Case report

A case of suspected symptomatic Zika Neuroretinitis

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Introduction

Neuroretinitis can be defined as a type of optic neuropathy whereby there is acute visual loss that is unilateral or bilateral occurring due to optic disc swelling and hard exudates arranged in a star-like pattern around the fovea [1]. This rare condition has been included in the spectra of optic neuritis which also includes retrobulbar neuritis and papillitis. The exact prevalence of neuroretinitis still remains to be elucidated based upon current literature. However much of the data identified Bartonella Henselae in Cat Scratch Disease as the most common etiology [2]. Other etiologies of neuroretinitis include infections, idiopathic and miscellaneous causes [2]. With the emergence of Zika virus and its associated neurological manifestations particularly within the Caribbean [3] it should not be surprising that there may be a direct link between neuroretinitis and Zika virus.

Case report

A twenty-year-old female presented with a two-month history of blurred vision as well as painful extraocular movements which progressed to the point that her daily activities were compromised. This was preceded by a viral illness consisting of fever, generalized skin rash, body and joint pain type symptoms about one month prior to the onset of symptoms.

Her general examination was unremarkable and no rash was appreciated. Her neurological examination was unremarkable. Apart from a right relative afferent pupillary defect, her neuro-ophthalmological examination was unremarkable with preserved visual acuity and a normal Humphrey Visual Field. Her intra-ocular pressure was 10 mmHg on the right eye and 13 mmHg in the left eye (both within normal range). Anterior segment, chamber and vitreal assessment was normal on the right eye and 13 mmHg in the left eye (both within normal limits). Her neurological examination was unremarkable. Apart from body and joint pain type symptoms about one month prior to the onset of symptoms.

Her baseline haematological test (complete blood count) as well as renal function, liver function and electrolytes inclusive of serum calcium were within normal limits. Testing for cytoplasmic-antineutrophil cytoplasmic antibody (CA-NCA), perinuclear-antineutrophil cytoplasmic antibody (P-ANCA), anti-nuclear factor (ANF), antibody to double stranded Deoxyribonucleic Acid (Anti-dsDNA) as well as an extractable Nucleic Acid (ENA) panel was negative. Toxoplasma serology Immunoglobulin G (IgG) and Immunoglobulin M (IgM) were negative and Veneral Disease Research Laboratory (VDRL) testing for Treponema pallidum was non-reactive. A non-contrast MRI Brain was unremarkable. Her CT (computed tomography) Chest was within normal limits as were her serum ACE (angiotensin converting enzymes) levels.

Discussion

Neuroretinitis which is a form of optic neuropathy can be as a result of various infective and non-infective aetiologies [1]. Various causes of neuroretinitis include Bartonella Henselae [2] (most common) as well as other infections such as Toxoplasma Gondii and Treponema Pallidum, Human Immunodeficiency Virus, Idiopathic and miscellaneous causes such as Sarcoidosis.

The pathogenesis of neuroretinitis is obscure but occurs due to an inflammatory response of the optic disc vasculature with fluid exudate into the peripapillary retina [4]. With leakage of fluid, the lipid-rich portion penetrates into the outer plexiform layer and subsequent resolution leaves behind lipid exudates giving a macular star pattern [5].

Since the onset of the Zika epidemic in Trinidad and Tobago in February 2016, there have been 718 cases, 463 of which are confirmed cases noted in pregnancy. Thus far, for 2017, there have been confirmed births of babies with microcephaly. As of November 2016, there have been 33 suspected cases of GBS (Guillain-Barre Syndrome) for 2016, 5 of which were confirmed to be related to the Zika virus [6].

Given the history of preceding viral symptoms and the Zika epidemic in Trinidad, serology for Zika Immunoglobulin M (IgM) was done which was positive. Zika RNA testing was not available at the time.

A review of the literature has revealed previous evidence of neuroretinitis in infants as well as a single case report of neuroretinitis in an immunocompromised patient with Zika [7], however in our opinion,
this represents the first suspected case of symptomatic Zika mediated neuroretinitis in an immunocompetent adult patient.

References

[1] Maitland CG, Miller NR. Neuroretinitis. Arch Ophthalmol. 1998;102:1146–50.