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Case Report

Bilateral optic neuritis with macular edema in a young female: A case report.

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Abstract

A 20 year old female, presented with history of swelling of right cheek since 2 weeks associated with fever and rash, blurring of vision in both eyes since 7 days which was sudden in onset and painless. Dilated fundoscopic examination of right eye showed disc edema with hyperemia with macular edema. Left eye showed disc edema with hyperemia, splinter hemorrhage on the disc and macular edema.

This case posed a diagnostic challenge as clinically, it did not typically fit into the diagnosis of optic neuritis as the pupil reactions were normal, absence of afferent pupillary defect. However, there was rapid therapeutic response with intravenous injection of Dexamethasone, which improved the visual acuity from <1/60 to 6/6 in about a week.

Keyword: Post viral optic neuritis, Macular edema, Anterior ischemic optic neuropathy.

Introduction

Optic neuritis is a term used to refer to inflammation of the optic nerve. When presented with swollen optic disc, it is termed papillitis or anterior optic neuritis. When the optic disc appears normal, the terms retrobulbar optic neuritis or retrobulbar neuritis are used.[1]

Parainfectious optic neuritis is defined when optic nerve involvement occurs after presumably/ confirmed systemic infectious disease, particularly of viral aetiology.[2] Inflammation of optic nerve might be caused by direct invasion of the nerve by viruses and bacteria, as an immune response triggered by systemic infections and central nervous system infections. Differential diagnosis of optic neuritis is varied and extensive due to the presence of various etiologies. We present a case of bilateral parainfectious (postviral) optic neuritis with macular oedema, describing its clinical features and progression.

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Case History

A female patient, aged 20 years, presented to OPD with swelling in right cheek associated with fever since 2 weeks and blurring of vision in both eyes since 1 week. Diffuse swelling on right cheek which was insidious in onset, gradually progressive from about a size of an almond and attained the present size which measures that of lemon. Fever was sudden in onset present throughout the day, associated with chills and rashes on trunk and upper limbs. Blurring of vision was sudden in onset, painless and not progressive. No history of ocular pain, pain on eye movements, watering in the eyes, photophobia, floaters, nausea, vomiting, headache and seizures. No history of cough or breathlessness. There was no history of recent travel, contact with stray animals, insect bite, vaccination, blood transfusion or needle injuries. No history of weight loss, decreased appetite or weakness in the limbs. No history of similar complaints in the past. Patient was treated symptomatically for fever at a local hospital.

On general physical examination, patient was febrile. Patient had erythematous rashes on arms, legs and trunk. Examination of cheek swelling revealed,3x3.5cm tender, mobile mass over right cheek with local rise of temperature. Systemic examination of cardiovascular, respiratory, abdomen & nervous system were normal.

At presentation, BCVA of right eye was 1/60 and left eye was 1/60 with no significant refractive error, colour vision of both eyes on ischihara chart was impaired, with only ability to read the introductory plate. Slit lamp examination of anterior segment was normal in both eyes. Pupil was 3mm, round, regular, briskly reactive to light and well sustained in both eyes. Lens was clear. Fundus examination done with direct ophthalmoscopy and + 90 D lens of right eye showed no vitreous reaction, disc margin was blurred all around with 2mm elevation of optic disc and obliteration of cup. Macular edema measuring 2.5DD in size in the foveal region. Left eye showed no vitreous reaction, optic disc margin was blurred all around with 2mm elevation of optic disc with obliteration of cup. A single flame shaped hemorrhage was present over the disc at 7 o clock position representing splinter hemorrhage. Macular edema measuring 2.5DD in size in the foveal region. (Figure 1). IOP was 12 mm Hg in both eyes. Gonioscopic examination of angles, showed open angles with Shaffer's grading 3 in all quad-rants. A working diagnosis of post-viral papillitis with macular edema was made & evaluated. Visual fields by confrontation test showed normal. Dental and ENT examination were normal.

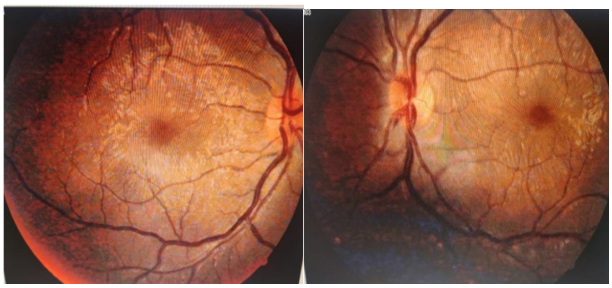

Figure 1: On day 1, single flame shaped hemorrhage was present over the disc at 7 o clock position representing splinter hemorrhage in left eye. Macula appeared edematous measuring 2.5DD in size in the foveal region.

