

## ARTERIOVENOUS MALFORMATIONS IN THE DIFFERENTIAL DIAGNOSIS OF PALATAL SWELLINGS\*

### *Palatal Şişliklerin Ayırıcı Tanısında Arteriovenöz Malformasyonlar*

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#### ABSTRACT

An arteriovenous malformation (AVM) is composed of abnormal communications between arteries and veins without the normal intervening capillary bed. AVM of the head and neck is a rare vascular anomaly. We present here an unusual case of AVM with the size of 4x3 cm at the left posterior palatal area. Incisional biopsy revealed AVM. Resection of the lesion following angiography was suggested to the patient however; he refused the treatment. The patient was considered to be under control. AVM should always be kept in mind in the differential diagnosis of palatal swellings.

#### ÖZ

Arteriovenöz malformasyon (AVM), arterler ve venler arasında normal kapiller yatak olmadan anormal bağlantı ile oluşmaktadır. Baş ve boyunda görülen AVM nadir görülen vasküler anomaliidir. Sol posterior palatinal bölgede 4x3 cm boyutlarında alışılmadık bir AVM olgusu sunmaktayız. İnsizyonel biyopsi sonucu AVM olarak tespit edildi. Hastaya anjiyografiyi takiben lezyon rezeksiyonu önerildi fakat hasta tedaviyi reddetti. Hasta kontrol altına alındı. AVM palatal şişliklerin ayırıcı tanısında her zaman akıldta tutulmalıdır.

**Keywords:** arteriovenous malformation; palatal swellings

**Anahtar kelimeler:** arteriovenöz malformasyon; palatal şişlikler

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### Introduction

Arteriovenous malformations (AVM) are rare lesions which can easily be misdiagnosed yet produce the very dramatic clinical presentation of severe life threatening oral bleeding. They are composed of abnormal communications between arteries and veins without the normal intervening capillary bed (1-3). Blood from the normal circulation increases the size of such a malformation through a low resistance system created by the nidus, the aberrant arteriovenous network at its centre (1, 4). Their real importance lies in their potential to result in exsanguination which usually followed by an unrelated treatment, such as tooth extraction, surgical intervention, puncture wound or blunt injury in the involved areas, without awareness of the existence of the AVM.

AVM can occur as an acquired event, especially following trauma, but usually is congenital (3). Trauma, an ischemic event secondary to thrombosis, ectasia, hormonal changes and puberty can induce proliferation of the AVM (5). Bone involvement occurs in 35% of cases (5-7). Vascular lesions are seen as often as 50% in the head and neck region (8). Although they are often found in the head and neck, they rarely exist in the oral cavity. Treatment of these lesions are complex, and decision of the therapies involve balancing the risks and benefits of various treatment options such as surgical excision,

embolization, radiosurgery, and conservative management (9). Central arteriovenous malformations of jaws, although rare, are clinically important owing to the potential risk of life-threatening hemorrhage.

The aim of this report is to present the diagnosis of a rare case of AVM at the maxillary palatal region.

### Case Report

A 58 year old male patient was referred to our department with a 20 years' history of a painless swelling at the left palatal area. A doughy mass about 4x3 cm in diameter was found at the posterior palate on clinical examination (Figure 1). The entire area appeared relatively normal at orthopantomograph (Figure 2).



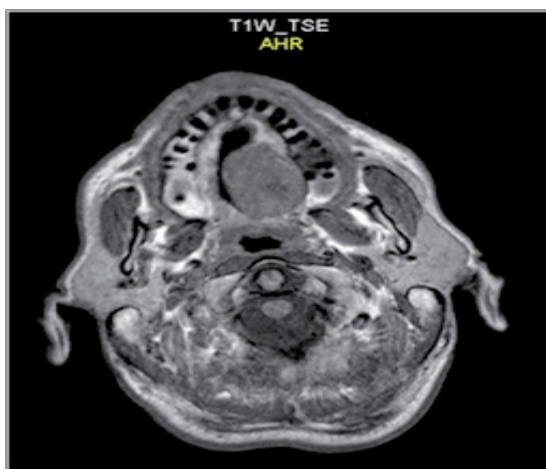
*Figure 1. Palatal swelling at the left side of the palate.*



