

# MID-Brain Infarction: Weber's Syndrome with Facial Nerve Palsy: A Case Report

Jacob K Jacob, Suma Samuel, Ranjith PS, Bhagyanath T

Department of Internal Medicine, Government Medical College, Ernakulam\*

## ABSTRACT

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Weber's syndrome is a distinctive brainstem disease characterised by ipsilateral 3rd nerve palsy and contralateral hemiparesis. To date there is limited literature concerning Weber syndrome associated with central facial palsy from this part of world. We hereby report a rather rare case of Weber with central facial palsy

**Keywords:** Weber's syndrome, Third nerve palsy, Brainstem

\*See End Note for complete author details

## CASE REPORT

Fifty year old female was admitted to Govt Medical College Ernakulam with complaints of diplopia, weakness of left upper limb, lower limb and deviation of angle of mouth to right. Diplopia started first and it was horizontal, binocular, and more on looking towards left indicative of partial right 3<sup>rd</sup> nerve palsy, partial as there was no papillary involvement, ptosis in initial stage. She later developed ptosis of right eye after 2 days.

Our patient noticed weakness of left arm and left leg and diplopia while she was at home. She was admitted to the local hospital and found to have BP of 230/130 mm of Hg for which she received Nitroglycerine infusion. She was alert and had no arrhythmia at that time.

Upon arrival at our hospital 2 days after the index event, BP was 170/110 mm of Hg. Neurological examination revealed a conscious, depressed individual with normal higher mental functions. Cranial nerves examination revealed incomplete 3<sup>rd</sup> nerve palsy and grade 2 retinopathy. Strength of orbicularis oculi and frontalis were well preserved bilaterally. She had deviation of angle of mouth to the right and dysarthria. Motor system showed left sided spastic weakness with grade 4 power with extensor plantar on same side.

Initial CT was normal which was done within a day.

Cranial MRI performed 10 days after onset of weakness showed infarction of size 14 X 9 mm in right midbrain with cerebral peduncle involvement. Over next few days during hospital stay she developed ptosis right eye; but weakness and facial deviation and dysarthria were improving. She was discharged with advice to follow up after one week.

## DISCUSSION

WEBER'S syndrome was described by German physician Herman Weber in 1863. Clinical findings of classic Weber includes ipsilateral third nerve palsy and contralateral limb weakness. Most of the eye muscles are innervated by third cranial nerve, motor nucleus of which is located at upper mesencephalic level of brainstem. Nerve fascicles then run forward and laterally through red nucleus and get closer at interpeduncular fossa. So nuclei and fascicles of 3<sup>rd</sup> nerve are expanding a relatively wide area in midbrain. Midbrain lesions generally lead to partial 3<sup>rd</sup> nerve palsy. Next it enters orbit through superior orbital fissure after coming out of midbrain and branch into superior and inferior divisions. Upper branch innervates Levator Palpebrae Superioris and Superior rectus. The pre-ganglionic para sympathetic fibres of 3<sup>rd</sup> nerve are transported by nerve to the inferior oblique muscle arrive to ciliary ganglion and from here the post-ganglionic parasympathetic fibres emerge. The nerve fibre to Levator Palpebrae Superioris and pupillo-constrictor

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### Corresponding Author:

Dr. Jacob K Jacob, Professor, Department of Internal Medicine, Government Medical College, Ernakulam. 9446035690  
Email: jacobkjacobs@yahoo.com

fibres for the muscles of iris are located in a superficial and dorsal portion on the nerve relaying in ciliary ganglion. Before external ophthalmoplegia develops, a fixed dilated pupil is often first sign of 3<sup>rd</sup> nerve compression and ptosis the second manifestation.

In patients with isolated mesencephalic infarct clinical picture was dominated by nuclear or fascicles nerve palsy and motor defects.<sup>1,2</sup>

On the other hand corticobulbar tract (CBT) is commonly used to describe the pathway taken by motor fibres innervating cranial nerve nuclei especially trigeminal, facial, hypoglossal and spinal accessory nerve. The oculomotor, trochlear and abducens receive no input from CBT<sup>3</sup>

The motor nucleus of facial nerve is located at lower pons. CBT fibres that connect motor cortex with facial nerve provide unilateral innervation to contralateral lower facial muscles and bilateral to upper facial muscles. The facial CBT descend at venteromedial region of crus cerebri near corticospinal tract<sup>4</sup>. Posterior cerebral artery disease may be caused by occlusion of arterial branch with athero-thrombotic plaque.<sup>5</sup> In these cases hypertension is a major risk factor Kumar et al presented the topographic and clinical distribution of acute posterior circulation infarcts involving mesencephalon. They described four patients with Webers syndrome and UMN facial palsy due to isolated midbrain infarct around ventero medial crural region within 41 patients with mesencephalic infarction.<sup>1</sup>

Terao et al reported two pts with contralateral central facial paralysis and hemiparesis of limbs, resulted from unilateral venteromedial medullary infarction<sup>4</sup>

Our case report demonstrates a rather peculiar case of crossed hemiparesis and contralateral facial nerve

paralysis and ipsilateral oculomotor nerve fascicle which spares pupil but affected Levator Palpebrae Superioris.

## END NOTE

### Author Information

1. Dr Jacob K Jacob, Professor, Department of Internal Medicine, Government Medical College, Ernakulam
2. Dr Suma Samuel, Assistant Professor, Department of Internal Medicine, Government Medical College, Ernakulam
3. Dr Ranjith PS, Resident, Department of Internal Medicine, Government Medical College, Ernakulam
4. Dr Bhagyanath, Resident, Department of Internal Medicine, Government Medical College, Ernakulam

**Conflict of Interest:** None declared

**Editor's Comments:** Unusual manifestations of a less common case. This case is reported for information of all clinicians

## REFERENCES

1. Kumral E, Bayulkem G, Akyol A, Yunten N, Sirin H, Sagduyu A. Mesencephalic and associated posterior circulation infarcts. *Stroke*. 2002 Sep;33(9):2224–31.
2. Johnson MH, Christman CW. Posterior circulation infarction: anatomy, pathophysiology, and clinical correlation. *Semin Ultrasound CT MR*. 1995 Jun;16(3):237–52.
3. Nolte J. The human brain: An introduction to its functional anatomy, Edition 5th, Elsevier Health Science. pp 461
4. Terao S, Miura N, Takeda A et al. Course and distribution of facial cortico bulbar tract fibres in the lower brain stem. *J Neurol Neurosurg Psychiatry* 2000; 69:262-5
5. Hendelman WJ. *Atlas of functional neuroanatomy*. 2nd edition CRC Pres Taylor & Francis group.2006 pp.126