

Pupil-Involving Oculomotor Nerve Palsy: Report of Two Cases and Challenges of Management

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Background: Oculomotor nerve palsies are classified as pupil-involving or pupil-sparing; and could be isolated or occur with other ocular cranial nerve palsies. Diabetes mellitus and hypertension are the most common causes of pupil-sparing oculomotor nerve palsy (ONP),¹ while Posterior communicating artery (PCOM), posterior cerebral or superior cerebral artery aneurysms and extradural hematoma are said to be primary causes of pupil-involving isolated ONP.² Aneurysms involving the PCOM are the most common as it runs alongside the oculomotor nerve. Imaging studies such as magnetic resonance angiography, computed tomography angiography, and digital subtraction angiography are gold standards for evaluating potential ONP due to aneurysm. In a study by Keane et al. the incidence of aneurysm as a cause of ONP was 10%, and pupil involvement was noted in 43% of patients.^{3,4} We present two cases of pupil-involving ONP. These are the first cases seen at this hospital to the best of the author's knowledge.

Case Reports: Case 1: RU, a 21-year-old female presented at our clinic on account of a 3-week history of drooping of the right upper lid and outward deviation of the right eye (RE). She gave a history of severe throbbing headache localized to the temple prior to eye symptoms. She denied any history of trauma, nausea/vomiting, or easy fatigability. She was not hypertensive or diabetic. At presentation, visual acuity (VA) was normal in BE; and she had no neurologic deficits. Ocular examination showed complete ptosis in RE (Figure 1), a 45° right exotropia and a fixed dilated pupil. Fundus

examination was normal. The left eye (LE) had normal findings. Her brain magnetic resonance imaging (MRI) was normal; computed tomography angiography (CTA) was being awaited as the time of writing this report. C-reactive protein was normal. The tentative diagnosis was pupil-involving ONP.

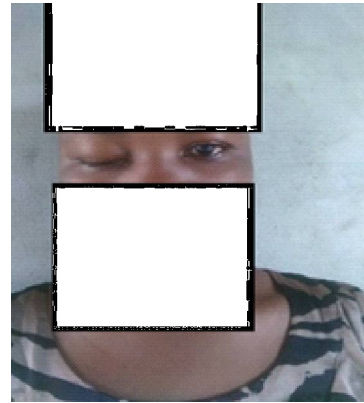


Figure 1: Right Complete ptosis

Case 2: HA, a 39-year-old clergyman presented at our facility with complaints of drooping of the right upper lid and outward deviation of the RE for 4 weeks. He gave a history of severe throbbing headache the night preceding onset of eye symptoms. There was no history of trauma, nausea/vomiting or easy fatigability. Patient is a known hypertensive but not diabetic. At presentation, his best corrected visual acuity (BCVA) was normal. He had complete ptosis RE, a 35° right exotropia (Figure 2), and a fixed dilated pupil. Fundus examination was normal. The diagnosis of right pupil-involving ONP was confirmed by brain CTA which showed a right PCOM aneurysm and middle cerebral artery stenosis (Figure 3).

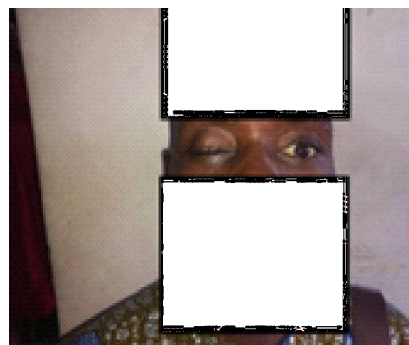


Figure 2. Complete ptosis

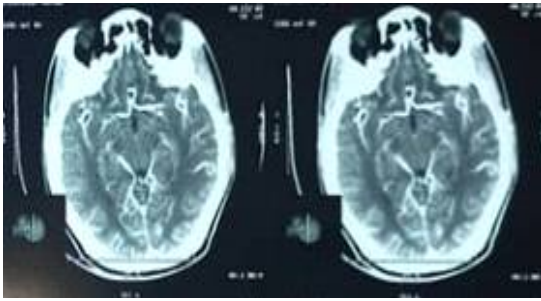


Figure 3: Computed Tomography Angiogram - Showing posterior communicating artery (PCOM) aneurysm

Discussion: A few cases of PCOM aneurysm have been reported in Nigeria including that by Obiudu *et al.*⁵ and Ogun *et al.*⁶ In pupil-involving ONP, there is a higher suspicion of compression because the pupillomotor fibers course along the superficial aspect of the oculomotor nerve.⁷ In their study, Ogun *et al.*⁶ reported that 58.8% of all cases of ONP were pupil-involved, but aneurysm was noted in only 15.4% of cases. One of the major challenges faced in managing our patients was financial difficulty. The first patient could not afford a CTA and the second patient could not afford neuro-surgery. This is not surprising since the average cost of a CTA in Port Harcourt is about 140-160,000 naira (~\$250) and neurosurgical intervention costs about 4million naira (~\$7,000); the minimum wage in Nigeria is 30,000 naira. This major challenge negatively impacts patient management as it makes it difficult to quickly arrive at a definite diagnosis so that appropriate intervention could be instituted.

Conclusion: These cases highlight the challenges faced in making a definitive diagnosis and subsequent management of neuro-ophthalmic cases. The government can proactively ensure everyone has universal coverage for Health to improve patients' quality of life.

References

1. Kim K, Noh SR, Kang MS, Jin KH. Clinical course and prognostic factors of acquired third, fourth, and sixth cranial nerve palsy in Korean Patients. *Korean J Ophthalmol.* 2018; 32(3): 221-227.
2. Chaudhry NS, Brunozzi D, Shakur SF, Charbel FT, Alaraj A. Ruptured posterior cerebral artery aneurysm presenting with a

contralateral cranial nerve 111 palsy: A case report. *Surg Neurol Int.* 2018; 9: 52

3. Keane JR. Third nerve palsy: analysis of 1400 personally-examined inpatients. *Can J Neurol Sci.* 2010; 37(5):662-670.
4. Fang C, Leavitt JA, Hodge DO, Holmes JM, Mohney BG, Chen JJ. Incidence and Etiologies of Acquired Third Nerve Palsy Using a Population-Based Method. *JAMA Ophthalmol.* 2017; 135(1): 23-28.
5. Obiudu HC, Chuku A, Chukwukwe IO, Chude EO. Posterior communicating artery aneurysm in a 20-year-old boy presenting as non-isolated third nerve palsy. *Niger Med J.* 2009; 50 (3): 68-70.
6. Ogun OA, Aremu OO, Ajaiyeoba AI. Ocular motor cranial nerve palsy as an indicator of neglected systemic disease in Nigeria: perspective from a Neuro-Ophthalmology Clinic. *Neuro ophthalmology.* 2019; 43(6): 355-362
7. Joshi S, Tee WWH, Franconi C, Prentice D. Transient oculomotor nerve palsy due to non-aneurysmal neurovascular compression. *J Clin Neurosci.* 2017, 45:136-137.

A Case of Frequent Blinking and Abnormal Eyeball Movement Associated with Generalized Epilepsy

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Introduction: Eyelid myoclonus is an idiopathic generalized epileptic syndrome that can occur with or without absence seizures. Eyelid Myoclonus with Absence (EMA) is also known as Jeavons's syndrome.¹The features include frequent blinking, an upward roll of the eyeballs, and slight backward movement of the head. It can be spontaneous or stimulated by light. Light and eyelid closure are triggers to the seizures.