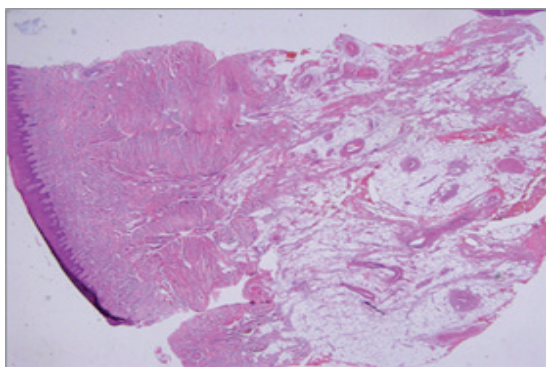
*Figure 2. There was no evidence of the lesion in the panoramic radiography.*

T1-weighted MRI scans showed a mass located in the left hard palate (Figure 3). No fluid was obtained on aspiration with a large-bore needle. Considering the localization and clinical view of the lesion, pleomorphic adenoma was thought for the initial diagnosis. The incisional biopsy was performed on two sections. During the biopsy, a thick layer of fat tissue and submucosa was observed. Histopathological

examination showed a mesenchymal neoplasm with numerous small blood vessels, the vasculature was embedded in a myxoid matrix (Figure 4). Finally the lesion was evaluated as AVM. Resection of the lesion following angiography was suggested to the patient but he refused treatment so the patient was considered to be under control.



**Figure 3.** The T1-weighted MRI scan shows an AVM located in the left hard palate.



**Figure 4.** Photomicrograph of the lesion. Mesenchymal neoplasm with numerous small blood vessels was apparent and the vasculature was found to be embedded in a myxoid matrix.

## Discussion

The differential diagnosis for palatal swellings includes reactive lesions (e.g., fibroma or fibrosed pyogenic granuloma, or lymphoid hyperplasia), palatal abscess, salivary gland neoplasms, and malignant tumors (10). In our cases, the possibility of palatal abscess was ruled out due to absence of signs of inflammation. No etiologic irritation factor was detected for fibrous lesions. The lack of ulceration of the palatal mucosa or invasion of the surrounding tissue rules out the possibility of malignant transformation. We also ruled out hemangiomas though they are rarely found on the hard palate and often seen as red-bluish in color. In our cases the mucosa was in normal color and appearance. We clinically diagnosed the lesion as pleomorphic adenoma of the minor salivary gland due to its localization and clinical appearance. However, histopathological examination after the incisional biopsy was revealed

as AVM. As a result, we emphasize the importance of incisional biopsy before any surgical treatment of the lesions of hard palate. “Vascular malformation” is a generalized term used to describe a group of lesions, present at birth, formed by an anomaly of angiovascular or lymphovascular structures. Vascular malformations occur in approximately 1% of births but majority of these patients do not present for treatment (11). The high-flow vascular anomalies in the head and neck are arteriovenous malformations (AVMs) (12). These are the lesions with direct communications between an artery (or arteries) and a vein (or veins) by passing the capillary bed (13). Almost all patients presenting with AVM are children or adolescents (14-16). However, in this case, 58 years old patient was presented. In the oral cavity, these can present at any site, but most commonly on anterior two-thirds of tongue, leading to macroglossia and difficulty in mastication, speech, and deglutition. Other sites that may be involved are palate, gingiva, and buccal mucosa (17). Angiography is currently the gold standard for determination of location and flow characteristics of vascular lesions (18). Angiography can differentiate between the different types of vascular lesions and can help provide visualization in real time for embolization. With angiography, it is possible to determine which blood vessels are supplying the lesion, and the relative venous outflow characteristics and presence or absence of arterio-venous shunts, which are important in determining the appropriate embolization techniques to employ (19). Ligation of the external carotid artery (ECA) is completely proscribed, because even if it stops hemorrhage it never prevents recurrence from the rich collaterals and therefore it increases the difficulty of further treatment. Complete resection of the involved bone may be curative, but it involves severe blood loss and induces damage to the shape and function of the involved bone. Radiotherapy often fails owing to the level of cellular maturation along with the danger of radiation damage. Complete cure by arterial embolization is difficult, either with particles or glue, and may involve potential complications. Conservative resection after arterial embolization could be safe and curative, but it still involves functional deficits (20, 21). In this case; we suggested resection of the lesion following angiography to the patient but he refused treatment so the patient was considered to be under control.

## Conclusion

AVM should always be kept in mind in the differential diagnosis of palatal swellings. Both the radiologist and

the surgeon need to be aware of its diverse presentation as it may influence treatment protocol.

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