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Case Report

A Case Report on Neuro-Retinitis

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Abstract:
Neuroretinitis is an inflammation of the neural retina and optic nerve. It was originally described by Leber in 1916 as a "stellate maculopathy," but this definition was challenged by Don Gass in 1977, citing that disc oedema precedes macular exudates. Subsequently, Gass confirmed optic disc leakage by fluorescein angiography and suggested the term "neuro retinitis." More recent retinal and optic nerve imaging has supported Gass' description. The condition was renamed Leber's idiopathic stellate neuroretinitis. Neuroretinitis is characterized by an optic disc vasculature inflammation with fluid exudation into the peripapillary retina. The lipid-rich component of the exudate is further able to penetrate the outer plexiform layer, creating what is clinically seen as a macular star pattern. Only the aqueous phase is then able to pass through the external limiting membrane to accumulate beneath the neurosensory retina. Neuroretinitis is a type of optic neuropathy characterized by an acute unilateral visual loss in the setting of optic disc swelling accompanied by hard exudates characteristically arranged in a star shape around the fovea. It is classified as one form of optic neuritis, the other forms being the more common retrobulbar neuritis and papillitis. Funduscopically, neuroretinitis is often confused with hypertensive, renal and infiltrative retinopathies as well as with papillitis, papilledema, anterior ischemic optic neuropathy and retinal vein occlusion. It is an entity that physicians, paediatricians and neurologists are poorly exposed to since the diagnosis and management are almost exclusively performed by the ophthalmologist. Pathogenesis and aetiology of neuroretinitis are distinctly different from other funduscopic ally-resembling conditions often encountered by neurologists during their training and clinical practice; further, these have different principles of management and prognosis. The prognosis for visual recovery is reported to be excellent, although not uniform. It affects persons of all ages, more often in the third and fourth decades of life, with no gender predilection. Visual acuity at the time of initial examination ranges from 6/6 to light perception (PL). It can manifest either due to systemic infections, autoimmune diseases or as idiopathic.

Keywords: Neuroretinitis, neural retina, optic nerve, disc oedema, stellate neuroretinitis.

1. Introduction

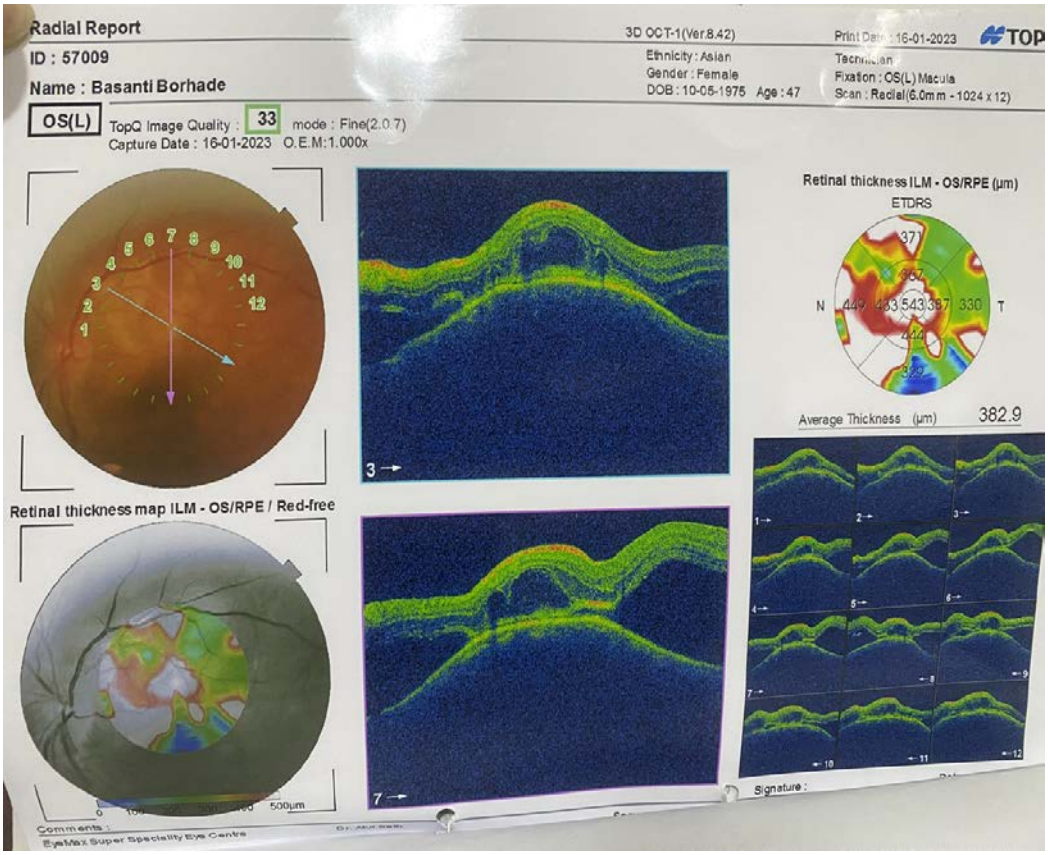
Case Report:

A 47-year-old female, medium built presented to OPD with Chief Complaints: sudden onset painless blurring of vision in the left eye for the past 5 days, No other constitutional symptoms. The patient had a Positive history of contact with a tuberculosis patient recently. No other history of contact with dogs, cats or other pet animals. Not a k/c/o pulmonary or extrapulmonary Koch's. Not on any AKT medication. No h/o any ocular trauma/surgery. Irregular use of spectacles for the past 8 years.

