

A Variant Case Of Cavernous Sinus Thrombosis

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Citation

K Krishnaram. *A Variant Case Of Cavernous Sinus Thrombosis*. The Internet Journal of Health. 2013 Volume 14 Number 1.

Abstract

A 6 year old girl was brought with complaints of swelling of both eye lids, the right eye more than left eye and high fever since 3 days. There was edema with pockets of pus in the right eye lid and edema of the left eye lid. Total external ophthalmoplegia was present in both the eyes. Clinical and CT scan pointed to bilateral preseptal and orbital cellulitis with right cavernous sinus thrombosis that spread to the opposite side. Higher triple antibiotics through intravenous route was started. 20 days into treatment the girl developed right sided hemiparesis and aphasia. MRI, angiography and venography revealed absent signal in the left petrous part of the internal carotid artery. Pyemic emboli was thought to be the cause of internal carotid occlusion. This case report is presented for its rarity.

Cavernous sinus thrombosis is an acute septic thrombophlebitis of the sinus. The sepsis originates from pyogenic foci in the face, PNS, ear, or orbit. It is a rare serious condition, which in pre-antibiotic era was 100% fatal.

INTRODUCTION

A 6 year old girl was brought with complaints of swelling of both eye lids, the right eye more than left eye and high fever since 3 days. There was edema with pockets of pus in the right eye lid and edema of the left eye lid. Total external ophthalmoplegia was present in both the eyes. Clinical and CT scan pointed to bilateral preseptal and orbital cellulitis with right cavernous sinus thrombosis that spread to the opposite side. Higher triple antibiotics through intravenous route was started. 20 days into treatment the girl developed right sided hemiparesis and aphasia. MRI, angiography and venography revealed absent signal in the left petrous part of the internal carotid artery. Pyemic emboli was thought to be the cause of internal carotid occlusion. This case report is presented for its rarity.

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CASE REPORT

A 6 year old female child weighing 15 kgs, emaciated presented to the eye department with painful massive swelling of both eye lids of 3 days duration. The child was febrile, irritable and had rigors, h/o similar swelling of upper and lower lids of the right eye at the age of one, which the parents say, regressed with some native treatment.

On examination, the right eye had cellulitis of both lids, massive enough, not able to separate the lids for examination of the eye ball. Purulent pockets were seen in some areas. The left eye showed moderate edema of both lids; the cornea was clear. The pupils reacting sluggishly to direct light. All ocular movements were restricted.

Figure 1

Day 1: CT of the brain shows right eye pre septal edema/collection; partial thrombosis of the right cavernous sinus; left eye with mild pre septal thickening

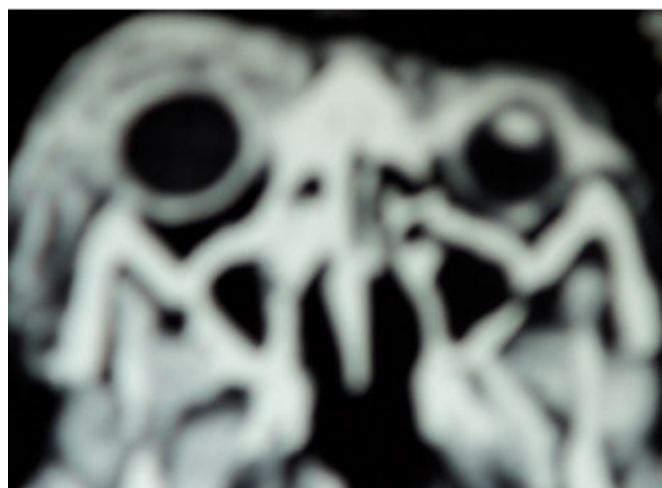


Figure 2

CT of the brain shows calcified granuloma in both cerebral hemispheres.

