Horner’s Syndrome following double lumen dialysis catheter insertion in right internal jugular vein

Waseem Raja, Sidra Waheed, Kamran Aziz, Muhammad Jamal, Muhammad Khalid

Combined Military Hospital, Peshawar, Pakistan

ABSTRACT
Horner syndrome is characterized by ptosis, miosis and anhidrosis. We describe a case of Horner Syndrome as a possible but rare complication of internal jugular vein catheterization. (Rawal Med J 2013;38: 193-194.)

Keywords: Horner Syndrome, internal jugular vein, hemodialysis.

INTRODUCTION
Internal jugular vein is the most common site used for the insertion of dialysis catheter because of its high success and low complication rates. Common complications include internal carotid artery puncture, thrombosis and infection. Patients on hemodialysis (HD) have repeated access failures and multiple recannulations. There is a high prevalence of venous thrombosis and stenosis in patients on long standing dialysis, which increases the risk of such complications. Horner syndrome (HS) is characterized by a constellation of clinical signs which include miosis, ptosis and anhidrosis. Here we report a patient on HD who developed HS following right internal jugular vein catheterization and recovered from over next 2 weeks.

CASE PRESENTATION
A 56 year old male presented to our hospital with chronic renal failure secondary to essential hypertension. He needed to be placed to renal replacement therapy as his urea and creatinine levels were very high. We inserted a temporary double lumen catheter in right internal jugular vein after multiple attempts. On the first attempt, there was carotid puncture which was managed with pressure application. The catheter was passed successfully in next few attempts. The patient complained of tearing and blurring of vision from the right eye soon after the insertion of the catheter. He was noted sagging of the right upper eyelid and there was miosis of the same side.

Fig 1: Ptosis and miosis of the right eye soon after the internal jugular vein catheterization. (With permission).

He was examined by a neurologist who observed ptosis and anisocoria with right pupil diameter 2.7 mm and left pupil diameter 4.6 mm (Fig 1). Following catheterization, X-ray chest revealed no abnormality. Computerized tomography (CT) scan of neck and chest was also unremarkable. This constellation of symptoms and signs was consistent with Horner's syndrome. There was resolution of anisocoria and ptosis over a period of next two weeks.

DISCUSSION
Horner syndrome is a rare complication of internal jugular catheterization and has been described after right subclavian vein catheterization. The more common complications of internal jugular catheterization are carotid artery aneurysm, AV fistula formation, pseudo aneurysm, aortic dissection, thrombosis and venous air embolism.

Injury to the vagus nerve, hypoglossal nerve, stellate ganglia and phrenic nerve can occur due to direct trauma or injection of local anesthesia. HS is caused by an interruption of the oculosympathetic nerve pathway somewhere between its origin in the hypothalamus and the eye and includes ptosis of the upper eyelid, a slight elevation of the lower lid, sinking of the eyeball, constriction of the pupil, narrowing of the palpebral fissure, nasal stuffiness associated with anhidrosis, and flushing of the affected side of the face. The usual causes of acquired HS are trauma, aortic dissection, carotid artery dissection, Pancoast tumour, pleural drain, neck surgery and regional anesthesia (intra-oral anesthesia, brachial plexus block, epidural anesthesia whether by thoracic, internal jugular vein dialysis catheter insertion.  

Black widow spider envenomation has also been described as a rare cause of HS. Based on localization of the nerve pathway interruption, HS is often classified as central, pre- or postganglionic. The central type the syndrome is associated with other symptoms and signs from the central nervous system. The preganglionic type is most often caused by a tumor or trauma. The postganglionic type is often associated with pain/headache; most frequently it is seen as a consequence of carotid artery dissection or during cluster headache. The HS associated with internal jugular catheterization is also postganglionic. Anhidrosis is rarely prominent, and in the postganglionic subtype it is virtually absent. The pathophysiology of HS after internal jugular catheterization is probably due to repeated attempts of IJV cannulation that causes local hematoma formation, in addition to probably excessive movement of head and neck. It may be transient or may even persist for months. In summary, HS should be recognized as a rare but possible complication of internal jugular catheterization. Whenever possible the catheter should be placed in ultrasound guidance as real-time ultrasound results in a lower access time and a lower rate of immediate complications.

**REFERENCES**


**Author Contribution:**

Conception and design: Waseem Raja
Collection and assembly of data: Muhammad Jamal
Critical revision of the article for important intellectual content: Muhammad Khalid
Analysis and interpretation of the data: Sidra Waheed
Drafting of the article: Sidra Waheed
Final approval and guarantor of the article: Kamran Aziz

**Conflict of Interest:** None declared.

**Corresponding author email:** vazim9@hotmail.com

**Rec. Date:** Jan 08, 2013 **Accept Date:** Jan 28, 2013