On examination: OS

- Visual acuity of 6/24 (NI).
- Colour vision of 0/16 in the left eye
- Grade II relative afferent pupillary defect
- Orthophoria
- Anterior segment: within normal limits

Fundus examination: left eye showed 0.3 CDR, blurring of nasal margins of the optic disc, disc oedema, and multiple hard exudates distributed in the macula in the star-shaped orientation. Intraocular pressure in the left eye was 20 mmHg.


Radial Report
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OS(L)
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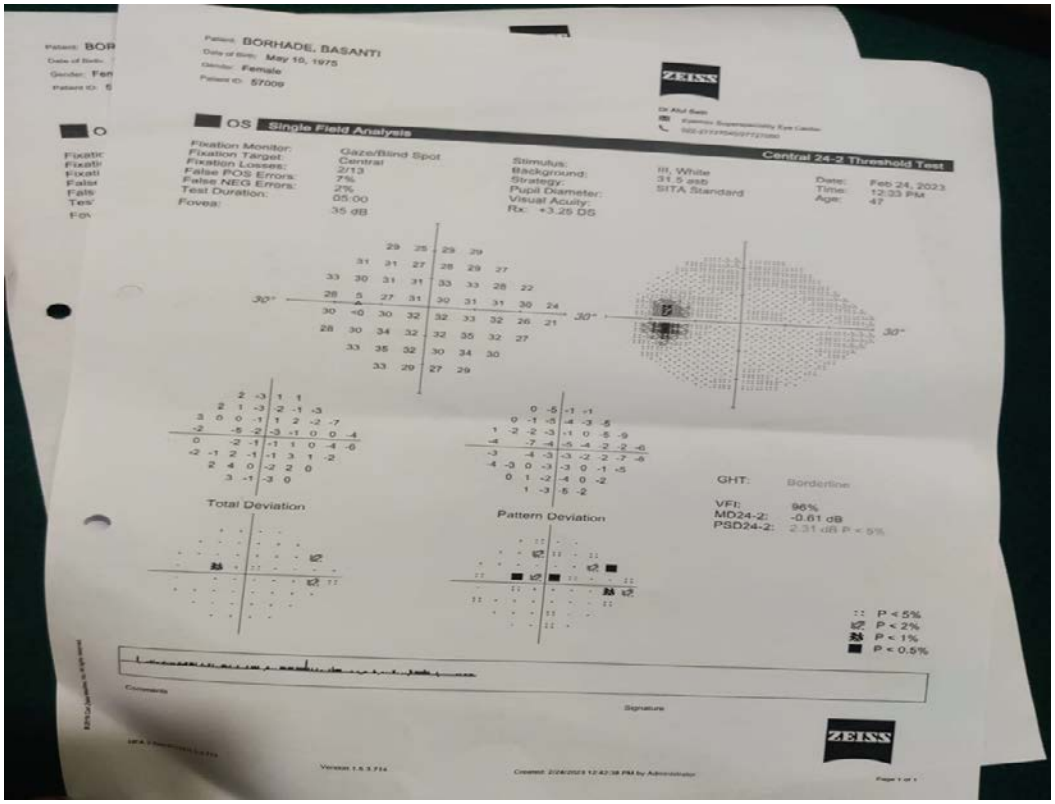
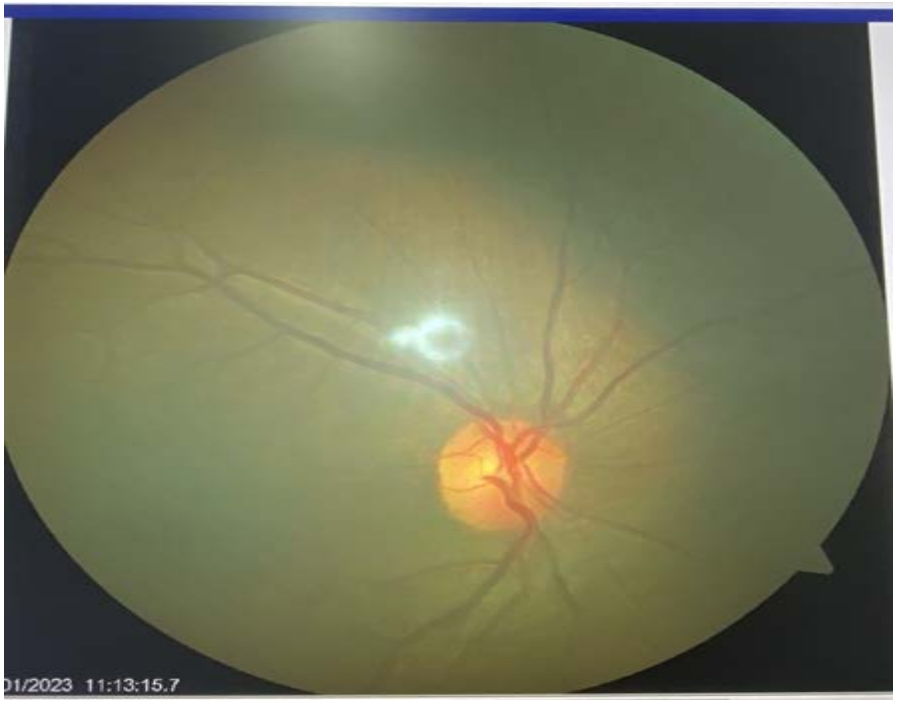
Capture Date : 16-01-2023 O.E.M:1.000x
3D OCT-1(Ver.8.42)
Ethnicity : Asian
Gender : Female
DOB : 10-05-1975 Age : 47
Fixation : OS(L) Macula
Scan : Radial(6.0mm - 1024 x 12)
Retinal thickness ILM - OS/RPE (µm)
ETDRS
Average Thickness (µm) 382.9
Retinal thickness map ILM - OS/RPE / Red-free
Signature :
Comments :
EyeMax Super Speciality Eye Centre