On day two of admission, the CBC with peripheral smear showed, normochromic normocytic anemia, with Hb 9.50g%, ESR 120mm/hr, CRP 28.7. Liver Function Test showed increased globulin (4.10g/dl) and decreased A/G ratio of 1.00. Urine routine was normal. Peripheral smear showed negative for malarial parasites. Weil-felix test was negative for rickettsial infection. Leptospira test (ELISA) showed equivocal result with 10.4 IgM units. Neurological examination was normal. Differential diagnoses of Post-viral Optic neuritis, Non-arteritic–Anterior ischemic Optic Neuropathy were considered. Patient was started with Inj. Augmentin IV OD, Inj. Ceftriaxone IV BD, Inj. Dexamethasone 8mg IV TID, Tab Acyclovir 800mg TID.

On day 3, visual acuity improved from <1/60 to 3/60 in both eyes. On fundus examination, disc hyperemia with 2D elevation was present in both eyes with splinter hemorrhage in left optic disc at 7 o clock position. Macular edema was persistent. Ultrasonogrphy of the right cheek swelling showed sialadenitis of parotid and submandibular salivary gland. CSF examination showed normal results. Blood culture for 48 hours obtained no growth. MRI (contrast) of brain and orbit showed minimal FLAIR hyperintensity of bilateral retina with subtle post contrast enhancement, optic nerve being normal.
SD-OCT showed serous retinal detatchment at the macula (Figure 2). Patient was then started on Inj Optineurin IV OD, Nepafenac eye drops QID, Moxifloxacin eye drops QID.

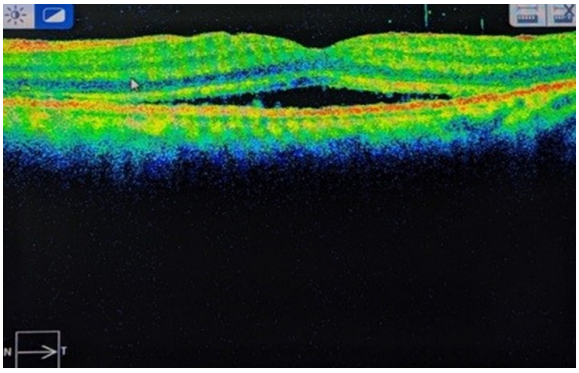

Figure 2: On day 3, SD-OCT showed serous retinal detatchment at the macula.

On day 5, patient was symptomatically better. Visual acuity improved from 3/60 to 6/24(p) in RE and 6/36 (p) in LE. Color vision was assessed using Ischihara chart and showed abnormal. The fundus picture showed reduced disc edema and macular edema. b Visual fields on HFA showed diffuse scotoma in both eyes (Figure 3). Patient was given same treatment.

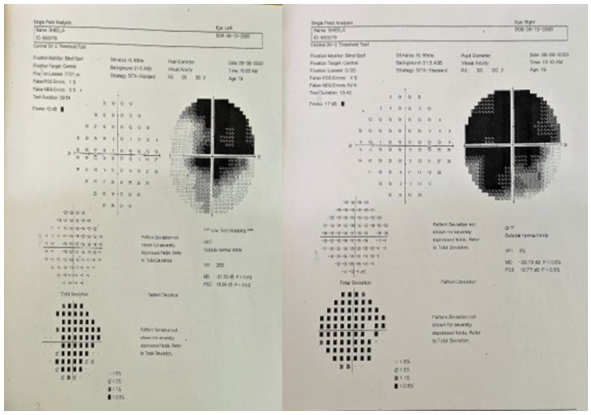

Figure 3: On day 5, Visual fields on HFA showed diffuse scotoma in both eyes.

On day 7, Visual acuity improved to 6/9 in both eyes. Color vision remained impaired. On fundus examination, RE showed reduced disc edema and macular edema, LE showed reduced disc edema and macular edema with resolving splinter hemorrhage (Figure 4). Patient was advised to continue with same treatment.

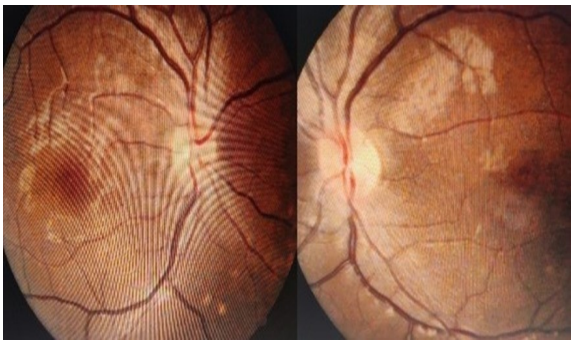

Figure 4: On day 7, reduced disc edema and macular edema with resolving splinter hemorrhage.

