

# Unusual Vascular cause for cavernous sinus syndrome

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## Aim:

- Cavernous sinus syndrome is any disease process involving the cavernous sinus. It is usually characterised by symptoms and signs of ophthalmoplegia, chemosis, proptosis, Horner syndrome and trigeminal sensory loss. Multiple etiologies lead on to cavernous sinus syndrome. Usual etiologies include tumor (being the most common cause), infections, inflammation, trauma. Vascular causes also contribute to cavernous sinus syndrome. Vascular cause include Carotid-cavernous aneurysms, Carotid – cavernous fistulas and Cavernous sinus thrombosis.

## Materials and Methods:

We present the case of a middle aged female patient with a one year history of insidious onset, slowly progressive neurological illness in the form of pain, redness, irritation of left eye which was followed by left sided double vision to distant objects and double vision on getting down the stairs. The patient also had irritation while looking at light with left eye and reduced sensation in left forehead with normal perspiration in whole face. Initially patient had headache which gradually reduced, but other complaints were progressive in nature. She was a known diabetic on medications with no other known comorbidities. Negative history included absence of symptoms pertaining to pituitary, no loss of weight or appetite, no fever and no symptoms related to visual acuity or colour vision. Other cranial nerves, sensory, motor, cognitive, autonomic, cerebellar history were normal.

**Examination:**

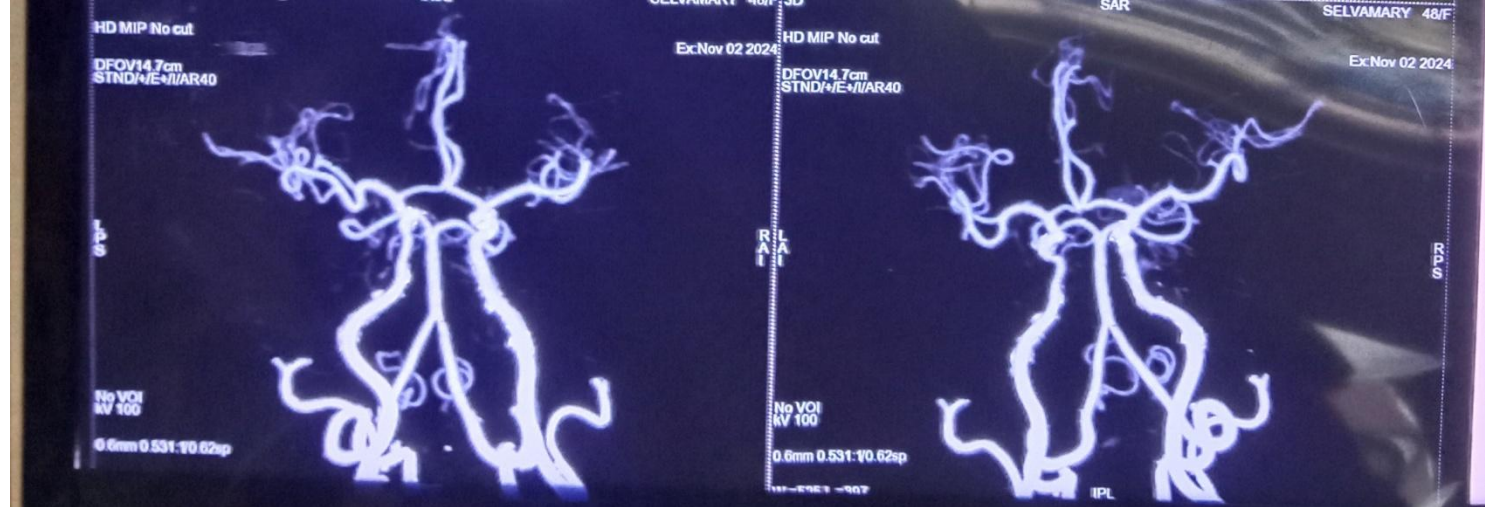
Examination revealed that the patient had normal cognitive functions. She had left sided lateral rectus paresis, left superior oblique paresis, chemosis, mild proptosis, with reduced sensation in the first trigeminal sensory distribution and anisocoria. Anisocoria increased in daylight – indicating parasympathetic involvement in the left eye. On application of dilute pilocarpine (0.1%) the pupil in left eye did not constrict. On application of concentrated pilocarpine (1%) the pupil in left eye constricted – indicating third nerve palsy. Other cranial nerves, sensory, motor, autonomic, cerebellar, spine and cranium examination was normal. Thus a diagnosis of cavernous sinus syndrome was made. Patient was evaluated for causes of insidious onset, gradually progressive cavernous sinus syndrome.

**Investigations:**

- Normal cell counts
- Elevated HbA1C - 7.2
- Normal LFT, RFT, Electrolytes
- Thyroid function test was normal
- CSF examination was normal
- MRI brain revealed that there was no structural lesion in the cavernous sinus or nearby structures.
- CT brain showed dilated inferior orbital vein and enlarged lateral rectus.
- CT cerebral angiogram revealed a low flow Carotid cavernous fistula.
- Neurosurgeon opinion was sought for DSA and further management of CCF.
- Patient was not willing for the procedure and hence discharged.

## Result:

Detailed evaluation of cavernous sinus syndrome is essential to find the etiology. In our patient, the diagnosis was low flow carotid cavernous fistula. The insidious nature, slowly progressive nature of the syndrome along with involvement of the posterior compartment in the form of proptosis, chemosis and lateral rectus palsy and the anterior compartment in the form of cranial nerve III, IV, V1 involvement made us to think of tumor as the first possibility. But the neuroimaging and CT cerebral angiogram helped in concluding our etiology.



## Conclusion:

- Vascular causes should always be in the differential diagnosis of cavernous sinus syndrome.
- High flow CCF are easy to identify because of the significant proptosis, chemosis, ophthalmoplegia with bruit. Low flow CCF can be easily missed unless sought for.
- CCF are not usually responsive to steroids like Tolossa Hunt Syndrome or any other vasculitis.
- In India, Infection should always be evaluated as a cause of cavernous sinus syndrome due to increased cases of uncontrolled diabetes mellitus and Tuberculosis.