BORHADE, BASANTI
May 10, 1975
Female
57009
OS Single Field Analysis
Central 24-2 Threshold Test
Total Deviation
Pattern Deviation
GHT:
VFI:
MD24-2:
PSD24-2:
ZEISS

On examination: OD

- Visual acuity of 6/6
- Colour vision of 16/16
- Pupils CCRTL
- Orthophoria
- Anterior segment: within normal limits
- Fundus examination: 0.3 CDR, well-defined margin, circular, macula and blood vessels wnl, foveal reflex dull Intraocular pressure in the right eye was 18 mmHg.



Other Significant Facts:

- Mantoux's test revealed positive reports.
- PCR and Quantiferon-TB gold for tuberculosis showed positive results.
- The rest of the cranial nerves and the results of the neurological examination were normal.
- There were no meningeal signs.
- There was no lymphadenopathy, or rashes and the result of the remaining physical examination was also normal.
- HRCT THORAX showed no significant abnormality detected.
- Serum HIV, HBsAg, HCV VDRL showed negative results.

Following the course of investigations, the conclusion drawn was that it is a case of tuberculous neuroretinitis.

Discussion:

Neuroretinitis is usually unilateral, occasionally bilateral. It is an inflammatory disorder characterized by optic disk oedema and macular star formation. The primary abnormality is inflammation and increased permeability of the optic disk vasculature, causing leakage of fluid into the peripapillary retina. The cause of this vasculitis is not clear: some cases have an infectious aetiology, most commonly *Bartonella henselae* (cat scratch disease), also syphilis, tuberculosis, Lyme disease, leptospirosis, and toxoplasmosis.[4] Nomenclature has varied including stellate retinopathy [5], NR [6], Leber idiopathic stellate NR [7], and optic disc oedema with a macular star (ODEMS) [8]. Brazis and Lee have suggested using the term ODEMS for idiopathic cases and the term NR preceded by the infectious agent for those in which a specific aetiology is identified. The typical presentation involves nerve swelling and macular oedema with stellate exudates or “macular stars.” Small neurosensory detachments are possible. Vitreal and anterior chamber (AC) inflammatory reactions are frequently absent or mild if present. Occasionally, focal or multifocal areas of punctate retinitis will develop. Rarely, vascular occlusions occur secondary to perivascular inflammation.

Diagnostically, the fundus picture may be confused with a few other entities. Papillitis, central retinal vein occlusion and anterior ischemic optic neuropathy are the close mimickers funduscopically.[9] The disease is typically self-limited and does not necessarily require treatment. However, doxycycline, the treatment of choice, may speed up visual recovery. Alternatives include rifampin and macrolide antibiotics, which are preferred in children.[10]

Management:

The patient was referred to pulmonary medicine because of ruling out any active/latent pulmonary TB focus, which was ruled out by them as chest x-ray and HRCT thorax came nil significance. Based on quantifiers gold and PCR reports: Started on anti-Koch's treatment as advised by pulmonary medicine and oral steroids under the cover of AKT :

- Tab. Rifampicin 10mg/kg,
- Tab. Ethambutol 15mg/kg,
- Tab. INH 5mg/kg,
- Tab. Pyrazinamide 25mg/kg.
- Tab. Benadon 40mg OD
- Oral prednisolone in a tapering manner, i.e 60mg for 5 days, tapering 10 mg after every 5 days.

Follow Up After 6 Weeks: Os Examination:

- Visual acuity: 6/6
- Pupil: CCRTL
- Colour vision: 16/16
- Fundus: left eye showed 0.3 CDR, resolving disc oedema, hard exudates distributed in the macula reduced.
- The anterior segment was within normal limits.

Conclusion:

From this case report, we have come to the conclusion of tuberculous neuroretinitis in a 47-year female, by the clinical manifestations, serological tests, and specific ophthalmic

evaluations including fundus photographs, OCT and Perimetry.

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