Article published online: 2022-09-20

CASE REPORT

An interesting case of wrongly diagnosed optic neuritis

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ABSTRACT

Optic neuritis (ON) may rarely mimic optic nerve tumor, index of suspicion should be kept high. A 34-year-old woman presented to a major academic institute with a history of right-sided ocular pain and progressive visual loss in the same eye. Her magnetic resonance imaging showed markedly thickened optic nerve; her workup for inflammatory pathology was negative; she was diagnosed as a case of optic nerve tumor and was planned for surgery. Patient for second opinion came to a tertiary care institute where on proper history taking and evaluation she was diagnosed and treated on the lines of ON and she improved. The diagnosis of ON is a clinical one, it may mimic optic nerve tumor in rare cases.

Key words: Optic neuritis, misdiagnoses, multiple sclerosis

Introduction

Optic neuritis (ON) refers to any inflammatory disorder of the optic nerve. Diagnosis of ON is still unsatisfactory and a lot depends on the clinical experience, as diagnostic criteria are not uniform. Ocular pain is a very important clinical feature in ON but is often mistreated by both the patient and clinician.

Acute idiopathic ON is the most common cause of ON in young patients.[1] In the usual clinical scenario, the clinical and radiological features of optic nerve glioma and ON are distinct and there is no diagnostic dilemma but rarely there is difficulty in differentiating between the two. We present a case that was wrongly diagnosed as a case of optic nerve glioma and was planned for surgery but correct diagnosis on time of ON led to a speedy recovery.

Case Report

A 34-year-old woman presented to a major academic institute with history of pain in the right eye, she also developed rapidly progressive visual loss in the same eye over a course of 1 week. Her past history was not significant for any inflammatory pathology. Examination revealed visual acuity of 6/36 in the right eye and 6/6 in the left eye. Visual field charting showed right-sided cecocentral scotoma and the left eye was normal. Fundoscopic examination revealed right-sided mild superior and inferior temporal pallor, and the left side was normal. Visual evoked potential (VEP) showed delayed wave pattern in the right eye [Figure 1a] while it was normal for the left eye. Her workup for the inflammatory pathology was negative. Computed tomography scan of the orbit with contrast enhancement showed suspected optic nerve space occupying lesions, magnetic resonance imaging (MRI) of the brain with contrast enhancement showed right side optic nerve was markedly thickened compared to the left side, there was a hyper intense signal on T2-weighted images around the nerve, with intense enhancement around the optic nerve [Figure 1b] especially in the posterior half and extending as far as the orbital apex. On this basis, she was wrongly diagnosed to be having optic nerve glioma and was planned for surgery at another major academic center. She came to us to seek second opinion and on careful history taking we found that she had acute unilateral decreased visual acuity, which had worsened within 5-7 days with ocular pain

Access this article online	
Quick Response Code:	Website: www.asianjns.org
	DOI: 10.4103/1793-5482.145109

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How to cite this article: Tandon V, Garg K, Mahapatra AK. An interesting case of wrongly diagnosed optic neuritis. Asian J Neurosurg 2017;12:103-5.

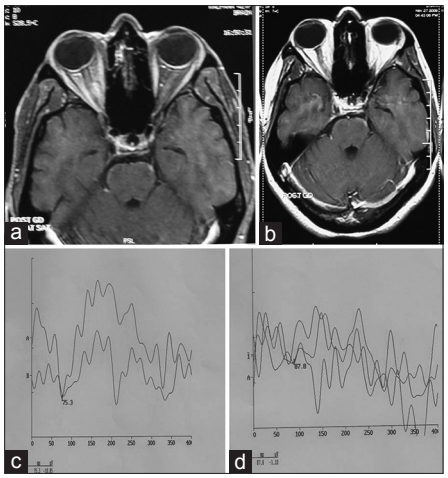

Figure 1: (a) Visual evoked potential showed delayed wave pattern in the right eye (b) Magnetic resonance imaging T1WI post contrast showing a hyper intense signal around the optic nerve, with intense enhancement around the optic nerve (c) Magnetic resonance imaging T1WI post contrast showing resolution of the abnormality seen in the earlier scan (d) Repeat visual evoked potential showing resolution of the delayed pattern as seen in earlier trace

aggravated by the eye movement which is quite typical for ON. On examination, we found that she had decreased visual acuity, grossly impaired color vision with central scotoma and afferent pupillary defect in the same eye. The careful scrutiny of the clinical and radiographic findings led to the diagnosis of ON. She was started on steroids and had complete resolution of her symptoms. Her repeat MRI and VEP showed marked improvement when compared with the previous ones [Figure 1c and d].

Discussion

This case illustrates that in ON an enlarged optic nerve may falsely be diagnosed as an optic nerve glioma. The treatment and prognosis of both differ grossly and therefore reaching a correct diagnosis is imperative. Pain with eye movement is highly suggestive of an inflammatory pathology but it can also be misleading.[2] Usually patients with ON have pain, aggravated by eye movement but around 8% of them report no pain at all.[3] The typical features of pain in ON are that age of onset is between 18 and 45 years, prevalence in women, retro orbital pain aggravated by eye movement, unilateral or bilateral vision loss, abnormal color vision and sensitivity to contrast, central or ceco-central scotoma, afferent papillary defect in the affected eye, optic disc is normal (retro bulbar ON) or edematous (papilitis), progression of vision loss in 1-2 weeks, VEP shows slow and diminished in amplitude in response to direct stimulus, in many patients with isolated ON, MRI shows cerebral white matter lesion (clinically isolated syndrome).

Optic nerve may frequently (94%) show abnormal enhancement of contrast on MRI in patients with ON.[4,5] A less common feature is enlargement of the optic nerve and optic nerve sheath resembling a neoplasm.[3,6] The size of the optic nerve returns to normal with improvement of vision.[7] Rothfus *et al*.[8] categorized the enlargement of optic nerve into three forms: Tubular, fusiform and excrescent. According to them, inflammatory process usually causes tubular enlargement. Our patient also had this form of enlargement of the optic nerve. Fatima *et al*.[9] reported enlargement of optic nerve in acute ON as compared to chronic ON on MRI (7.00 ± 1.00 mm vs. 3.07 ± 0.45, *P* value – 0.01). Elvin *et al*.[10] studied optic nerve diameter in 18 patients of ON and found it to be increased in 14 patients.

There have been reported cases of spontaneous regression of optic nerve gliomas[11] but improvement of symptoms in our patient with presence of typical features of ON makes it rather an untenable diagnosis.

Rush *et al*.[12] have also described a case where radiological suspicion of optic nerve glioma led to a biopsy which did not reveal any neoplastic process.

This case thus shows the diagnostic dilemma that occasionally is encountered in these cases where a wrong diagnosis between ON and optic nerve glioma can lead to a delay in starting the correct management and at times a misadventure in the form of a surgical procedure when none is warranted. It also illustrates the importance of proper history taking and evaluation of the radiographic features.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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