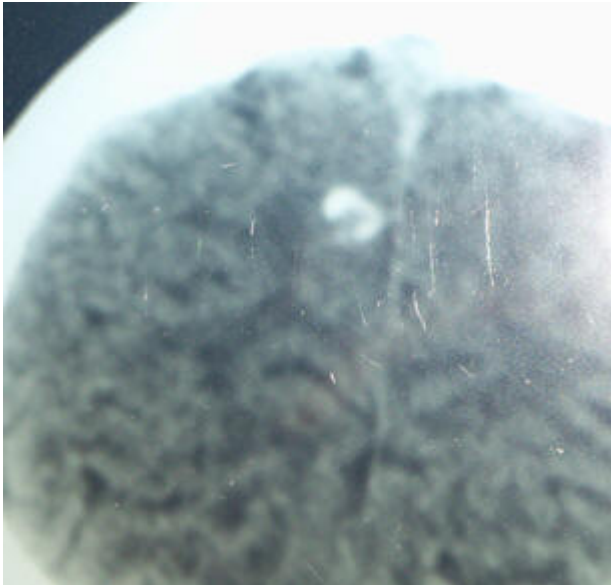


Figure 3

X-ray chest shows multiple infiltration in both lungs



CT-Scan of the brain with contrast done on the same day showed:

1. Cellulitis/edema/pre septal both lids of the right eye,
2. Right frontal sub galeal collection of pus,
3. Partial thrombosis of the right cavernous sinus,
4. Right maxillary, right ethmoid and bilateral sphenoidal sinusitis,
5. Evidence of granuloma.

A chest X-ray chest revealed multiple infiltration of both lungs.

ENT opinion was pan sinusitis of the right side. The patient

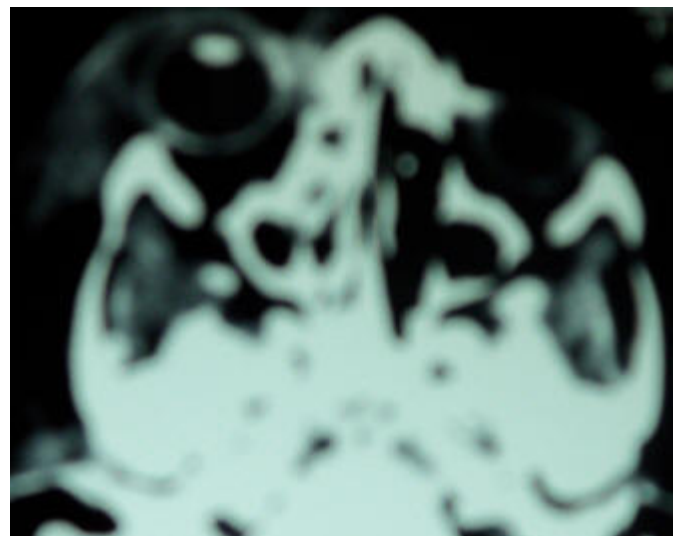
was diagnosed with cavernous sinus thrombosis. The paediatrician concurred with above diagnosis. Purulent pockets in the lids of the right eye were opened up and pus sent for culture and sensitivity. Staphylococcus aureas was grown which was sensitive to ceftriaxone, amikacin and cloxacillin

The child was started on cefotaxim, amikacin, metronidazole all by intravenous route. Nasivion normal saline nasal drops, also Tab. Bidenzen forte, Tab. Paracetamol, Tb. Dicloxacilin were started with concurrence of the paediatrician. As per the neurosurgeon's advice anti-tuberculosis treatment was also started.

On the 2nd day the patient became tachypnoeic and very drowsy. The child was shifted to the SICU for monitoring vitals frequently and tracheostomy if SpO2 goes below 90%. Inj. Efcorlin 100mg IV and Inj. Heparin 500 IU. subcutaneously twice a day were started. The same treatment continued for another 2 weeks. Examination of the left eye showed clear cornea, brisk direct pupillary reflex. The adduction fully recovered. Elevation and depression were restricted. In the right eye there was still significant cellulitis/edema of both lids; all ocular movements were restricted. The cornea was clear and direct pupillary reflex were sluggish.

