LONG TERM FOLLOW-UP OF BIRDSHOT CHORIORETINOPATHY

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RÉSUMÉ

Propos: Décrire l'évolution d'une patiente atteinte d'une Choriorétinopathie de Birdshot traitée par corticostéroïdes et cyclosporine pendant 3 ans et suivie pendant 20 ans

Méthodes: La mesure de l'acuité visuelle sur l'échelle de Snellen, l'examen à la lampe à fente, les champs visuels, la vision des couleurs, l'angiographie à la fluorescéine, l'électro-rétinogramme et oculogramme sont rapportés tout au long du suivi.

Résultats: Une dégradation de la vision et une progression des altérations choriorétiniennes sont survenues malgré la minimisation de l'inflammation intraoculaire. Des perturbations du champ visuel et de la vision des couleurs sont apparues associées à des plaintes de nyctalopie.

Conclusions: Les lésions choriorétinennes présentées par cette patiente traitée ressemblent 20 ans plus tard à une dystrophie tapétorétinenne et évoquent l'évolution naturelle d' une choriorétinopathie de Birdshot. L'approche thérapeutique était soit inadéquate par une interruption trop précoce, soit inefficace sur les mécanismes d'altérations rétiniennes.

ABSTRACT

Background: To report the long term follow-up of a case of Birdshot Chorioretinopathy treated with steroids and cyclosporine during three years and followed for twenty years.

Methods: The patient was monitored with Snellen visual acuity, slit lamp examination, perimetry, colour vision test, fluorescein angiography, electroretinogram (ERG) and electrooculogram (EOG).

Results: The retinal alterations progressed despite minimization of the intraocular inflammation. Vision dropped, perimetric and severe colour vision alterations appeared and the patient complained of nyctalopia.

Conclusions: The retinal findings in our case treated during three years resemble twenty years later tapetoretinal dystrophy and evoke the natural evolution of Birdshot Chorioretinopathy. The therapeutic approach was either inadequate due to early interruption or to inefficacy on the mechanisms of the retinal alterations.

KEY WORDS

Birdshot Chorioretinopathy.

MOTS-CLÉS

Choriorétinopathie de Birdshot.

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INTRODUCTION

The long-term visual prognosis of Birdshot Chorioretinopathy is variable according to authors. Some believe that few patients maintain good visual acuity without treatment (4). There is still no consensus about indications, drugs used and duration of possible treatment.

We report the end stage of a Birdshot Chorioretinopathy case treated for three years during the acute phase, and followed for twenty years. A slow progression of retinal alterations was observed despite minimal intraocular inflammation. Vision dropped late in the course of disease. We describe also an atypical presentation of the atrophic areas along the retinal veins at the end of follow-up.

CASE REPORT

In April 1984, we examined a 49 year-old white woman complaining of floaters for two years. Her visual acuity was 20/20 in both eyes. There was a mild cellular reaction in the anterior chamber and numerous cells in the vitreous of both eyes. Ophthalmoscopy disclosed multiple bilateral small deep cream-coloured lesions around the optic disc and in the nasal and inferior midperipheral retina (Fig. 1). Fluorescein angiography showed capillary leakage in the optic nerve head and retinal vasculitis with bilateral diffuse oedema of the posterior pole. Colour vision tests were altered. Perimetry showed peripheral constriction and an enlargement of blind spots. Flash ERG was abnormal in both eyes with a decrease of b-wave amplitude as compared to the a-wave amplitude.The decrease was predominant in the right eye. EOG showed a pathological L/D ratio (table).
These clinical and angiographic features associated with the presence of HLA A_{29} antigen led to the diagnosis of Birdshot Chorioretinopathy.

