Case report

Posterior inferior cerebellar artery syndrome
(Wallenberg syndrome)

Dr. Mitali Srivastava, Dr. S. Abeetha, Dr. Shivali Srivastava

Post graduate, Department of Biochemistry, Sri Manakula Vinayagar Medical College and Hospital, Pondicherry, India
Post graduate, Department of Physiology, Sri Manakula Vinayagar Medical College and Hospital, Pondicherry, India
Post graduate, Department of Anatomy, Sri Manakula Vinayagar Medical College and Hospital, Pondicherry, India
Corresponding author: Dr. Mitali Srivastava

Abstract:
Wallenberg syndrome is a neurological disorder resulting from occlusion of the vertebral or posterior inferior cerebellar artery. The following case report depicts the case of a 60 year old male who presented to the emergency room with complaints of dizziness since the last 5 hours. He also had regarding numbness over the left half of the face and right half of the body along with difficulty in swallowing, getting up from bed and persistent hiccups.

Introduction:
A constellation of neurological features, resulting from stroke in the vertebral or posterior inferior cerebellar artery of the brain stem, constitute Wallenberg syndrome. It is also called as lateral medullary syndrome or posterior inferior cerebellar artery syndrome.
The lateral region of the medulla oblongata presents the anterior lateral sulcus ventrally and the posterior lateral sulcus in the dorsal aspect. The pons flanks it rostrally and the cervical spinal cord caudally. Multiple nerve nuclei and tracks are found in this region. Some of them are- the inferior cerebellar peduncle, vestibular nuclei, spinal trigeminal nucleus, descending sympathetic fibers, dorsal motor nucleus of the vagus nerve, lateral spinothalamic tract, nucleus ambiguous, solitary nucleus, medullary reticular formation, and central tegmental tract.
Due to compact placement of nuclei and tracts in the lateral aspect of the medulla, clinical features of Wallenberg syndrome result due to abnormalities in the vestibulo-cerebellar, sensory, bulbar, respiratory, and autonomic systems. The vestibular nucleus and inferior cerebellar peduncle control the vestibulocerebellar functions. Any damage in this region can give rise to dizziness and difficulty in balancing, with lateropulsion (the sensation of being pulled in one direction) ipsilateral to the lesion. Difficulty in ambulation, maintaining sitting posture without assistance is also commonly found.
Visual defects include blurry vision, diplopia, oscillopsia, or horizontal and rotational nystagmus. Injury to spinal trigeminal nucleus and/or tract causes ipsilateral reduction in pain and temperature sensation over the face. Any injury to lateral spinothalamic tract leads to reduced pain and temperature sensation over the contralateral trunk and extremities.
In case of ipsilateral dysphagia, hoarseness and poor gag reflex, the injury involves nucleus ambiguous. This is located relatively medial in the lateral medullary region and is responsible for
functioning of vocal cord and palatal muscles function.

Ipsilateral Horner’s syndrome (miosis, ptosis, anhidrosis) occurs when damage to descending sympathetic fibers occurs. In certain patients, dysguesia (distortion of taste) occurs, which is due to involvement of solitary nucleus.\(^2\,3\,6\,7\)

Tachycardia, orthostatic hypo-tension without tachycardia and intermittent bradycardia may be found if the dorsal motor nucleus of the vagus nerve is affected, due to involvement of the autonomic system. Ondine’s curse or failure of automatic respiration leading to respiratory arrest during sleep may occur in injury to the ventrolateral medullary tegmentum and medullary reticular zone.\(^2\,7\)

Case report:
Here we report the case of a 60 year old man who presented to the emergency room late in the morning with a history of dizziness since 5 hours. There was history of numbness over the left half of the face and right half of the body. He also had difficulty in swallowing and getting up from bed. The patient complained of persistent hiccups. He experienced swaying to the left side while walking [lateropulsion].

The patient was not a known case of diabetes/hypertension/ coronary artery disease/ tuberculosis or bronchial asthma. He was a smoker since the last 40 years, and smoked about 10 beedis per day. He was also an occasional alcoholic.

His vitals were stable, other than a slightly elevated systolic blood pressure. Clubbing was seen on fingers of both hands.

On central nervous system examination, the following findings were noted: higher mental functions were intact. Cranial nerve examination showed classical findings: sensory loss on left half of face [5th cranial nerve/ trigeminal nerve], lower motor neuron palsy of face [7th cranial nerve/ facial nerve] and absence of gag reflex [9th and 10th cranial nerve/ glossopharyngeal and vagus nerves].

All sensations on the left side of the face were lost. There was loss of fine touch on the right side of the body. Pain and temperature were not affected.

There was hypotonia of the left upper and lower limbs. Reflexes were normal. Plantar reflex was flexor on the right side and withdrawal on the left side.

Horner’s syndrome was seen on the left side along with nystagmus. The cerebellar function on the left side was impaired.

MRI Brain showed an acute infarct involving part of the left posterior inferior cerebellar artery, flair hyper-intensity was noted in the distal part of vertebral artery (intra cranial part) with non-visualisation of an angiogram sequence.

The patient was given supportive care and referred to a higher centre for further management. The patient returned for follow up a few months later and showed improvement, however the ataxia persisted.

Discussion:
The said syndrome was named after Adolf Wallenberg, renowned for his detailed neurological examination and focus on clinico-pathological correlation.\(^2\) However, it was first described by Gaspard Vieusseux of Geneva, in 1810, at the Medical and Chirurgical Society of London as; “Vertigo, unilateral facial numbness, loss of pain and temperature appreciation in the opposite limbs, dysphasia and hoarseness, minor tongue involvement, hiccups (cured by taking up the habit of a morning cigarette) and a drooped eyelid.”\(^3\)

A clearer picture regarding this disease was obtained, in 1895, when Wallenberg himself established his findings which included post-mortem results.\(^2\)

A Spanish study which reviewed 25 cases of lateral medullary syndrome found presentation by middle
aged men at 55.06 years of age to be predominant. The most important risk factor was arterial hypertension. The onset was progressive in most cases. Features noted were dysphonia and dysphagia. Ataxic gate was found in majority of the patients. The clinical picture varied based on the exact location of the lesion. However, the prognosis was good in most cases with ataxia as a sequel.[8]

The subject of this report also had similar features. Another study, by Nakazato et al, studied the occurrence of diplopia in Wallenberg’s syndrome; 32% of the patients had diplopia resulting from acute dorsolateral medullary infarction.[9] However this patient was not found to have diplopia.

Although there have been reports of Wallenberg syndrome developing due to a brain tumor, the features in such patients are atypical, with the progression of the disease being gradual and steady, instead of sudden as seen in the case report. Also, multiple other symptoms and signs depending on the location and size of the neoplasia are found; these patients have poor prognosis.[10,11]

Occurrence in younger patients was noted following chiropractic neck manipulation leading to vertebral artery dissection and consecutive onset of lateral medullary syndrome. However the prognosis here was much better.[12] In a study by Sampath et al, a patient similar to the present case, presented with persistent and intractable hiccups along with left sided cerebellar signs and was found to have Wallenberg’s syndrome. This patient too had past history of alcohol and tobacco dependence since the last 30 years apart from being a hypertensive.[13]

Conclusion:
Wallenberg syndrome or lateral medullary syndrome can have varied etiology which affects the prognosis of the patient. It is not uncommon and usually has a good prognosis.

References:

