A rare cause of epistaxis: non-traumatic cavernous carotid aneurysm

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Patient: 41 years, female

Clinical History:

41-year-old female patient with severe recurrent spontaneous epistaxis, with no prior history of head injury or relevant co-morbidity, leading to a haemoglobin count of 5.3g/dl.

Imaging Findings:

A 41-year-old female patient presented at the Emergency Room with severe spontaneous epistaxis, with no prior history of head injury or relevant co-morbidity. The epistaxis, temporarily controlled, recurred four times, dropping the haemoglobin count to 5.3g/dl. After haemodynamic stabilisation she was transferred to our institution, where paranasal sinuses CT revealed opacification of the right sphenoid sinus and a small bone defect of its supero-lateral wall (Fig. 1).

CT-angiography revealed an aneurysm of the right cavernous internal carotid artery with intra-sphenoid extension through the bone defect, measuring 4.5 mm (dome) x 3 mm (neck) (Fig. 2). No other intra-cranial aneurysms were detected.

Digital subtraction angiography (DSA) confirmed the above findings (Fig. 3).

Discussion:

Epistaxis due to cavernous carotid pseudo-aneurysms is well documented. Usually it is associated with traumatic head injury, namely skull base fractures [1]. Epistaxis tends to occur weeks after the injury, although cases with a larger time gap have been reported [2].

True cavernous carotid aneurysms presenting with epistaxis, on the other hand, are extremely rare, although potentially fatal [3]. A recent review of the literature revealed a total of 36 patients with epistaxis from true cavernous carotid aneurysms [4].

Cavernous carotid aneurysms occur spontaneously in the absence of trauma but in the presence of a pre-existing bone defect of the wall of the sphenoid sinus [5], as can be seen in our case.

Traditionally treatment involved ICA occlusion (ligation or balloon), sphenoid packing or when possible aneurysm clipping. More recently, an approach sparing the carotid has been preferred, with successful aneurysm coiling especially in conjunction with stenting.

In this case treatment was attempted solely with high density braided stents. Two stents were successively placed in the cavernous ICA, in two separate procedures; however due to epistaxis recurrence after each session anti-platelet therapy was stopped and asymptomatic obliteration of the ICA occurred. Adequate intracranial perfusion was
maintained through the anterior and posterior communicating arteries and the patient was discharged asymptomatic.

Although extremely rare, true carotid aneurysms with sphenoid extension may cause epistaxis, reason why this entity should be included in the differential diagnosis of one of the most common emergencies encountered by otolaryngologists.

Differential Diagnosis List: Cavernous internal carotid artery aneurysm

Final Diagnosis: Cavernous internal carotid artery aneurysm

References:

Figure 1

a

Description: Axial plane. Right sphenoid sinus opacification and bone wall defect. Origin:

b

Description: Sagittal plane. Origin:
Description: Coronal plane. Origin:
**Figure 2**

*Description:* Sagittal MIP. Cavernous internal carotid artery aneurysm protruding through sphenoid sinus bone wall defect. *Origin:*
Description: Sagital VRT. Origin:
Description: Coronal VRT. Aneurysm (arrow). Origin:
Figure 3

Description: Right cavernous internal carotid artery aneurysm. Origin:
**Description:** Slight oblique view **Origin:**
Description: Lateral view Origin: