



A CLINICAL STUDY ON OCULAR MOTOR NERVE PALSIES IN PATIENTS ATTENDING TERTIARY CARE HOSPITAL

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ABSTRACT **Aim:** Purpose of this study is to find out the common etiological factors contributing to III, IV, VI cranial nerve palsies and to study the clinical manifestations associated with ocular motor cranial nerve palsies. **Methods:** It is a prospective study done over a period of 1 year from October 2021 to September 2022. A total of 50 patients who were all clinically diagnosed as ocular motor nerve palsies attending GGH,Kakinada were analyzed. All of these patients underwent thorough ophthalmological, as well as neurological, otorhinolaryngological and general examination and all necessary investigations are done. **Results:** Paralysis of 6th and 3rd cranial nerves were the most common. Most common etiology found was idiopathic (46%) followed by microvascular conditions (28%) and trauma (22%). The majority of eyes with 3rd cranial nerve palsy had drooping of eyelid. Diplopia is most common symptom in cases of 4th and 6th nerve palsies. In multiple cranial nerve palsies pain over eye is most common symptom. **Conclusion:** The etiology of ocular motor nerve palsies remains unknown in many cases. In order to find out the etiology, it is important to carry out a careful complete clinical examination as well as necessary investigations.

KEYWORDS :

Introduction :

Third, fourth, sixth cranial nerves are principal motor nerves that supply extra ocular muscles and facilitate the ocular movements of the eye ball. Hence these together are called as ocular motor cranial nerves. Paresis (partial) or paralysis (total) of these nerves together called as ocular motor nerve palsies and commonly encountered in clinical practice.

The lesions that affect the nerves at any location from their nuclear origin to their termination in the extra ocular muscles. They may be unilateral or bilateral, may involve one or more nerves at the same time.

Ocular motor nerve palsies can result from various causes including trauma, vascular causes like aneurysms, hemorrhage, infarction, systemic diseases like hypertension, diabetes, inflammation and intracranial tumors. They usually present with diplopia, restriction of ocular movements, drooping of lid and blurred vision.

To find out the etiology, it is important to carry out a detailed history taking, careful clinical examination, as well as complementary investigations.

We conducted a prospective study to investigate the common underlying etiologies for ocular motor nerve palsies.

Aim:

Purpose of this study is to find out the common etiological factors contributing to III, IV, VI cranial nerve palsies and to study the clinical manifestations associated with ocular motor cranial nerve palsies.

Methods :

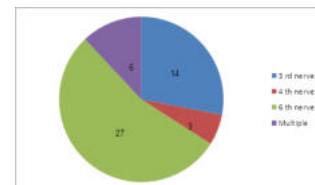
It is a prospective study done over a period of 1 year from October 2021 to September 2022. A total of 50 patients who were all clinically diagnosed as ocular motor nerve palsies attending GGH, Kakinada were analyzed. 3rd, 4th and 6th nerve palsy alone or in combination considered. All cases were examined clinically for best corrected visual acuity, colour vision, compensatory head posture, muscle sequelae, Hess chart, diplopia charting, field of binocular single vision. A detailed slit-lamp bio-microscopy and fundus examination done with 90D, direct and indirect ophthalmoscopy. All necessary investigations like complete haemogram, urine analysis, blood sugar estimation, Mantoux and blood VDRL were done. X-ray of chest, orbit, paranasal sinuses and skull was done in indicated cases. CT scan and MRI were done in selected cases.

Results :

Table 1 - Age wise distribution :

Mean age of presentation	3 rd cranial nerve	4 th cranial nerve	6 th cranial nerve	Multiple cranial nerves
0 - 19	2	-	3	2
20-39	4	3	11	-
40-59	4	-	9	2
>60	4	-	4	2

Figure 1 - Distribution of ocular motor nerve palsies



Observation –
The distribution of cases is as follows :
6th nerve palsies – 27
3rd nerve palsies – 14
4th nerve palsies – 3
Multiple cranial nerve palsies - 6

Table 2 – Gender wise distribution

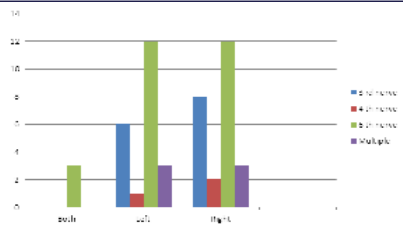
Gender	3 rd cranial nerve	4 th cranial nerve	6 th cranial nerve	Multiple cranial nerves
Female	5	1	10	5
Male	9	2	17	1

