

Mandibular Arteriovenous Malformation: An Unusual Location about a Case and Review of the Literature

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Abstract

Case Report

Mandibular arteriovenous malformation is an exceptional localisation, which can be revealed by various situations ranging from simple swelling and mobility to massive hemorrhage. We report the case of a 13-year-old girl who presented with gingivorrhagia. The diagnosis was made following an emergency CT scan with PDC injection.

Keywords: gingivorrhagia, Mandibular arteriovenous malformation, diagnosis, Haemostasis.

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1. INTRODUCTION

Our objective is to shed light on this pathology through the case of an AVM of the left vertical branch in a 14-year-old girl, presenting with a lightning gingivorrhagic picture in order to make it known to radiologists, ENT surgeons, maxillofacial surgeons and dentists.

2. CASE REPORT

A 14 year old girl, with no particular pathological history, who presented to the emergency room with pallor and altered general condition with massive gingivorrhagia. The clinical examination revealed a pale skin and mucous membrane, with altered vitals due to hypotension at 9/6mmhg, with tachycardia at 97Batemnts/min.

Endobuccal examination revealed gingival swelling and massive gingivorrhagia. There was no obvious swelling, no neurological deficits, and the dental examination was normal. Haemostasis measurements were attempted with no clear improvement. An emergency CBC was performed, which showed a blood loss with a haemoglobin level of 7 cells/mm³.

A CT scan with PDC injection was carried out urgently, which showed the presence of an osteolytic lesion in the ascending branch of the left mandible with local rupture of the cortical bone, within which there was a structure of a vascular nature intensely enhanced after injection of PDC (figure 1). The latter appears to be vascularized by the left external carotid artery and drained by the external jugular vein with multiple dilated vascular structures in the masticatory space, infra-temporal fossa, parapharyngeal and left retro-stylial (figure 2).

In view of the emergency, neither standard radiography nor MRI was performed.

Arteriography confirmed the presence of an arteriolo-venous type vascular malformation fed by fine arterioles from the external carotid artery and with venous drainage via the external jugular vein.

Given the symptomatic and urgent nature of the AVM, the decision was taken to perform an endovascular treatment (after multidisciplinary consultation between the radiologist and the maxillofacial surgeon and in the presence of the patient's parents) which, thanks to an effective embolisation, stopped the haemorrhage and improved the patient's local and general condition.

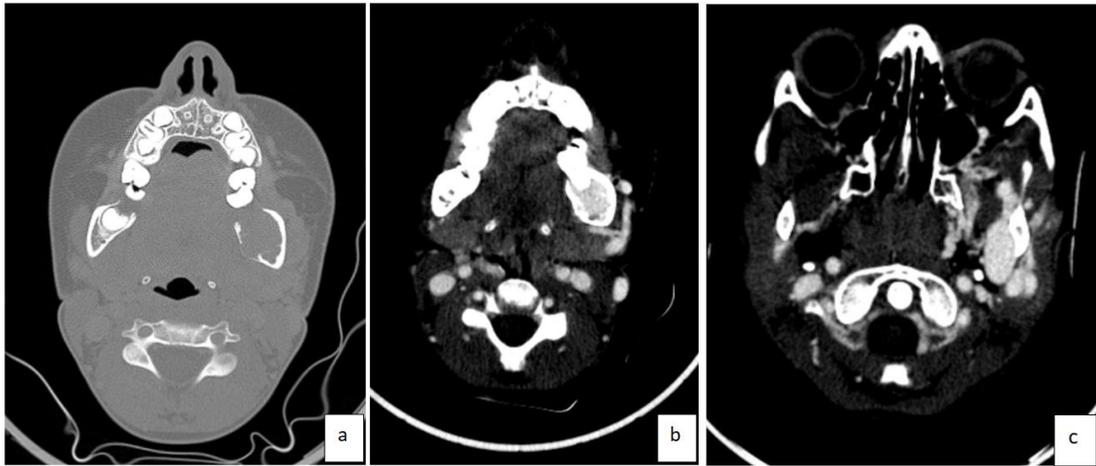


Figure 1: Axial CT scan in the bone window showing an osteolytic lesion (a) with localized cortical disruption in the ascending ramus of the left mandible, in which an intensely enhanced vascular structure can be seen after PDC injection (b), (c).

