

# HORNER'S SYNDROME FOLLOWING INTERNAL JUGULER VEIN CANNULATION

## CASE REPORT

## İNTERNAL JUGULER VEN KATETERİZASYONU SONRASI HORNER SENDROMU

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## ABSTRACT

Horner's syndrome result from interruption of the normal sympathetic nervous supply to the eye. Horner's syndrome is a triad of ipsilateral ptosis, miosis, and conjonctival and facial anhydrosis. We report a case of Horner's syndrome secondary to IJV cannulation.

**Keywords:** *Horner's syndrome; IJV cannulation.*

## ÖZET

Horner sendromu hipotalamooküler sempatik sinir yolunun hasarlanması ile oluşur. Pitozis, miyozis, hemifasiyal anhidrozis, enoftalmi ile karakterize bir tablodur. Yazımızda sağ internal juguler ven (IJV) kataterizasyonu sonrasında gelişen horner sendromu sunulmuştur.

**Anahtar Kelimeler:** *Horner sendromu; IJV kateterizasyonu.*

## INTRODUCTION

Horner's syndrome is a triad of ipsilateral ptosis, miosis, and conjonctival and facial anhydrosis.(1).

The most common complications that can occur following IJV cannulation include internal carotid artery (ICA) puncture, pneumothorax, vessel erosion, thrombosis, airway obstruction and infection.(2).

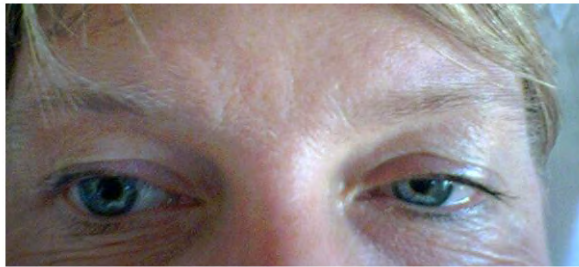
Horner's syndrome is rare complication of the IJV catheterization.(3).

We report a case of Horner's syndrome secondary to IJV cannulation which resolved completely after 3 months .

## CASE REPORT

A 40 year old, ASA status I woman who admitted to the general surgery department was diagnosed with an intra abdominal mass. Preoperative examination of the patient showed no neurological abnormality. A central line

was inserted the right IJV after general anesthesia induction, in order to evaluate preoperative intravascular volume status. The vein was easily identified and puncture was performed successfully at first attempt, and a 7-F multi-lumen catheter was inserted with Seldinger technique. This cannulation was uneventful. Four days after the operation ptosis and meiosis of the right eye was developed. Ophthalmological examination confirmed right sided 2 mm ptosis and miosis and as result Horner's syndrome. No other neurological abnormalities were present. After a week, the ptosis improved and vision of both eyes was normal. After 3 months, Horner's syndrome resolved completely.



**Figure 1:** Horner's syndrome with patient.

## DISCUSSION

Preoperative central venous cannulation permits rapid administration of intravenous fluids and evaluation of changes in intravascular volume. Internal jugular vein is a common approach for central venous access. The success rate of this approach is high, however IJV cannulation is associated with many potential complications, which are arrhythmias, arterial puncture, pneumothorax, hematoma, air embolus, chylothorax, cardiac puncture, catheter embolization and nerve damage. (2)(4).

Horner's syndrome is a rare complications of the IJV catheterization.(3)

Horner's syndrome result from interruption of the normal sympathetic nervous supply to the eye. The syndrome

is a triad of ipsilateral ptosis, miosis and conjunctival and facial anhydrosis. (1).

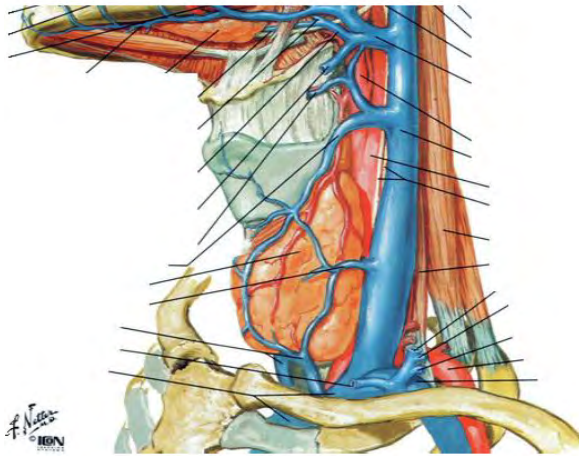
The usual causes of subsequent Horner's syndrome are trauma, aortic dissection, carotid dissection, tuberculosis, Pancoast tumor and epidural anesthesia injection.

The sympathetic nervous supply to the eye originates in the hypothalamus and during its course passes by the cervical part of the sympathetic trunk. The sympathetic trunk is situated in the carotid sheath, a condensation of deep cervical fascia. The internal jugular vein, common and internal carotid arteries, and the vagus nerve are also found in the carotid sheath. (5) Because of the IJV runs anterolateral to the cervical sympathetic trunk, the needle shouldn't normally encounter the trunk during central venous cannulation. It has been suggested that damage to the sympathetic trunk can occur during IJV cannulation caused by excess rotation of the head and neck, which disturbs the normal anatomical relationships. However we did not turned our patients head during IJV cannulation.

The guidance of ultrasound can reduce the complication rate, the number of catheter placement failures, and the time required for insertion compared with the use of the anatomic landmark method. (6) We didn't use ultrasound while IJV cannulation. The risk of trauma to the cervical sympathetic trunk also may be higher when a posterior approach is used to access the vein. In this case we preferred anterior approach for IJV cannulation.

The risk is also increased with a high approach to the IJV and if the angle between the needle and the skin is steep. Horner's syndrome is not only observed after repetitive IJV catheterizations but can also be seen following a successful single puncture by experienced physicians. (2).

Direct trauma seems to be the most likely cause of Horner's syndrome in this case. Our patient's symptoms recovered within 3 months spontaneously.



**Figure 2:** Sympathetic trunk and the IJV neighborhood.

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