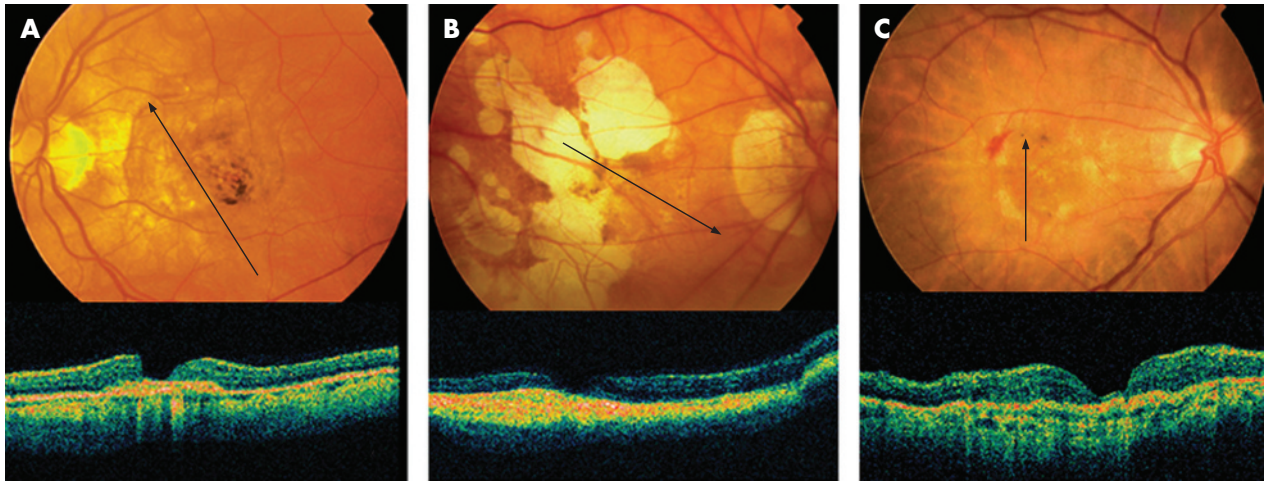

Figure 1 (A) Optical coherence tomography (OCT) showing full-thickness retinal thinning overlying the hyper-reflectivity corresponding to the treated choroidal neovascular membrane (CNVM). (B) OCT showing full-thickness thinning over increased reflectivity in the retinal pigment epithelium (RPE) correlating with the treated CNVM. (C) OCT showing nearly full-thickness thinning overlying the irregular thickening in the RPE corresponding to the treated CNVM.

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Central retinal vein occlusion in Wegener's granulomatosis without retinal vasculitis

The classic type of Wegener's granulomatosis is characterised by necrotising granulomatous lesions of the upper and lower respiratory tracts, generalised focal necrotising vasculitis and glomerulonephritis, whereas the limited type has no renal involvement.[1] Ocular manifestations occur in 30–50% of the patients,[1] with retinal involvement less frequent and varying from 1 to 13% in the literature.[2 3] We report a case of Wegener's granulomatosis presenting with a central retinal vein occlusion (RVO) without clinical evidence of intraocular inflammation or retinal vasculitis.

Case report

A 22-year-old white man presented with a 1-week history of intermittent obscuration of