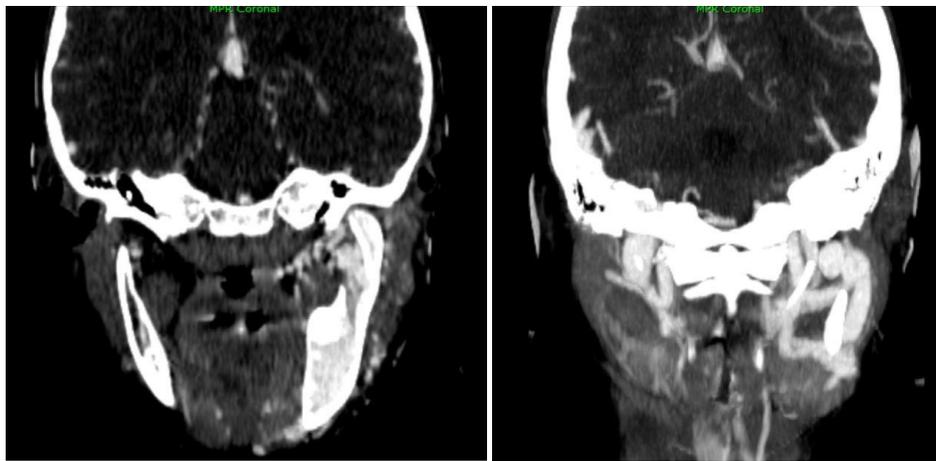


Figure 2: Coronal scan section showing a vascular structure in the left mandibular ramus within the ascending branch of the left mandible, intensely enhanced after injection of PDC

3. DISCUSSION

Their occurrence is most frequent in the cervico-facial region, representing 70% of all locations. Of the intraosseous locations, 50% are found in the face and only 5% are intramandibular. Most patients presenting with AVMs are children or adolescents at various times with no defined age of onset.

The clinical aspect and presentation are variable and can be of fortuitous discovery or manifested by a swelling, facial neurological disorders (paresthesia, facial paralysis, etc.), mandibular asymmetry, facial pain, tooth loss or even gingivorrhage of variable volume and severity that can be life-threatening for the patient.

The standard radiology work-up with a panoramic dental X-ray is not pathognomonic and several diagnoses can be confused with AVM because the presence of an osteolytic lesion can wrongly point to an odontogenic cyst for example:

CT and ultrasound are often the two examinations carried out in second intention with a slight predominance for CT. They allow a positive diagnosis to be made. Ultrasound coupled with a Doppler study shows the presence of a fairly well-limited mass of a vascular nature with rapid flow. The CT scan allows a good study of the bone structures, to establish a vascular cartography as well as the relations of the lesion. MRI with angiographic sequence allows a better characterization and definition of the lesion in its connections with the various supply and drainage structures. Confirmation is provided by the angiographic study which refines the dimensions and the layout of the pedicle structures, also providing the answer as to the feasibility of endovascular treatment by embolisation.

Treatment depends on the stage of the disease. The asymptomatic forms can be respected with a close control according to the general state and the associated defects of the patient but no consensus was found in the literature. In addition, symptomatic forms with cataclysmic haemorrhage must be treated invasively

(interventional radiology, surgery) after multidisciplinary consultation.

The evolution of AVMs is unpredictable because, for example, hormonal discharge can trigger attacks, hence the need for regular monitoring.

4. CONCLUSION

Arteriovenous malformations, although rare, are not well known to many specialists. It is a pathology to be known and apprehended because its complications can be fatal. Adequate care and monitoring are a sine qua non condition to avoid any risk of complication.

Consent

All authors declare that ‘written informed consent was obtained from the patient (or other approved parties) for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editorial office/Chief Editor/Editorial Board members of this journal.

Ethical Approval

“All authors hereby declare that all experiments have been examined and approved by the appropriate ethics committee and have therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.”

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Authors’ Contributions

All authors read and approved the final manuscript.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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