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BACKGROUND AND OBJECTIVES

Background: Aneurysms of the cavernous segment of the internal carotid artery is a diagnostic challenge for neurologists. This type of intracranial aneurysm accounts 2% to 9% of all intracranial aneurysms. The risk of subarachnoid hemorrhage is extremely low (0.2-0,4% per year). However, symptoms, for a mass effect, include progressive cranial nerve deficits, visual symptoms, retro-orbital pain, carotid-cavernous fistula (CCF), recurrent transient ischemic attacks, spontaneous thrombosis and epistaxis.

Objectives: To describe a case of aneurysms of the cavernous segment of the internal carotid with CCF treated by endovascular stent/coil treatment.

CASE REPORT:

An 81-year-old-woman was admitted to our department for a loss of consciousness. A CT-scan showed a small right frontal ribbon hyperdensity and irregular aspect of right ophthalmic vein.

ON ADMISSION TO OUR DEPARTMENT:

- On neurological examination, drowsiness, right exophthalmos; headache and vision impairment were noted.
- First level laboratory tests: ↑ CPK
- Electrographic Registration (EEG) recordings showed bifrontal periodic lateralized epileptiform Discharges (PLEDS) suggesting a possible critic nature of patient's loss of consciousness. AEDs therapy has been started
- A MRI reported a right carotid-cavernous fistula (CCF) and an expansion of the right internal cerebral vein.

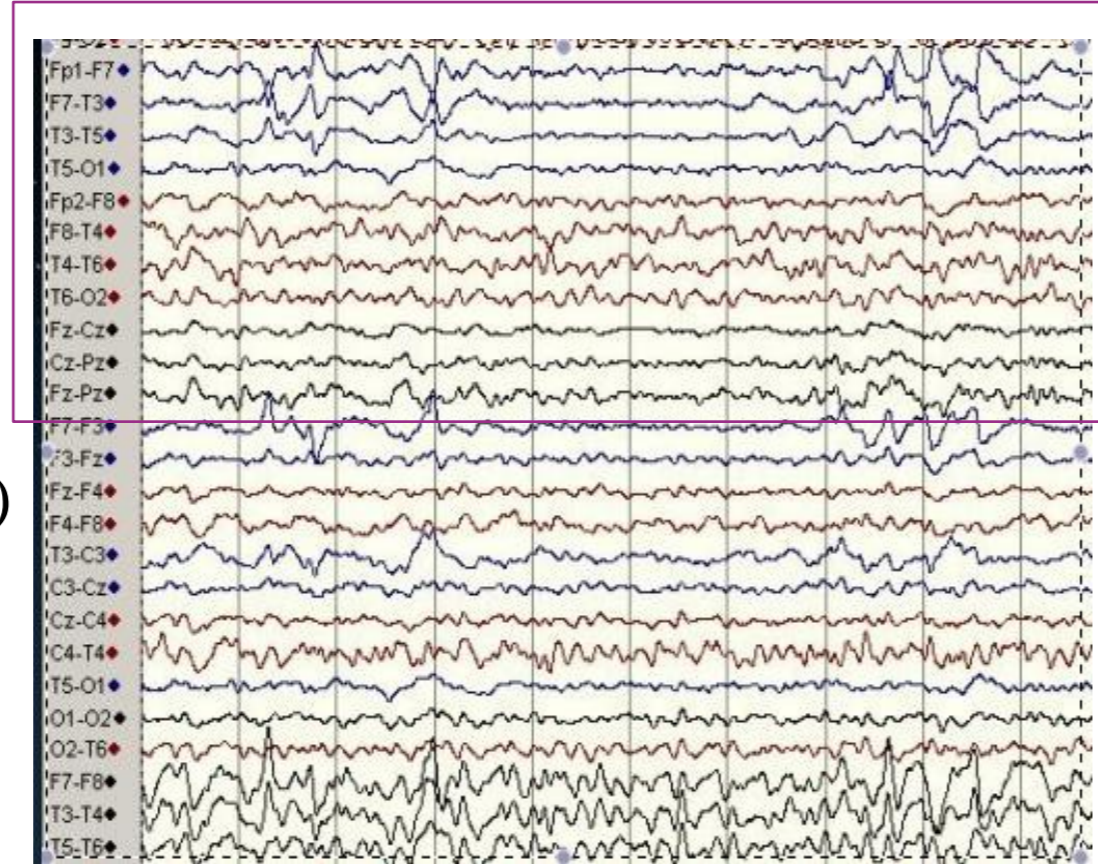


Figure 1: PLEDs

Angiography has been carried out because in **MRI angiography**, a left carotid-cavernous aneurysm has been observed.