Figure 4

Day 8: CT scan shows: Right eye cellulitis subsided, proptosed



On the 20th day the child became aphasic with weakness of both upper and lower right limbs. Right eye lids cellulitis was still present with purulent pockets in it.

MRI angiography and venography was suggested by the neurosurgeon. It showed

1. Left internal carotid at the petrous region with loss of signal (occlusion)
2. Right sigmoid sinus with absence of signal (sign of thrombosis)

Figure 5

Dat 24: MRI: Right eye proptosis still present

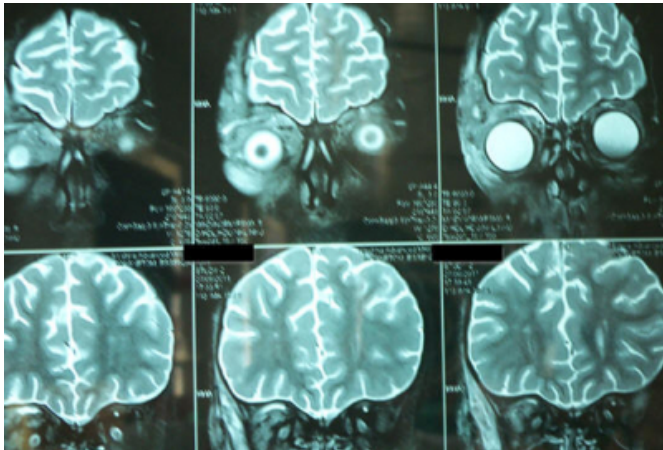


Figure 6

MRI Angio/venography of the brain shows right sigmoid signal occlusion.



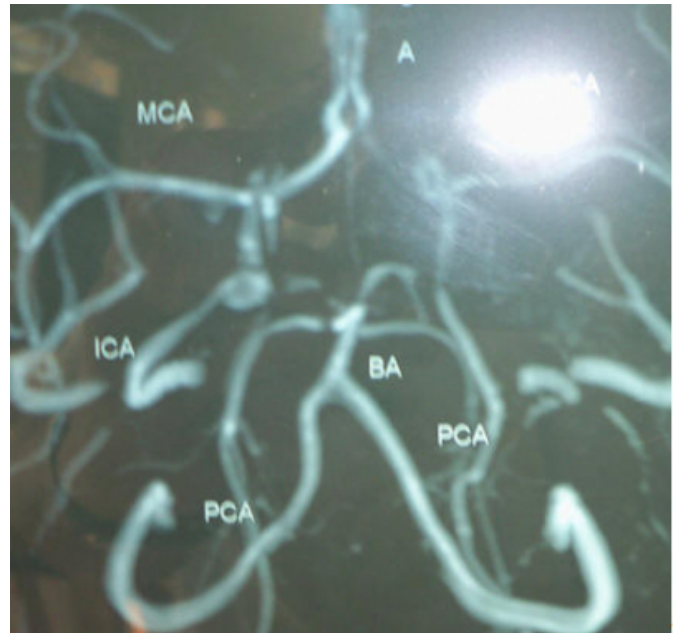
Under short general anaesthesia the purulent pockets were drained on the 22nd day. The same medical treatment was continued. Injection Heparin dose was increased to 1000 IU twice a day subcutaneous.

On the 29th day the child was discharged at the request of the parents. She was conscious, dysphasic, with right hemiparesis. Visual Acuity Right Eye: 1/60 Left Eye: 6/60. Ocular movements of the left eye were full; Right Eye: abduction absent and other movements restricted. The patient still had a mild swelling of the right eye lower eye lid. The patient at the time of discharge was on isoniazid, rifampicin,

gatifloxacin, bidenzen and syrup B complex.

