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Optic Neuritis - Clinically Isolated Syndrome-A Case Report.

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ABSTRACT
INTRODUCTION:
Optic neuritis is a pathologic process, whereby inflammation of one or both optic nerve leads to visual dysfunction. In this case report we present a case of a 7 year old female child with isolated left optic neuritis.
CLINICAL DESCRIPTION*:*
A 7 year old female child presented with complaints of diminished vision in the left eye, associated with change in color perception for 1 week. On examination, pallor present, vitals were stable and systemic examination was normal. Ophthalmology evaluation showed visual acuity of 3/60 and defective color vision (6/17) and Relative Afferent Pupillary Defect in the left eye. Fundus examination showed disc hyperemia and blurring of medial aspect of disc in the left eye. Visual evoked potential showed prolonged P100 latency. Routine blood investigations were normal. Contrast enhanced MRI Brain was suggestive of Left Optic Neuritis. CSF analysis for Aquaporin A4 and NMO antibodies were negative, no oligoclonal bands. CSF was positive for MOG antibodies. Hence child was diagnosed as a case of Isolated Left Optic Neuritis- Clinically isolated syndrome and was treated with intravenous Methylprednisolone for 5 days, followed by oral prednisolone which was tapered and stopped over 4 weeks. During follow up, visual acuity of the child had improved.
CONCLUSION*:*
Although optic neuritis is the most common symptom in MOG – antibody seropositive disease, it can present with acute disseminated encephalomyelitis or an NMOSD like presentation. Children less than 9 years who are positive for MOG antibodies more frequently present with acute disseminated encephalomyelitis that may be relapsing or recurrent and may present with Optic Neuritis later in life..
KEYWORDS: *Optic neuritis, clinically isolated syndrome, acute disseminated encephalomyelitis,MOG antibody, Multiple sclerosis*

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I. Background

Optic Neuritis is a pathologic process, whereby inflammation of one or both optic nerves leads to visual dysfunction. The cardinal features are decreased visual acuity, dyschromatopsia and visual field defects. Optic neuritis can occur due to demyelinating diseases, like multiple sclerosis, neuromyelitis optica, following infections, post vaccination,sarcoidosis,SLE,Guillain-Barre syndrome.

II. Case Presentation:

7 year old female child presented with complaints of sudden painless loss of vision in the left eye, associated with change in color perception for 1 week. There was no history of fever, trauma, no recent vaccination, noother neurological symptoms. No similar complaints in the past.

GENERAL EXAMINATION: Pallor present.Vitals - stable,PR-94 beats/min,BP-100/60mmHg.

SYSTEMIC EXAMINATION: Cvs-S_1S_2 heard,no murmurs,RS-B/L air entry equal,no added sounds**,**P/A-soft non- tender,no organomegaly**,**CNS-conscious, oriented to time, place and person**,**Memory-intact,speech-normal. Motor and cerebellar system examination was normal.

	RIGHT	**LEFT**
Smell	Intact	Intact
Visual acuity	6/6	3/60
Colour vision	Normal	Defective (6/17)
Extra ocular movements	Full &free	Full &free
Pupil size	3mm	3mm
Light reflex	Intact	Relative afferent pupillary defect - Present
Ptosis	Absent	Absent
Sensation over face	Intact	Intact
Nasolabial fold	Normal	Normal
Sensation over anterior 2/3rd of tongue	Intact	Intact
Rinne's test	AC>BC	
Weber'test	Not lateralized	
Palatal movement	Normal	Normal
Gag reflex	Present	Present
Wasting of tongue	Absent	Absent
Deviation of tongue	No deviation	No deviation

OCULAR EXAMINATION

Head posture-erect
Ocular position- Normal
Facial symmetry –symmetrical
Extraocular movements full and free.

ANTERIOR SEGMENT EXAMINATION(SLIT LAMP):

	RIGHT EYE	**LEFT EYE**
Eyelids and adnexa	Normal	Normal
Conjunctiva	Normal	Normal
Cornea	Clear	Clear
Anterior chamber	Normal depth	Normal depth
Iris	Normal color pattern	Normal color pattern
Pupil	RR,reacting to light No RAPD	Relative afferent pupillary defect -Present
Lens	Clear	Clear

FUNDUS EXAMINATION:

	RIGHT EYE	**LEFT EYE**
Media	Clear	Clear
Disc	Normal size&shape Well defined margin	Disc hyperemia and Blurring of medial aspect of disc
CDR	0.3	Could not be assessed
macula	FR-present	FR-present
background	Normal	Normal

INVESTIGATIONS:

BLOOD HEMOGRAM:

TESTS	**RESULTS**
Hemoglobin	12.4 gm/dl
Total WBC count	8700cells/cu.mm
Neutrophil	62%
Lymphocyte	28%
Blood urea	15mg/dl
Serum creatinine	0.9mg/dl

