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A CASE OF IDIOPATHIC INTRACRANIAL HYPERTENSION PRESENTING WITH ATYPICAL OPTIC NEURITIS AND BILATERAL ABDUCENS NERVE PALSY

Ophthalomology

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ABSTRACT

Idiopathic Intracranial Hypertension (IIH) is a disorder characterized by elevated intracranial pressure without an identifiable intracranial pathology. It is a diagnosis of exclusion and it commonly presents with headache, papilledema, and visual disturbances. Cranial nerve involvement, particularly of the Abducens Nerve, is frequently reported, whereas optic neuritis is an uncommon and atypical in presentation. We report a case of a young 24-year-old male patient presenting with progressive headache, diplopia, and alternating esotropia. Ophthalmologic examination revealed right eye optic disc nasal margin slightly elevated with bilateral optic disc pallor (features suggestive of atypical Optic Neuritis). Neurological evaluation demonstrated bilateral abducens nerve palsy. Neuroimaging excluded intracranial mass lesions or structural abnormalities, while lumbar puncture revealed markedly elevated opening pressure with normal cerebrospinal fluid composition, consistent with IIH. The overlapping clinical features posed a diagnostic challenge, as both IIH and optic neuritis can present with headache and disc swelling. This case highlights a rare and atypical presentation of IIH with concurrent optic neuritis-like features and bilateral abducensnerve palsy. Early diagnosis and prompt management are crucial to prevent permanent visual impairment and diplopia

KEYWORDS

Idiopathic intracranial hypertension, atypical optic neuritis, sixth cranial nerve palsy, diplopia

INTRODUCTION

Idiopathic intracranial hypertension (IH), previously known as pseudotumor cerebri, is a disorder characterized by elevated intracranial pressure (ICP) in the absence of an intracranial mass, hydrocephalus, or other identifiable structural lesion.It predominantly affects young, although it can occur across all age groups.

Clinically, IH commonly presents with headache, transient visual obscurations, pulsatile tinnitus, and diplopia, the latter most often due to sixth cranial nerve (abducens) palsy resulting from pressure-induced stretching of the nerve along its long intracranial course.

Ophthalmic involvement in IIH is classically dominated by papilledema, which can lead to progressive visual field loss and, in untreated cases, irreversible vision impairment. Optic nerve dysfunction typically manifests as optic disc edema, transient visual obscurations, or peripheral field defects, rather than frank optic neuritis.

Atypical optic neuritis in the context of ITH is uncommon and may mimic inflammatory, demyelinating, ischemic, or infectious optic neuropathies.Bilateral sixth cranial nerve palsy is a recognized but relatively uncommon manifestation of IIH. When it occurs in conjunction with atypical optic neuritis, it creates a complex clinical picture, with diplopia and visual impairment that may be mistakenly attributed to primary optic nerve inflammation rather than raised ICP, emphasizing the need for heightened clinical suspicion and thorough evaluation, including neuroimaging, cerebrospinal fluid analysis, and laboratory investigations, to exclude secondary causes of optic neuropathy.

The present case report describes a patient with IIH presenting unusually with atypical optic neuritis and bilateral abducens nerve palsy, highlighting the spectrum of ophthalmic manifestations of IIH and the importance of considering raised intracranial pressure in atypical optic neuropathies.

CASE REPORT

A 24-year-old male presented with complaints of:

- Severe, intermittent headache since 1year
- Double vision in both eyes since few days

There was no history of trauma, fever, seizures, or prior neurological illness.

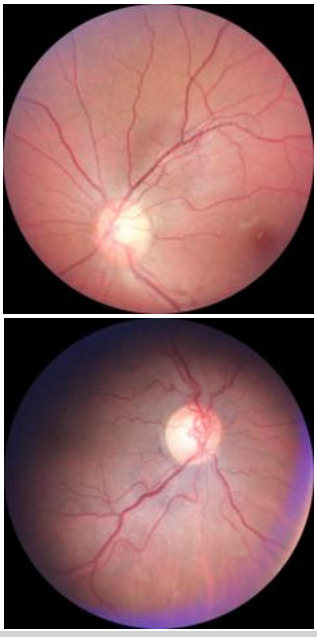
Clinical Examination

- Vital signs: Stable
- Neurological examination:
  - → Bilateral lateral rectus weakness consistent with abducens nerve palsy
  - → No motor or sensory deficits noted

Ophthalmologic Findings

- Visual acuity: RE 6/60 (6/6 with -2.25dsp/-1.50dc at 180) and LE 6/24 (6/6 with -1.00dsp/-1.50dc at 180)
- Fundoscopy:
  - → BE elevation of superonasal margins of optic disc
  - → BE mild temporal pallor noted
- Visual field testing:
  - → Within normal limits

These findings initially suggested optic neuritis; however, bilateral involvement and disc edema raised suspicion of increased intracranial pressure.



Investigations

Magnetic Resonance Imaging (MRI) Brain (plain + contrast)

- No space-occupying lesion
- No demyelinating plaques

Magnetic Resonance Imaging- B/L ORBITS (plain):

Minimal relative prominence of the peri optic CSF space involving the intraorbital segment of left optic nerve measuring approximately 4.6mm on right and 5.7mm on left

Lumbar Puncture:

- Opening pressure: Elevated (30 cm H_2O)
- Cerebrospinal fluid (CSF): Normal composition

NMO WITH MOG ANTIBODY PROFILE:

NMO antibodies were negative
MOG antibodies were weakly positive

VEP:

VEP was suggestive of right demyelinating optic neuropathy

These findings confirmed the diagnosis of Idiopathic Intracranial Hypertension with atypical optic neuritis

DISCUSSION

IIH is primarily diagnosed using the modified Dandy criteria, which include elevated ICP, normal CSF composition, and absence of structural abnormalities on imaging.

Abducens nerve palsy is the most common cranial nerve involvement in IIH due to its long intracranial course, making it susceptible to increased pressure.

However, optic neuritis-like presentation is rare and may complicate diagnosis.

Key distinguishing features between IIH and optic neuritis include:

Feature	IIH	Optic Neuritis
Vision loss	Gradual	Acute
Pain on eye movement	Rare	Common
Disc appearance	Papilledema	Often normal (retrobulbar)
CSF pressure	Elevated	Normal

DIFFERENTIAL DIAGNOSIS

The following conditions were considered:

- Optic neuritis (demyelinating)
- Multiple sclerosis
- Intracranial space-occupying lesion
- Cerebral venous sinus thrombosis
- Meningitis

The absence of inflammatory markers, normal CSF composition, and normal neuroimaging helped exclude these conditions.

MANAGEMENT

The patient was managed with:

- **Acetazolamide** to reduce CSF production
- Therapeutic lumbar puncture for symptomatic relief
- Short course of corticosteroids (considering atypical optic neuritis features)

Outcome and Follow-Up

- Headache improved within 1-2 week
- Visual acuity showed significant recovery

CONCLUSION

This case highlights an atypical presentation of Idiopathic Intracranial Hypertension mimicking optic neuritis, along with bilateral abducens nerve palsy. Prompt diagnosis and management are critical to preserving vision and improving patient outcomes.

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