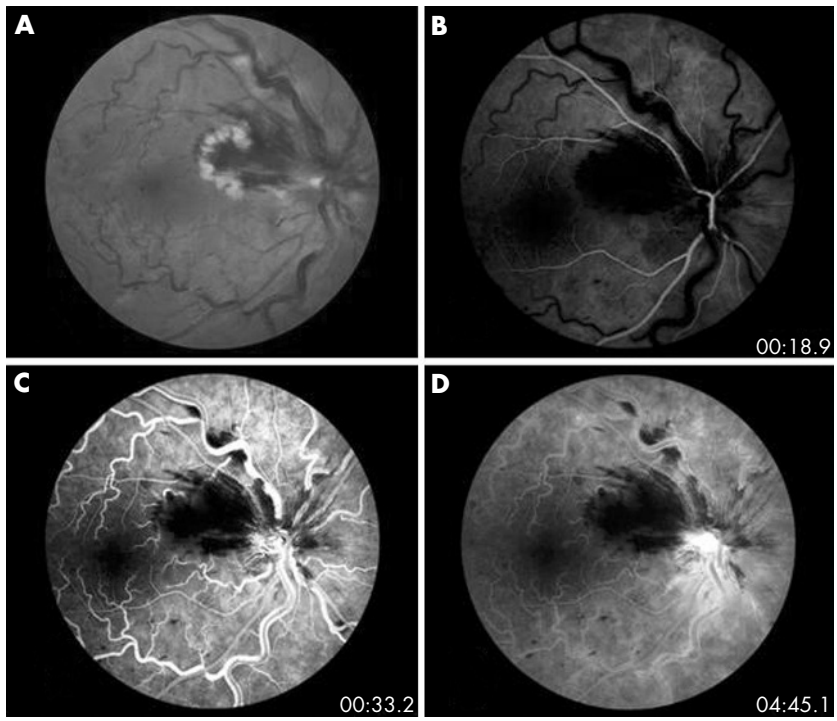

Figure 1 Fundus photography and fluorescein angiography of the patient with Wegener's granulomatosis. (A) Right eye fundus showing a hyperaemic optic disc, peripapillary retinal haemorrhage in the superotemporal sector with cotton wool spots along the edge, and dilatation and tortuosity of retinal veins. Fluorescein angiography showing (B) delayed and prolonged filling of the retinal vasculature, (C) blocked fluorescence as a result of the retinal haemorrhages and (D) mild vessel staining in a few areas in the late phases.

vision in his right eye. His medical history was remarkable for classic Wegener's granulomatosis that had been in remission for the past year. His best-corrected visual acuities were 20/25 in the right eye and 20/20 in the left eye. No relative afferent pupillary defect was evident. A slit-lamp examination of the anterior segment was unremarkable. Fundus examination of the right eye showed a clear vitreous, hyperaemic optic disc, peripapillary retinal haemorrhages, cotton wool spots, and dilatation and tortuosity of the retinal venous system (fig 1A). Fluorescein angiography showed delayed and prolonged filling of the retinal vasculature, blocked fluorescence as a result of the retinal haemorrhages and mild vessel staining in a few areas in the late phases (fig 1B–D). Fundus examination of the left eye was normal. The patient was diagnosed as having a central RVO and was urgently referred to his rheumatologist for evaluation of a possible relapse of systemic Wegener's granulomatosis.

Comment

Retinal manifestations in Wegener's granulomatosis include chorioretinitis, macular oedema, retinitis with cotton wool spots, acute retinal necrosis, peripheral retinitis, central retinal artery occlusion and exudative retinal detachment.[4] Five cases of RVO in Wegener's granulomatosis have been reported in the literature, all occurring in patients with classic Wegener's granulomatosis.[1–3] These patients also showed relatively good visual acuity (the worst was 20/60). RVO is believed to be caused by focal necrotising vasculitis.[2] However, all five patients failed to show any intraocular inflammation or retinal vasculitis at presentation. One of the eyes was enucleated owing to intractable neovascular glaucoma and was evaluated histopathologically, showing patchy areas of chronic choroiditis with no evidence of inflammation in the retinal vessels.[2] It was proposed that RVO may be due to inflammation occurring in the laminar or retrolaminar portion of the optic nerve that may not be clinically evident.[3]

The observation of RVO only in patients with classic Wegener's granulomatosis suggests that the mechanism may be similar to that of renal pathology in these patients. Pauci-immune necrotising extracapillary granuloma formation is a common feature of glomerulonephritis in small vessel vasculitides, such as Wegener's granulomatosis, Churg–Strauss syndrome and microscopic polyangiitis.[5 6] No cases of RVO have been reported in patients with microscopic polyangiitis, but the two reported cases of RVO in Churg–Strauss syndrome also did not show any evidence of vitritis or retinal vasculitis.[7 8] In the first patient, a presumed hypercoagulable state and associated thromboembolism were purported to have led to RVO,[7] whereas in the second patient, RVO occurred while the patient was adequately anticoagulated.[8] Lack of granulomatous inflammation is the distinguishing feature of microscopic polyangiitis from both Wegener's granulomatosis and Churg–Strauss syndrome.[6] We postulate that compression of the central retinal vein (in a laminar or retrolaminar location) by such extracapillary granulomatous lesions may be the mechanism of RVO in such patients. This pathogenic mechanism can also explain the lack of clinical evidence of retinal vasculitis in these patients.

