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Case Report

A singular case of cavernous internal carotid artery aneurysm in patient with cavernous sinus syndrome and bacterial meningitis

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ABSTRACT

We report the uncommon case of an acute cavernous sinus syndrome in a patient who was consequently discovered to have both a cavernous internal carotid artery aneurysm and bacterial meningitis. Which came first, the chicken or the egg? Which of the two, the aneurysm or the meningitis, gave rise to the patient's symptoms? We briefly reviewed the literature of similar cases and tried to analyze the possible pathophysiological relationship between these findings. Moreover, this case highlights the importance of a multidisciplinary management of these patients to better decide between a medical and a surgical and/or endovascular treatment.

Introduction

The cavernous sinus (CS) is a complex venous space surrounded by the dural folds, which contains important neurovascular structures (III, IV, VI nerves; first and second trigeminal branches; internal carotid artery [ICA], sympathetic plexus) and has a complex valveless venous communication system which involve directly or indirectly almost every important venous structure of the head and neck. Very different pathologic conditions, which include infective, inflammatory, vascular, and neoplastic diseases, can involve the CS and give rise to a CS syndrome (CSS) [1–4].

We present the case of a patient with a facial Herpes Zoster (HZ) recurrence and an acute onset of a CSS, who was

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Federico Sacchetti and Silvia Stagni contributed equally.

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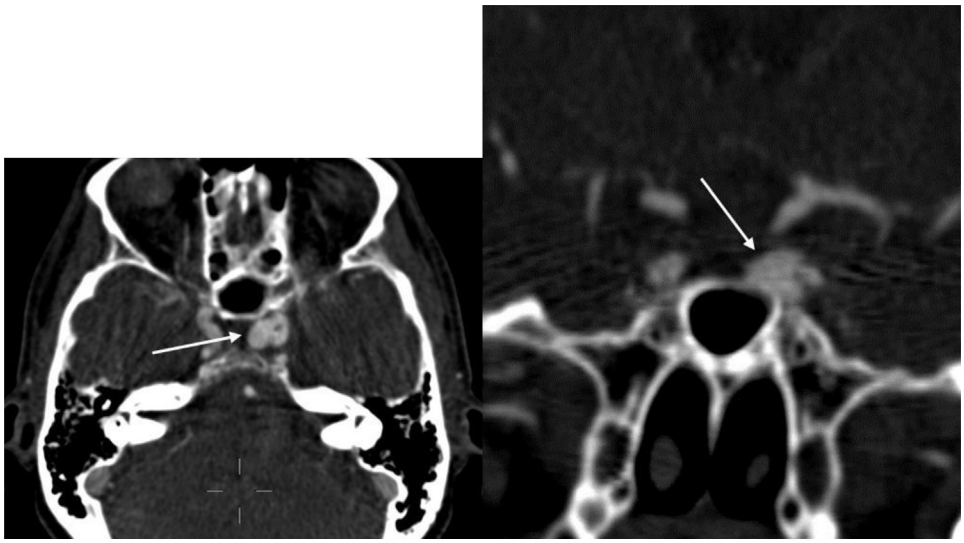

Fig. 1 – Axial and coronal CTA view showing the cavernous left ICA aneurysm (arrows), which is medially oriented and partially intrasellar.

consequently discovered to have a cavernous ICA aneurysm at imaging examinations and a bacterial meningitis at a cerebral spinal fluid (CSF) examination. All these factors can be a cause of CSS; moreover, the cavernous ICA aneurysm can have an infective origin.

To decide between the most appropriate medical and surgical and/or endovascular treatment, we briefly reviewed the literature of similar cases and tried to analyze the possible pathophysiological relationship between these findings.

Case report

A 55-year-old woman was admitted to the emergency department with a 2-day story of worsening left headache and fronto-orbital pain, slightly responsive to drugs. She reported recurrent episodes of herpes labialis with concurrent migraine pain usually responsive to NSAIDs and a recent episode of HZ recurrence of the left side of the face, still under treatment with acyclovir.

Physical examination reported normal vital signs, oxygen saturation (98% in ambient air), body temperature (36.7°C), blood pressure, and pulse rate; at first, neurologic examination showed no cranial nerve deficit, but after a few hours, she suddenly developed a mild left eyelid ptosis. Pain was not responsive to intravenous ketoprofen or acetaminophen.

Despite a negative preliminary brain computed tomography (CT) examination, the headache was worsening therefore a CT angiography (CTA) study was performed, revealing an ICA aneurysm with intrasellar extension, ipsilateral to the

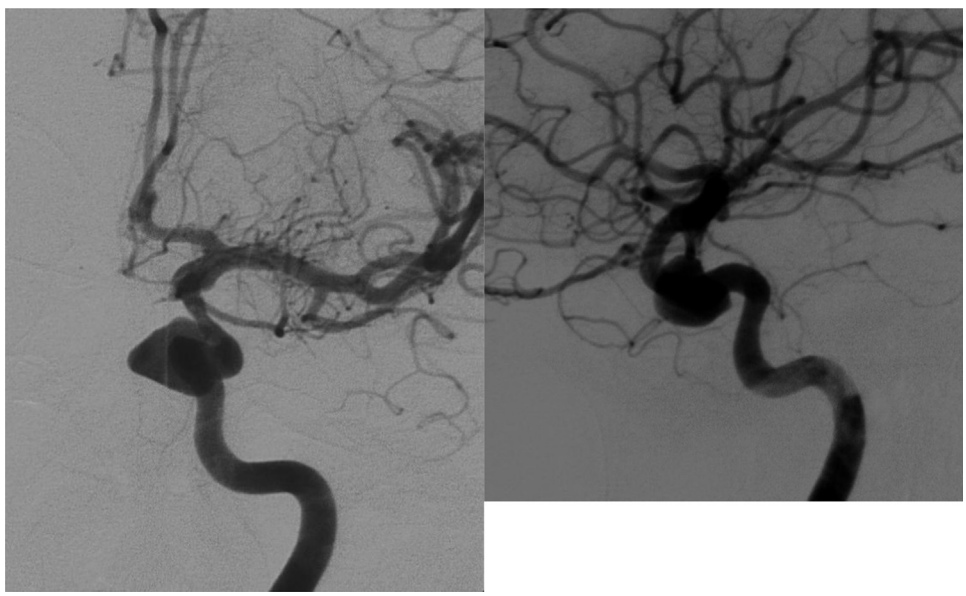

Fig. 2 – Digital subtraction angiography study (antero-posterior and latero-lateral projections) confirming the medial wall ICA aneurysm; the sac is irregular, medially oriented, with a maximum diameter of 12 mm.