Figure 7

MRI Angiography shows left internal carotid signal occlusion



When she came for review on the 36th day her right hemiparesis had decreased but she was still dysphasic. Minimal right eye lower lid swelling was present. Ocular movements of the left eye had recovered; right eye abduction was restricted. Visual Acuity Right Eye: 6/60 Left Eye : 6/18; both corneas were clear; both pupillary reflexes were brisk. Fundus: Both Eyes: normal.

DISCUSSION

Cavernous sinus thrombosis a rare, serious condition, originating from pyogenic foci in the face, nose, paranasal sinuses, ear, or orbit. The condition mimics orbital cellulitis. However it must be remembered that thrombosis of the sinus may be a complication of cellulitis – pre septal or post septal (orbital).

Bilateral orbital cellulitis is very rare. Proptosis occur in nearly all cases but surely in late onset cases of otitic origin. It is commonly stated that the retinal veins are greatly engorged but in many cases this is certainly not true. When this occur its usually accompanied by pronounced papillitis, and both sign indicate extensive implication of the orbital veins and tissues. Simultaneous thrombosis of both cavernous sinuses with proptosis and papillitis occur in diseases of the sphenoidal sinuses. Typical papilloedema is commonest in otitic cases and indicate meningitis or cerebral abscess; it is bilateral, but more pronounced on the side of

the aural lesion. It is violent in onset with rapid evolution of proptosis.

High grade fever, rigor, severe cerebral symptoms and some times vomiting are present. There is great swelling of lids and chemosis, severe supra orbital pain along V1 occurs. Edema over the mastoid process is an early pathognomic sign due to the back pressure of mastoid emissary vein. Paralysis of extra ocular muscles occurs and the lateral rectus is the first to be affected. Later the pupil is dilated and the cornea anaesthetic. Transfer of similar symptoms and sign to the other eye occur in 50% of the patients due to inter cavernous communication. The fundus may show papillitis or papilloedema. Meningitis, cerebral abscess, pulmonary infarction are serious complications. Fatality is not due to infection, but to stagnation of blood in the sinus, back pressure on cerebral veins and venous congestion in the cerebrum. Intensive intravenous higher spectrum antibiotics like 3rd or 4th generation cephalosporins should be started immediately. Anti-coagulant treatment with heparin may be required to prevent extension of the clot.

Children under 4 years of age are prone to be affected by haemophilus influenzae, due to their inadequate humoral antibody response to polysaccharide excapsulated bacteria. In children penicillinase resistant penicillin such as nafcillin along with additional coverage for gram negative organisms and anaerobes is mandatory. An otorhino laryngologist's opinion should be taken and undrained pus must be surgically evacuated. Since subperiosteal abscess formation occurs less frequently in children, surgical drainage is rarely necessary, but is frequently necessary in adults.

CONCLUSION

This 6 year old febrile and irritable patient presented with massive swelling of the upper and lower eye lids of the right

eye, moderate swelling of upper and lower eye lids of the left eye and restricted ocular motility of 3 days duration. CT scan with contrast showed partial thrombosis of right cavernous sinus. Purulent lid pockets in the right eye were opened and pus drained. Appropriate higher generation antibiotics and heparin were started. Left eye ocular movements recovered except abduction. Right eye lids swelling decreased.

After 10 days the child suddenly developed right side hemiparesis and aphasia. MRI, angio, and venography showed loss of signal in the left internal carotid artery and right sigmoid sinus with complete absence of signal. The left internal carotid artery was occluded probably by septic emboli. Continuing antibiotic, anti-coagulant therapy showed improvement in the child. The right hemiparesis decreased and also dysphasia decreased. Ocular movements in both eyes recovered, abduction the last. V/A improved slowly and the fundus was normal in both eyes. Importance of timely, correct diagnosis and appropriate aggressive treatment cannot be ignored.

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