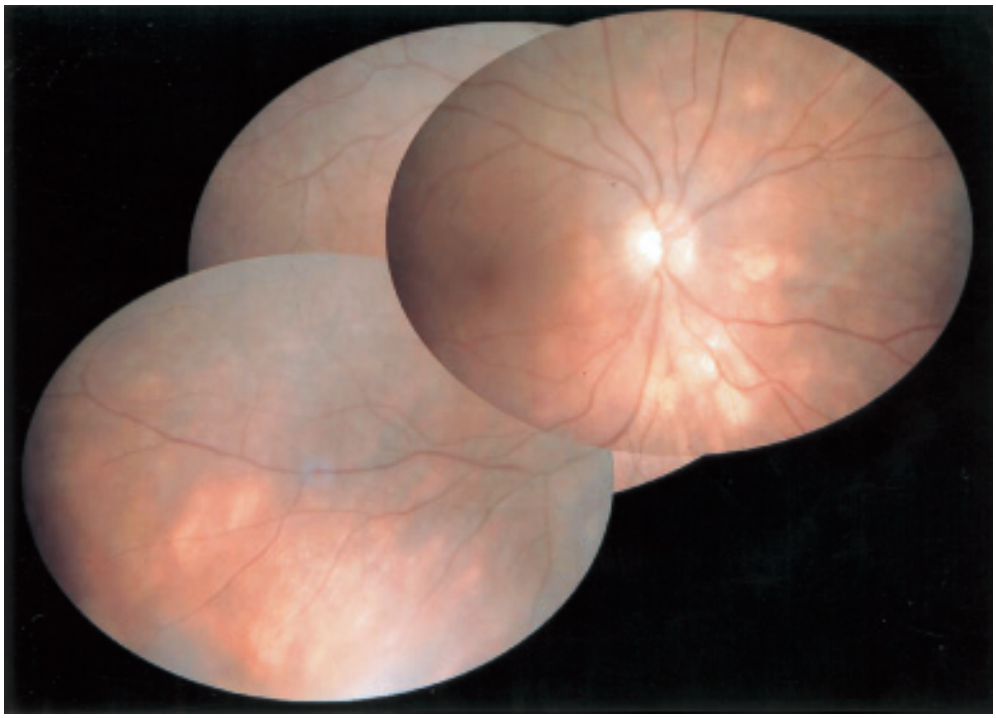
The patient was treated with systemic corticosteroids from June 1984 till May 1985 and with systemic cyclosporine from March 1985 till January 1988. Eighty mg prednisone was administered daily for two weeks followed by slow tapering to 10 mg daily. The corticotherapy reduced the vasculitis and vitritis very effectively, but due to the development of gastric ulcer, this treatment had to be discontinued. Cyclosporine therapy was then initiated at 3.5 mg/kg/day for one year, and reduced to 3 mg/kg/day for a further 1.5 year. Although intraocular inflammation was fully under control with cyclosporine, nephrotoxic side effects were detected and the drug was stopped.
At the end of the treatment, several recurrences with a few cells in the vitreous (1+) and mild vasculitis appeared. These recurrences were less severe than the initial presentation before treatment. Systemic therapy was not started again.

In 1992, vision was 20/30 at the right eye and 20/25 at the left eye. The patient complained of transitory colour vision alterations. Fundus examination showed narrowed vessels, pale optic nerve heads and evolution of the multiple cream-coloured lesions towards atrophy. Some flare persisted in the vitreous (figure 2, 3).
Ganzfeld ERG was performed and showed a longer implicit time (100 msec) and lower b-wave amplitudes for scotopic responses. The amplitude decrease was predominant in the right eye (42μV versus 81μV). For cone-mediated responses the implicit time was in the normal range but b-wave amplitudes were decreased leading to a negative type ERG.
In 1995, Ganzfeld ERG according to ISCEV standards was performed and did not show a significant difference from the previous results. EOG results were also similar (table).

In 2001, the patient complained of vision loss, nyctalopia and severe colour vision alterations. Visual acuity was 20/60 at the right eye and 20/40 at the left eye. Perimetry showed bilateral annular scotoma. Fundoscopy showed optic disc pallor, markedly narrowed vessels and areas of chorioretinal atrophy around the optic disc, in the macular area and along the inferior nasal and temporal retinal veins. The vitreous was clear. Fluorescein angiography revealed hypofluorescent atrophic lesions adjacent to the optic disc, in the macular area and along the veins. Diffuse pigment epithelium alterations were visible in the posterior pole (Fig. 4).

No macular oedema was present at this time. ERG findings were similar to the last results.

A.



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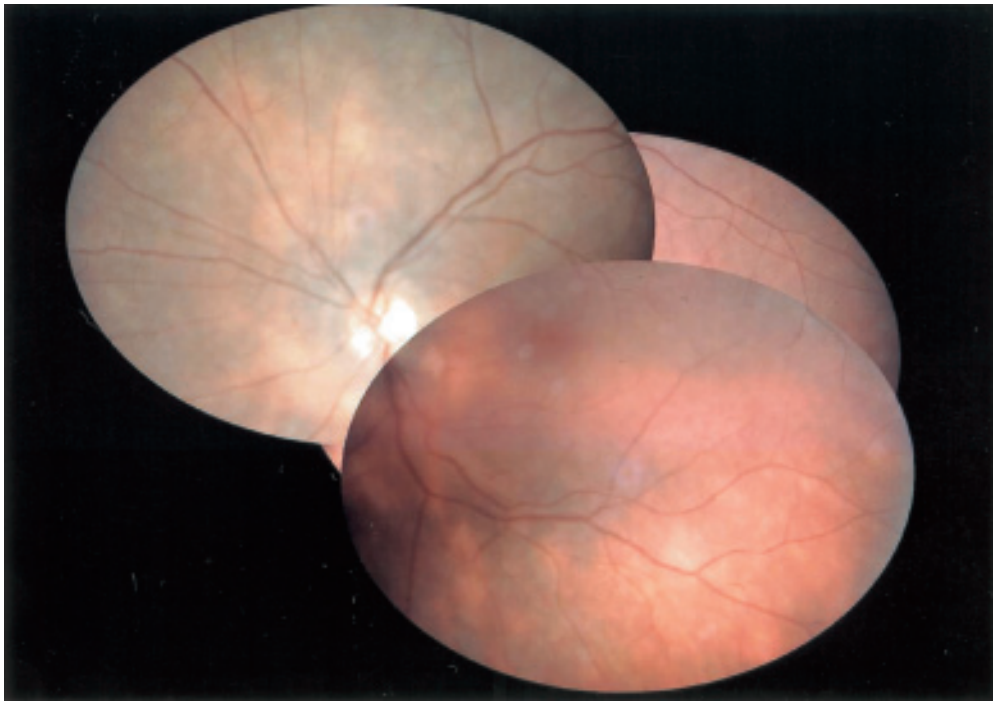