Angiography showed aneurysm of the carotid siphon on the left, that broke in the ipsilateral cavernous sinus, led to the formation of carotid-cavernous fistula left to venous drainage through the intercavernous anterior sinus and to ophthalmic vein in the right. The left CCF has been treated with flow-diverter endovascular stent placement to the left internal carotid artery and then closing by spirals MRI-compatible aneurysm and fistula.

According to literature data

FINAL TREATMENT WAS:

Endovascular stent assisted coil treatment has been chose and all symptoms improved at six months and one year follow-up. AEDs therapy has been discontinued

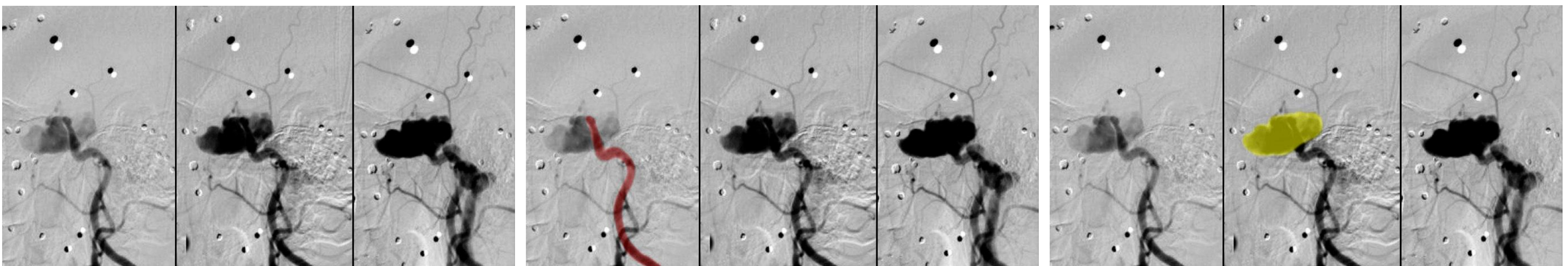


Figure 2: Endovascular stent assisted coil treatment

TREATMENT

- Taking account that these aneurysms carry low rupture any proposed treatment has to have a lower risk of complications.
- However, symptoms, for a mass effect, are progressive.
- Although surgical management is possible, endovascular therapy is the mainstay of modern therapeutic options, especially when a carotid cavernous fistula has been observed, because spontaneous closure of high-flow CCF is rare.
- The treatment of CCAs requires occlusion of the ipsilateral ICA with the risk of stroke, blindness or both (parent artery ligation or endovascular occlusion) or surgical clipping.
- Stent-assisted coiling was initially done using balloon expandable stents and later using self expandable stents to prevent coil herniation into vessel lumen.
- Bilateral CCAs are extremely rare and no guideline management exist. Traumatic pseudoaneurysms have a higher risk of rupture because of the absence of a true wall and always require treatment.

REVIEW of LITERATURE

- Aneurysms of the cavernous segment can be idiopathic, traumatic, iatrogenic, or infectious in etiology
 - Aneurysms of the cavernous segment are more common in women and have been reported in all age groups
 - Rupture rate of Aneurysms of the cavernous segment : 3-6%
- A literature research for reports in English language for Aneurysms of the cavernous segment of the internal carotid artery with a carotid cavernous fistula has been performed .**
- 15 patients with aneurysm of the cavernous segment of the internal carotid with a carotid cavernous fistula have been reported in English literature.
 - 6 case-reports; 1 case from a series by Starke and 8 from a series by Van Rooij.
 - In general endovascular treatment is preferred to internal carotid artery occlusion or surgery bypass.

DISCUSSION AND CONCLUSION

- According to literature and our experience, this is an unusual clinic presentation for aneurysms of the cavernous segment of the internal carotid.
- This type of aneurysm could represent a diagnostic challenge for neurologists for atypical clinical presentation.
- Aneurysms of the cavernous segment of the internal carotid and carotid-cavernous fistula CCF need to optimize therapeutic approach.
- Endovascular therapy is the best therapeutic option, according to literature review.

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