On day 8, patient was symptomatically better. Visual acuity improved to 6/6 in both eyes. Color vision remained impaired. On fundus examination, RE showed reduced disc edema and macular edema, LE showed reduced disc edema and macular edema with resolving splinter hemorrhage. Repeat of visual field examination on HFA showed diffuse scotoma (Figure 5). Patient was discharged with Tab Prednisolone 20 mg OD with tapering dose, Moxifloxacin with dexamethasone eye drops QID and Nepafenac eye drops QID.

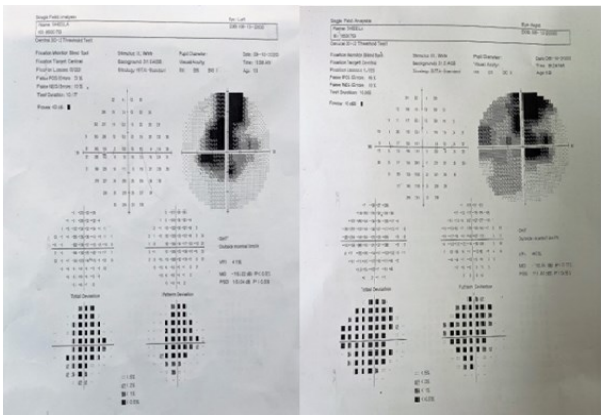

Figure 5: On day 8, repeat of visual field examination on HFA showed diffuse scotoma.

On 15th day follow up, visual acuity was 6/6 in both eyes. Color vision improved to 9/11 with Ischihara chart. On fundus examination, RE showed reduced disc edema and macular edema, LE showed reduced disc edema and macular edema with resolving splinter hemorrhage. SD-OCT showed resolving serous retinal detatchment at the macula (Figure 6). Patient was prescribed with Tab Prednisolone 5 mg OD with tapering dose and Nepafenac eye drops QID.

Discussion

In this report, we present a case of simultaneous bilateral optic disc swelling and macular edema, associated with decreased visual acuity in both eyes, followed by an improvement after corticosteroids treatment. Bilateral optic disc swelling might be caused by various aetiologies (vascular, neurologic, autoimmune, genetic and infectious). Papilloedema is the most common cause, followed by pseudo-papilloedema and optic neuritis.[3] both papilloedema and pseudopapilloedema were excluded because of the presence of grossly diminished vision and MRI findings.

Considering vascular causes of optic disc swelling, bilateral involvement is very rare. Arteritic and non-arteritic optic neuropathies were excluded due to patients age, absence of afferent pupillary defect and absence of comorbidities.[4] A genetic cause, like Leber's hereditary optic neuropathy was also considered but it manifests usually between 2nd and 4th decades, with a subacute presentation.[5] Also, optic disc appearance did not show the presence of

telangiectatic microangiopathy. Absence of classic presentations like spinal cord inflammation (myelitis), bouts of intractable vomiting and hiccoughs (area postrema syndrome), excluded the diagnosis of neuromyelitis optica.[6] Gelfand et al described small vacuoles at the inner nuclear layer (INL) of the retina in patients with multiple sclerosis (MS).[7] Retinal microcystic macular oedema has been linked to several optic neuropathies—besides MS, neuromyelitis optica, Leber's hereditary optic neuropathy, dominantoptic atrophy, isolated relapsing optic neuropathy, parainfectious optic neuropathy and glaucoma.[8]

Optic neuritis may occur at any age, but clinical characteristics differ by age group. In children, bilateral presentation is most frequent (60%–70%). In adults, particularly in individuals without any history of an inflammatory or autoimmune disorder, unilateral disease is responsible for 70% of all cases, being most frequent in the female gender. Lastly, after excluding the diseases referred previously, bilateral involvement with grossly diminished visual acuity and presenting post viral exanthematous fever, confirmed post viral macular edema with papillitis most probably due to mumps, as the diagnosis.[9,10]

Conclusion

Parainfectious optic neuritis frequently occurs following viral infections. Any bilateral optic neuritisshould prompt detailed investigations to determine the cause. This report demonstrates a patient with bilateral optic neuritis with serous macular detachment in a young female who recovered completely with corticosteroids in 2 weeks. Any bilateral optic neuritis irrespective of the age, viral cause should be considered in the differential diagnosis.

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