- LFT – Normal
- ANA: Negative
- **CSF Analysis**

- Protein: 13 - Gram stain: No organism
- Sugar: 72mg/dl - C/S: No growth

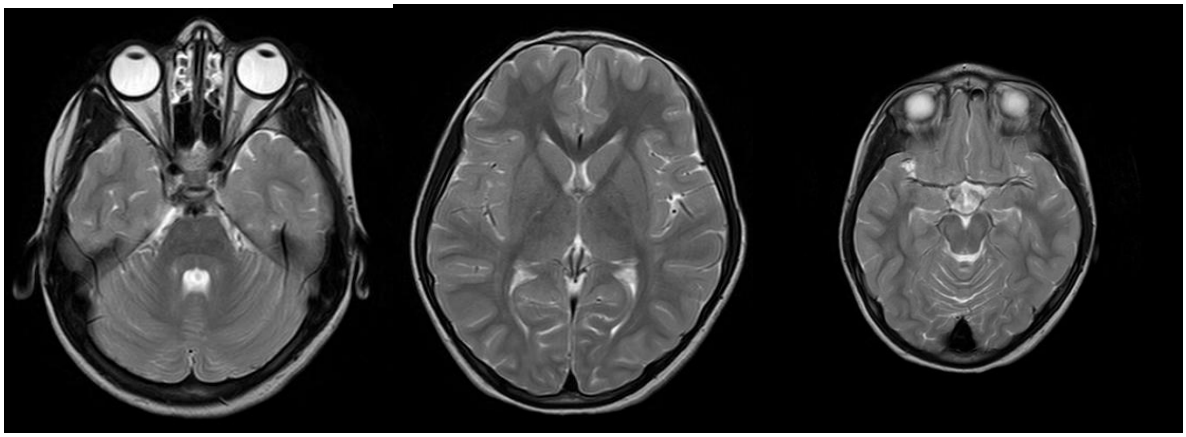
- WBC count: Nil
- ADA: 12

Investigation	Observed Value	Biological Reference Interval
Oligoclonal band,CSF		
CSF Pattern (CSF,Electrophoresis)	NO BAND	NO BAND
Serum Pattern (Serum,Electrophoresis)	NO BAND	NO BAND
Interpretation (Serum)	NORMAL PATTERN	NORMAL PATTERN
Method: Isoelectric Focusing		
NMO (Aquaporin 4) Neuromylitis Optica Antibodies, Serum	Negative	Negative Sample screening dilution is 1:10
Myelin Oligodendrocyte Glycoprotein (MOG) Antibodies Serum	**Positive**	Negative Sample screening dilution is 1:10

IMAGING STUDIES:

CE – MRI BRAIN:

- Intra orbital portion of Left optic nerve appears bulky with T2 high signal intensity within
- Post contrast study shows enhancement
- Left optic nerve shows diffusion restriction
- Brain parenchyma – showed signals. Brainstem and cerebellum – normal.
- S/O LEFT OPTIC NEURITIS



DIAGNOSIS

Hence we diagnosed as ISOLATED LEFT OPTIC NEURITIS – CLINICALLY ISOLATED SYNDROME

TREATMENT

- INJ. METHYLPREDNISOLONE 300 MG IV x 5 Days
- T. PREDNISOLONE 20MG OD x 2 Weeks, followed by
- T. PREDNISOLONE 10MG OD x 2 Weeks

VISION IMPROVEMENT:

- During hospital stay : Vision improved
- After 3 months : Visual acuity in left eye– **6/6**

III. Discussion

• Optic neuritis is apathologic process, whereby inflammation of 1 or both optic nerves leads to visual dysfunction. The cardinal features are - decreased visual acuity, dyschromatopsia, visual field defects, pain with eye movement (33-77 %),RAPD[1].Fundus examination shows papillitis in acute stage and optic nerve pallor in chronic stage. In pediatric opticneuritis, the risk of evolving to Multiple Sclerosis is greater than in adults[2]. It is more likely an initial manifestation of ADEM[2]. The prevalence is greater in postpubertal children. MRI features with oligoclonal bandsis associated with increased risk of conversion to MS. Clinically isolatedsyndrome refers

to a single clinical attack of CNS inflammatory demyelinating symptoms that are suggestive of Multiple Sclerosis.CIS presentation can be mono-focal, multifocal, which typically involve – optic nerve, brainstem, cerebellum, spinal cord or cerebral hemispheres. The episode should last for 24 hours, absence of fever / infection,no clinical features of encephalopathy. The course of Multiple sclerosis after Clinically isolated syndrome – after 15 to 20 yrs : $1/3^{rd}$ patients have benign course with minimal / no disability, half will develop secondary progressive MS.

IV. Conclusion:

Optic neuritis is a common presenting symptom in pediatric CNS demyelinating disorders [1]. Clinically isolated syndrome describes a single, first occurrence attack caused by inflammation or demyelination at one or more locations in the CNS. Diagnosis in patients with CIS is a clinical decision and should be made by an experienced neurologist in the relevant diagnosis [3].

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