Observation –
Total number of males – 29
Total number of females – 21

Table 3 - Laterality affected eye

Laterality affected eye	3 rd cranial nerve	4 th cranial nerve	6 th cranial nerve	Multiple cranial nerves
Right	8	2	12	3
Left	6	1	12	3
Both	-	-	3	-

Figure 2 – Laterality affected eye

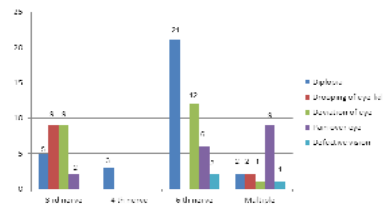


Observation
 Laterality of Affected eye
 Right eye – 25
 Left eye – 22
 Both - 3

Table 4 - Symptoms

Cranial nerve effected	Diplopia	Drooping of eye lid	Defective vision	Deviation of eye	Pain over eye
3 rd	5	9	-	9	2
4 th	3	-	-	-	-
6 th	21	-	2	12	6
Multiple	2	2	1	1	9

Figure 3 - Symptoms

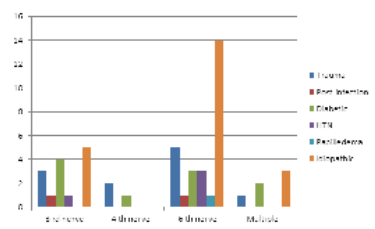


Observation – Commonest ocular symptom was diplopia in 6th and 4th cranial nerve palsies. Common symptoms were drooping of the eye lid and deviation of eye in 3rd nerve palsies and eye pain in multiple cranial nerve palsies.

Table 5 - Etiology

Cranial nerve	Trauma	Post infection	Diabetic	Hypertension	Papilledema	Idiopathic
3 rd nerve	3	1	4	1	-	5
4 th nerve	2	-	1	-	-	-
6 th nerve	5	1	3	3	1	14
Multiple	1	-	2	-	-	3

Figure 4 - Etiology



Discussion –

In our study, total 50 cases of ocular motor nerve palsies, majority of 3rd nerve and 6th nerve palsies was in 20-50years ago group, 4th nerve was seen more between 20-30years of age.

Vimala Menon, et al. in her study, majority of third nerve and multiple nerve palsies cases was in 11-40 years ago group, while the sixth nerve palsy was almost equally distributed amongst various age groups, the incidence being marginally higher in between 21-30 years of age. Fourth nerve palsy however was seen more often between 30 and 50 years of age.

In our study, in case of 3rd nerve palsy, drooping of eyelid and deviation of eye were most common symptoms. Diplopia is most common symptom in cases of 4th and 6th nerve palsies. In case of multiple cranial nerve palsies, pain over eye is most common symptom.

In our study, most common etiology is idiopathic (46%) followed by microvascular conditions (28%) and trauma (22%). Symptoms- Diplopia (62%), Ptosis (22%), defective vision (6%), ocular deviation (44%), pain over eye (34%).

Mwanza, Jean-Claude MD et al. in his study, Paralysis of the sixth (38.4%) and the third (35.3%) cranial nerve were the most common. An etiological diagnosis was made in 93.5% of cases. The common causes were vascular conditions (25.8%), ENT diseases (19.7%) and trauma (12.9%). CT scan failed to reveal any abnormality in 54.8% of cases.

In that study symptoms as reported by the patients at presentation were as follows: visual impairment (4 patients = 12.9%), ptosis (7 patients = 22.5%), diplopia (11 patients = 35.4%) and ocular deviation (29 patients = 93.5%).

Chengbo Fang, MD, et al. in his study, most common causes of third nerve palsy were presumed microvascular (42%), trauma (12%), compression from neoplasm (11%), postneurosurgery (10%), and compression from aneurysm (6%).

In our study, most common cause of 3rd nerve palsy were idiopathic (42.8%) followed by microvascular (35.7%) and trauma (21.4%).

Figure 6 - Left eye 3rd nerve palsy



Figure 7 – Right eye 3rd nerve palsy



Figure 8 - Right eye 6th nerve palsy



Conclusion :

The etiology of ocular motor nerve palsies remains unknown in many cases. Patients with ocular motor nerve palsy should be carefully examined in close collaboration with other specialists. It is important to carry out a careful complete clinical examination as well as complementary investigations to find out underlying etiology.

Financial support and sponsorship: Nil

Conflicts of interest : There are no conflicts of interest

Ethical issues : Approved by ethics committee

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