Sir,

Modification of diabetic retinopathy presentation by underlying hepatitis C infection

An epidemiological link between diabetes mellitus and hepatitis C has been reported,¹⁻³ but so far there has not been any report depicting modification of diabetic retinopathy presentation due to underlying hepatitis C infection. The aim of this case report is to highlight possible clinical association between these two entities.

Case report

A 59-year-old normotensive male was referred from a local optometrist via diabetic screening pathway with 'preproliferative' changes in both fundi. Patient had past medical history of schizophrenia, long-term drug abuse (intravenous amphetamines, cannabis inhalation, and alcohol), and homosexual activity. He had been diagnosed with type II diabetes mellitus 1 year previously and was known to be hepatitis C positive for 2 years. He was being treated with metformin, olanzopine, depixol, and trazodone. He presented initially with snellen visual acuity of 6/12 OD and 6/6 OS. Anterior segment examination was unremarkable. Fundus examination revealed a striking picture of bilateral multiple cotton wool spots in both eyes. Surprisingly, there was complete absence of background features of diabetes such as microaneurysms, haemorrhages, and hard exudates. In view of unusual fundus picture and past medical history, we wished to exclude nondiabetic aetiology for cotton wool spots and did a battery of investigations. His blood pressure was 142/78 mmHg. Serum investigations showed mild basophilia and lymphocytosis. ESR was mildly raised at 36 mm. There was mild increase in IgG and IgA, thought to be consistent with hepatitis C infection. Autoimmune screen was negative. Carotid Doppler scan, Chest X-ray, and MRI scan brain were reported normal. Gastroenterology workup to exclude conditions that may have produced a 'Purtscher's retinopathy' like picture also was negative. Two HIV tests performed 3 months apart after the initial presentation were noted to be negative. Syphilis serology was negative.

At 1 year after initial presentation, fundus examination started to show typical features of diabetes like microaneurysms, dot and blot haemorrhages, and hard exudates. There were still a large number of cotton wool spots present in addition to the now apparent background diabetic retinopathy changes (Figure 1). The fluorescein angiogram was consistent with the clinical picture and showed multiple areas of capillary nonperfusion and microaneurysms (Figure 2).

Figure 1 Colour fundus photograph of the left eye.

Figure 2 Fundus fluorescein angiogram of the left eye.

Comment

This diabetic patient initially presented with retinal changes of cotton wool spots with complete absence of background diabetic changes. Cotton wool spots in the retina can have variable aetiology like vascular causes, infections, immune mediated, toxic, neoplastic, or embolic. For this normotensive, type II diabetic, hepatitis C positive patient with past history of homosexual activity and intravenous drug abuse, HIV microangiopathy was first in the list of differential diagnosis but his investigations were negative apart from moderate hypergammaglobulinaemia. It is known that underlying hepatitis C infection can modify the HIV-related microangiopathy syndrome,⁴ but no such association of hepatitis C with diabetes has been reported. Coexisting hepatitis C and HIV viral infections are thought to have an additive effect on

hypergammaglobulinaemia leading to increase in the level of immune complex deposits in retinal vessels, which in turn leads to increase in serum viscosity.^{4,5} This diminishes retinal microperfusion and provokes formation of cotton wool spots. We suggest that in this case acting through similar mechanism, underlying hepatitis C viral infection may have modified diabetes-related microangiopathy resulting in primary presentation with multiple cotton wool spots.

The epidemiological link between diabetes mellitus and hepatitis C has been well reported and shows increased prevalence of diabetes mellitus (type II) in patients with hepatitis C infection and *vice versa*.¹⁻³ Many theories have been put forward to explain this association, for example association of hepatitis C with other autoimmune diseases (Sjorgen syndrome, seronegative arthritis) and virus-mediated direct infection or immune-mediated liver damage leading to impaired glucose metabolism. On the other hand, diabetic patients have deranged metabolism and are tested more frequently.

The current literature suggests an epidemiological association between hepatitis C virus and diabetes mellitus but our case raises the possibility of modification of diabetic microangiopathy due to underlying hepatitis C virus infection and highlights the possible clinical association between the two conditions. We believe that clinicians should be aware of this interesting possibility.

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Sir, Optical coherence tomography of fundus findings in type II mesangiocapillary glomerulonephritis

Ocular involvement in type II mesangiocapillary glomerulonephritis (MCGN) has been well described in literature.¹⁻⁴ It is characterized by the presence of electron dense deposits in the choriocapillaris and the Bruch's membrane.^{1,2} Clinically, these deposits are seen as yellow discrete drusen-like lesions with atrophy of retinal pigment epithelium (RPE). These patients usually have no visual symptoms. However, visual loss may occur infrequently as a result of development of a choroidal neovascular membrane or central serous chorioretinopathy.^{3,4}

We report optical coherence tomography (OCT) findings in a case of type II MCGN who presented with mild visual loss in one eye.

Case report

A 32-year-old male presented to the retina services of our centre with complaints of mild blurring of vision in the left eye for past 1 month. The best-corrected visual acuity was 6/9 in right eye and 6/12 in the left eye. The patient was a known case of type II MCGN diagnosed 15 years back. Slit-lamp examination revealed normal anterior segment, bilaterally. Fundus examination showed mild arteriolar narrowing, normal optic discs with whitish-yellow nodular retinal elevations throughout the retina in both eyes (Figure 1a and b). Fundus fluorescein angiography demonstrated multiple, small, well-defined point like hyperfluorescent spots dispersed throughout the retina, interspersed with areas of window defects in both eyes (Figure 1c and d). There was a small irregular area of fluorescein pooling in the left eye.

OCT was performed. The line scans through macular area revealed widespread RPE-choriocapillary complex affection; there were multiple areas of RPE irregularities, excrescences and elevation (Figure 2a). The area under most of these RPE elevations had point-like signals of moderate and high reflectivity, whereas at some places it was optically clear suggesting presence of multiple small serous RPE elevations. Left eye revealed a large