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Acute unilateral conjunctivitis after rubella vaccination: the detection of the rubella genome in the inflamed conjunctiva by reverse transcriptase-polymerase–chain reaction

The efficacy of long-term rubella vaccine is >90%, and the anti-rubella vaccination causes few side effects.[1] Some cases of anterior uveitis were reported after a combined vaccination for measles, mumps and rubella, but not when vaccination for rubella alone was administered.[2] Another study reported that, after smallpox vaccination, 16 out of 450 000 subjects vaccinated had ocular complaints including conjunctivitis, keratitis and eyelid oedema, and only 5 of those cases were confirmed positive for vaccinia by culture or PCR.[3] However, conjunctivitis after rubella vaccination with laboratory confirmation has never been reported.

Case report

A 43-year-old man was referred to the Department of Ophthalmology and Visual Sciences, Hokkaido University Graduate School of Medicine, Japan, with a history of conjunctival redness in his left eye for 2 days (table 1, figs 1A,B).

The patient's vision was 20/20 with correction in each eye. He had received an attenuated live anti-rubella vaccine on his left arm (Biken, Tanabe, Japan) 4 days before the onset of his left neck lymphadenopathy. He showed a flare-up at the site of injection 6 days before his eye symptoms developed. He also had itching at the injected site on day 12 after vaccination. No fever symptoms were observed. Biomicroscopy showed normal eyelids and lachrymal system. He had conjunctival flush with follicles in the left eye, but not in the right eye. The anterior chamber and fundus were normal in both the eyes. Adenovirus was not detected with immunochromatography (Adenocheck, Santen, Osaka). The patient's conjunctiva was scraped to collect samples. The possible presence of rubella virus mRNA expression in the conjunctiva was examined by RT-PCR (Mitsubishi Chemical Bio-Clinical Laboratories, Tokyo, Japan) as described elsewhere.[4] The results were positive for rubella mRNA expression (fig 1C). The inflammation of the eye improved without treatment in a few days. His antiserum rubella dilution titre was reported to be negative before vaccination and positive (×64) after injection.

Comment

In this patient, it is assumed that the acute unilateral conjunctivitis resulted from an ocular infection with rubella, caused by an attenuated vaccine. However, another possibility is that the conjunctivitis was caused by a contiguous infection from other people. We interviewed the patient carefully, but none among his family and associates had contracted rubella. The next possibility was the contralateral eye. Samples from the contralateral eye were not collected; thus, it is unclear whether RT-PCR might result positive or negative in the contralateral eye. The final point is why and how conjunctivitis occurred unilaterally. If the viruses are transmitted by haematogenous spread, the contralateral eye may develop conjunctivitis. The reason for unilateral involvement remains uncertain.

This is the first report to our knowledge of an adult man who developed acute conjunctivitis after vaccination with a rubella vaccine, and the rubella genome was confirmed at the conjunctiva by RT-PCR. Such viral—for example, adenoviral ocular infections, ranging from mild to full-blown with marked morbidity, often cause epidemics of nosocomial infections. Thus, it is important for clinicians to identify the virus causing acute conjunctivitis. RT-PCR results in a straightforward diagnosis in the case of rubella or any other RNA viral infection in which a serological test is not available. A viral detection test after vaccination is also appropriate if the vaccination was done with a live vaccine.

Table 1 Clinical course of the patient

Days after vaccination	Symptoms
4	Left neck lymphadenopathy
6	Redness of injected skin
12	Left conjunctivitis/ itching of injected skin
13	Medical examination/ collection of samples
16	Improvement of symptoms