

Case Presentation



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Case

- ◆ 62 y/o AAF with PMHX of DM,HTN presented with a one week history of following symptoms:
- ◆ Nausea and vomiting.
- ◆ Dizziness, dysarthria and diplopia
- ◆ Other symptoms were blurred vision with intermittent band like spots
- ◆ There were no weakness or sensory complaints

Physical Examination

- ◆ Alert awake and oriented x 4.
- ◆ Nystagmus exacerbated by lateral gaze .
- ◆ Vertical nystagmus with inferior gaze .
- ◆ Positive Babinski sign bilaterally.
- ◆ Motor system, sensory system and reflexes were normal

Differential Diagnosis

1. Stroke: posterior circulation
2. CP angle tumor.
3. Vertebral artery dissection
4. Basilar meningitis

Hospital Course.

- ◆ Within a day after admission, she became less responsive and progressively obtunded. She developed horizontal gaze palsy. Eye movement was very much limited and ocular bobbing was noted. Respiratory pattern changed from normal to central neurogenic hyperventilation.

Imaging Studies.







Diagnosis

◆ Signs of posterior circulation infarct:

In the case presented here, findings indicating basilar artery pathology were

1. *Gaze Evoked Nystagmus*: It is a manifestation of cerebellar infarct. Cerebellum has inhibitory effect on brain stem neural integrators concerned with gaze and achieve smooth pursuit of all eye movements. Cerebellar lesions therefore cause gaze-induced nystagmus with eccentric eye positions

2. *Vertical Nystagmus*: It is caused by damage vestibulo-oculomotor pathway. Vertical nystagmus is a good localizing sign, as it is not linked with lesion above pons.
3. *Gaze palsy*: Occurs in brain stem infarct with involvement of bilateral PPRF and bilateral abducens nucleus.
4. *Decerebrate posture*: . Seen with lesions at the level of vestibular nuclei.

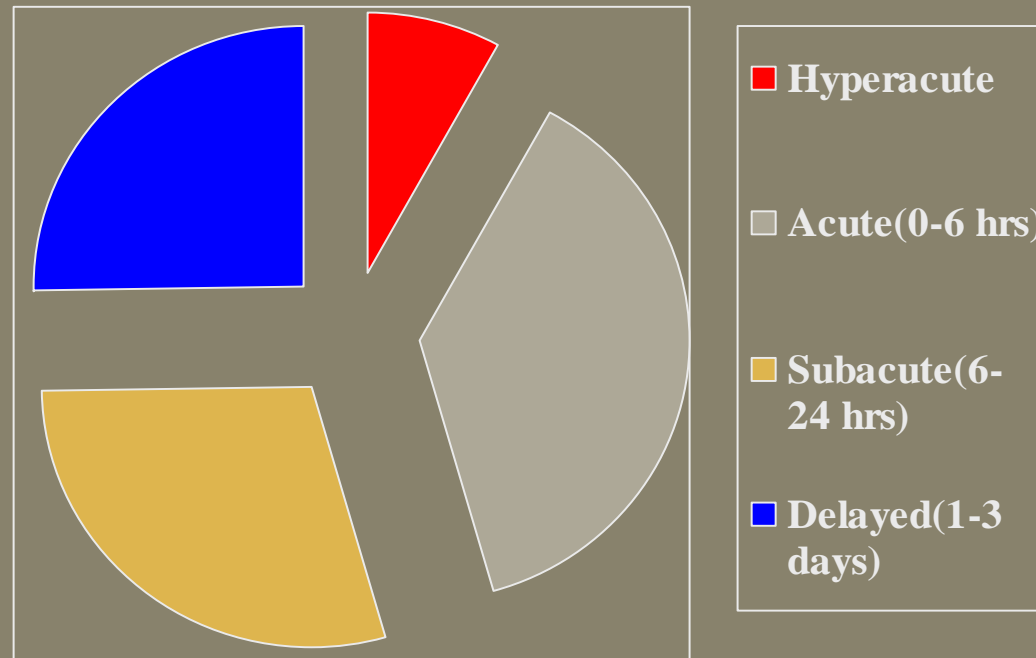
5. *Ocular bobbing* : Pontine lesion affecting bilateral para pontine reticular formation (PPRF) result in loss of horizontal gaze nucleus leading to vertical oscillation of eyes.
6. *Central neurogenic hyperventilation* : It can occur with pontine or midbrain lesions and is an indicator of poor prognosis. All these findings in the patient points towards a BA occlusion in its distal part causing pontine infarct.

Why is it important to diagnose BA disease in the early?

- ◆ The mortality from untreated BA occlusion is as high as 90%.
- ◆ If cases are diagnosed within 6 hours, patient can undergo IV and IA tPA which reduce the mortality rate to less than 50%

Do we have sufficient time to make a diagnosis?

- ◆ Study by Von Camp et al in a 25 cases of BA occlusion proven with angiography.



Therapeutic Options

- ◆ **IV thrombolysis:** If given within the 3 hour window, mortality rate can be reduced down to 25 %. In case of BA occlusion therapeutic window may be extended to 6 hours, however the efficacy is still questionable. Non-randomized studies have shown favorable outcome even up to 6 hours.

◆ IA thrombolysis:

There has been no double blind randomized study done about IA thrombolysis in BA occlusion. Some of the non-randomized studies show a good outcome with IA thrombolysis.

Intra-arterial tPA

	Becker N=12	Egan n=15	Dammer N=20	Koves N=4	Ezaki N=16
Initiation of treatment in hrs.	1-48	24	1-48	-	24
Good outcome	25%	60%	45%	75%	35%
Poor outcome	75%	40%	65%	25%	65%
ICH	16%		45%		

Outcome of the Disease:

- ◆ BA occlusion has a very high mortality rate and lead to irreversible neurological complication including locked-in syndrome. Most of the studies show a mortality rate of 60-85 %. With the advent of new techniques, early detection and appropriate treatment significantly change the outcome.

Secondary Prevention:

ASA versus Warfarin

- ◆ The incidence of recurrent stroke in patients with BA occlusion is 17 times more compared to general population .
- ◆ WASID study (n=68) compared the effectiveness of aspirin versus warfarin for the secondary prevention.

- ◆ The annual incidence of stroke in patients treated with aspirin was 20 %.
- ◆ Those who were treated with warfarin had only 12 % incidence of stroke.
- ◆ There are no studies comparing benefit-risk ratio of using warfarin in patients with BA occlusion.

Board Questions

What is the mortality rate of stroke involving basilar artery?

- A. 10 %
- B. 25%
- C. 40%
- D. 70%

Answer: D

Most of the studies have shown that Basilar artery occlusive disease has a mortality rate ranging between 60% to 90 %.

What is the most unusual presentation of basilar artery stroke?

- A. Motor Weakness
- B. Vertigo
- C. Sensory symptoms
- D. Decreased level of consciousness
- E. Cerebellar signs

Answer:

Motor symptoms without sensory abnormalities are a hallmark of posterior circulation infarct. Even though sensory symptoms can occur , it is the least common symptom