagonal branch (arrow) of left anterior descending artery.

first episode. There have been numerous reports of orofacial pain of cardiac origin,^{1,5} but this is the first report of the reproduction of the patient's orofacial pain through the administration of intracoronary ergonovine maleate.

Orofacial pain as the sole symptom of cardiac origin has been reported as cardiac ischemia in 6% of patients.^{5,6} The quality of orofacial pain differs considerably between pain of cardiac origin and pain of dental origin. Referred orofacial pain of cardiac origin is described as tight, burning, and pressure. In contrast, orofacial pain of odontogenic origin is described as tingling, throbbing, and aching.^{6,7} However, there is no difference between genders.⁶ The precise mechanism of orofacial pain of cardiovascular origin has not been established, but it may occur due to connections between the thoracic and cervical dermatomes (C2-T1) and the trigeminal nerve.⁸ Also, Myers has suggested that stimulation of a branch of the left vagus nerve from the heart can cause tooth, neck, and jaw pain.⁹

The differential diagnosis of odontogenic pain (such as dental and periodontal pain) should be considered alongside nonodontogenic pain (such as myofascial, neuropathic, idiopathic, neurovascular, sinus, cardiac, and psychogenic pain) to avoid diagnostic errors in dental practice and unnecessary treatments. Orofacial pain of cardiac origin is a bilateral pain.¹⁰ In the case presented here, the patient had no severe dental caries or periodontal disease; however, he had bilateral impacted wisdom teeth in both the maxilla and mandible. Had it not been suspected that the pain was of cardiac origin, an unnecessary extraction of these wisdom teeth may have been performed. Thus, such an atypical orofacial pain should not be provided with solely a dental or periodontal disease-based diagnosis.

Patients with orofacial pain associated with cardiac origin may occasionally be seen first by a dentist.

If dentists suspect orofacial pain to be of cardiac origin, they should refer the patient to a cardiologist to avoid detrimental dental treatment and to save the patient's life.

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