

Uveitis in association with multiple sclerosis

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Rucker (1944) was first to describe sheathing of retinal veins in patients with multiple sclerosis. This was supported by later observers (Treusch and Rucker, 1944; Haar, 1953; Scott, 1961), but the incidence was found to vary from 10 to 23 per cent. It was initially thought that this periphlebitis was not associated with other ocular conditions, and might indicate a possible pathological basis for multiple sclerosis, with areas of periphlebitis scattered throughout the central nervous system. Later reports, however, demonstrated an association between this retinal vein sheathing and a posterior uveitis in similar patients (Archambeau, Hollenhorst, and Rucker, 1965), and more recently an association has been demonstrated between multiple sclerosis and the clinical entity of peripheral uveitis (*pars planitis*) (Breger and Leopold, 1966; Giles, 1970), which may include sheathing of the retinal veins (Brockhurst, Schepens, and Okamura, 1960). Other workers have failed to confirm these findings and feel that retinal sheathing represents a retinal light reflex (Field and Foster, 1962). More recently other observers have failed to find any significant incidence of either retinal vein sheathing or uveitis in patients with multiple sclerosis (Lössner, Müller, and Bachman, 1968).

In view of these conflicting reports, and the persistent similarities between the latest theories concerning the aetiologies of both uveitis and multiple sclerosis, it was considered worthwhile to carry out a new ocular survey of patients with multiple sclerosis.

Method

A total of sixty patients was examined, 25 male and 35 female, varying in age from 18 to 65 years with an average age of 40 years. They had all had the diagnosis of multiple sclerosis confirmed by a neurologist.

The anterior segment and anterior vitreous were examined by slit-lamp microscopy and the posterior segment of all eyes was examined, after pupillary dilatation, by direct and indirect ophthalmoscopy.

Results

In the sixty patients examined, nine (15 per cent.) had signs of a uveitis, and seven of these (11.7 per cent.) had sheathing of the retinal veins (Table). Only four patients complained of an inflamed eye and in only one (Case 40) was it the presenting symptom. Fifteen (25 per cent.) of the patients had had a retrobulbar neuritis as the presenting symptom and these included four of the patients with uveitis. Two of the patients had signs worthy of note in the posterior segment, but were not included in the 15 per cent. One patient had a fibrous plaque overlying a retinal vein similar to that described by Rucker in his original report (Rucker, 1944) but without other ocular involvement, and the other

Table Ocular findings in nine patients found to have signs of uveitis

Case no.	Other ocular signs and symptoms	Anterior segment		Lens		Posterior segment	
		Right	Left	Right	Left	Right	Left
6	Left retrobulbar neuritis Nystagmus						Sheathing of peripheral vein Cells in anterior vitreous
26	Retrobulbar neuritis	Bilateral flare + + synechiae, and	Cells + + Posterior Keratic precipitates	Bilateral post sub-capsular opacities (since extracted)		Cells + in anterior vitreous	Cells + + in anterior vitreous
29			Flare + Cells + Posterior synechiae		Posterior sub- capsular cataract		
33	Lateral rectus palsy	Bilateral faint flare and few cells				White vitreous opacity Sheathing of veins at 6 o'clock	
40	Internuclear ophthalmoplegia	Old keratic precipitates Posterior synechiae + +	Old keratic precipitates	Posterior sub- capsular opacities		Sheathing of veins	
41	Right retrobulbar neuritis	Cells + + Flare + Fine keratic precipitates Posterior synechiae	Cells + Flare + Fine keratic precipitates Posterior synechiae			Retinal vein sheathing with anterior vitreous cells	Cells in anterior vitreous
46	External ophthalmoplegia					Retinal vein sheathing	
54	Bilateral retrobulbar neuritis with secondary optic atrophy					Retinal vein sheathing	
55							Retinal vein sheathing Small white plaques at periphery at 6 o'clock

patient had a circumscribed area of old inactive choroiditis at the periphery at 6 o'clock surrounded by vitreous opacities.

Comment

Multiple sclerosis and the majority of cases of endogenous uveitis are of unknown aetiology, but the similarity between the numerous theories of their pathogenesis seems to suggest a connection between the two conditions that this report appears to support. Numerous reports have suggested a common immunological aetiology. Some workers have been able to produce the acute neurological condition of allergic encephalomyelitis by inoculating experimental animals with homologous extracts of the central nervous system (Paterson, 1966) and other workers have been able to demonstrate clinical and pathological similarities between this immunologically produced disease and multiple sclerosis (Bornstein and Appel, 1961; Berg and Kallén, 1962; Bornstein, 1963). Other reports have suggested an immunological basis for uveitis (Bullington and Waksman, 1958; Suie and Dodd, 1955), and Aronson, Hogan, and Zweigart (1963) in particular have been able to produce uveitis in experimental animals by inoculating them with extracts of homologous uveal tissue.

The failure of some workers to support these reports led to an awakening of interest in the possibilities of an infective aetiology. In particular, some workers demonstrated the possible association between the measles virus and multiple sclerosis (Adams and Imagawa, 1962; Reed, Sever, Kurtzke, and Kurland, 1964), and Adams and Brown (1969) have

suggested that multiple sclerosis is a "slow" infection of the central nervous system with the measles virus. More recently evidence has accumulated to suggest that two chronic neurological diseases in man, Creutzfeldt-Jacob disease and Kuru, are due to infection of the central nervous system with slow viruses (Gibbs, Gajdusek, Asher, Alpers, Beck, Daniel, and Matthews, 1968; Gajdusek, Gibbs, and Alpers, 1966), and other workers have presented evidence of a connection between slow viruses and the diseases of subacute panencephalitis (Connolly, Allen, Hurwitz, and Millar, 1967; Freeman, Magoffin, Lennette, Herndon, 1967) and multiple sclerosis (Field, Miller, and Russell, 1962; Campbell, Norman, and Sandry, 1963).

Similarly attempts have been made to demonstrate the presence of viruses in several types of uveitis, and in cases of the uveitis associated with Behçet's disease (Sezer, 1953; Mortada and Imam, 1964) and with the uveo-meningeal syndromes of Vogt-Koyanagi and Harada (Yoshida, 1960; Morris and Schlaegel, 1969) this seems to have been successful, although several workers have failed to confirm it. These syndromes are of particular interest in that the uveitis is often associated with an inflammatory involvement of the central nervous system.

Finally, as is often the case when no one theory will adequately explain all the clinical and pathological features of a disease, attempts have been made to combine some features of the available theories. Thus, with uveitis (Hallett, Wolkowicz, Leopold, Canamucio, and Wijewski, 1962) and multiple sclerosis, numerous workers have suggested that an immune response and a virus infection are necessary to produce the full clinical picture, either by an acute antibody antigen reaction awakening a latent virus infection or by a virus infection producing antigenic substances which promote an immunological response.

Summary

A survey of sixty patients with multiple sclerosis showed nine (15 per cent.) to have an associated uveitis. The possible association between the two diseases is discussed.

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