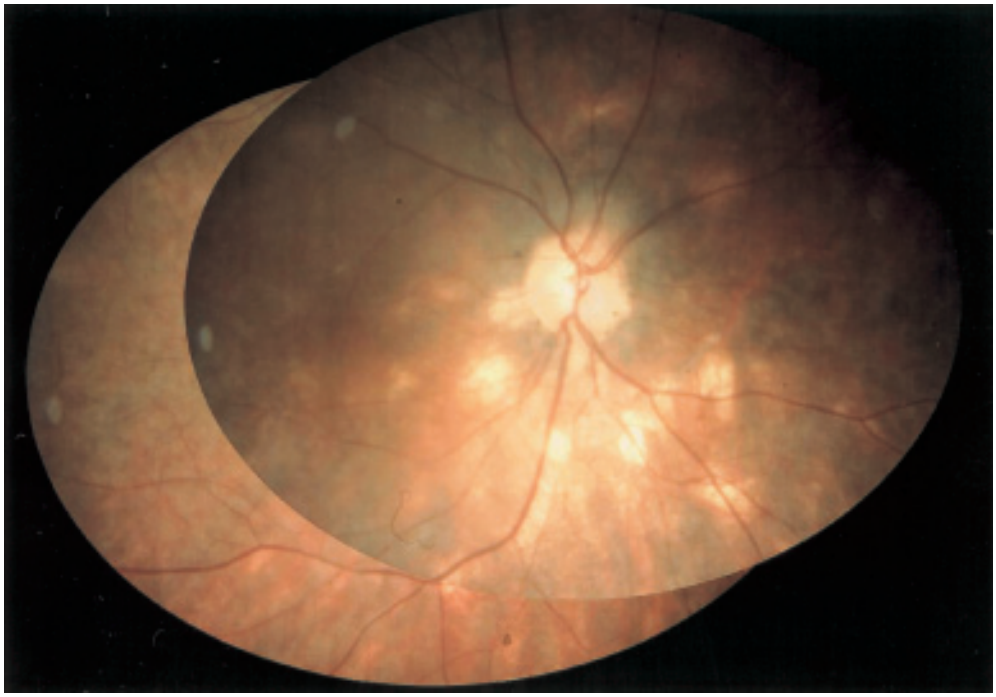
Fig 1. Right (1A) and left (1B) fundus in 1984. Discrete cream-coloured spots with indistinct borders are visible around the optic disc and in the inferior and nasal mid-periphery.

Table 1:

Year	Electroretinographic rod and cone b-wave amplitude				VA		EOG L / D ratio (%)		Visual field (Goldmann perimetry)
		Rod (μV) OD / OS (inferior limit p=0.01)	Maximum combined (μV) OD / OS (inferior limit p=0.01)	Cone (μV) OD / OS (inferior limit p=0.01)	OD	OS	OD	OS	
1984	Flash ERG no standards	Decrease of the b-wave compared with the a-wave predominantly in the right eye			20/20	20/20	120	131	Peripheral field constriction Enlarged blind spots OD>OS
1990	Flash ERG no standards	14.72 / 43.99	neg. ERG OD 37.18 / 61.46	37.18 / 61.46	20/25	20/20	109	134	No changes
1992	Ganzfeld no standards	42 / 81	negative 87 / negative 201.55	negative 55 / negative 63	20/30	20/25	NA		NA
1995	Ganzfeld ISCEV standards	52 / NA (94.3)	negative 89 / negative 180 (140.7)	negative 40 / negative 45 (42)	20/30	20/30	136	135	Peripheral field constriction OD: increased enlargement of the blind spot (arciform scotoma) OS: increased enlargement of the blind spot but less than OD
2001	Ganzfeld ISCEV standards	42 / 109 (94.3)	negative 74 / negative 155 (140.7)	negative 58.4 / negative 51.5 (42)	20/60	20/40	NA		Peripheral field constriction OD: annular scotoma OS: incomplete annular scotoma with a persistent field noted in the inferior nasal field

NA: not available

A.



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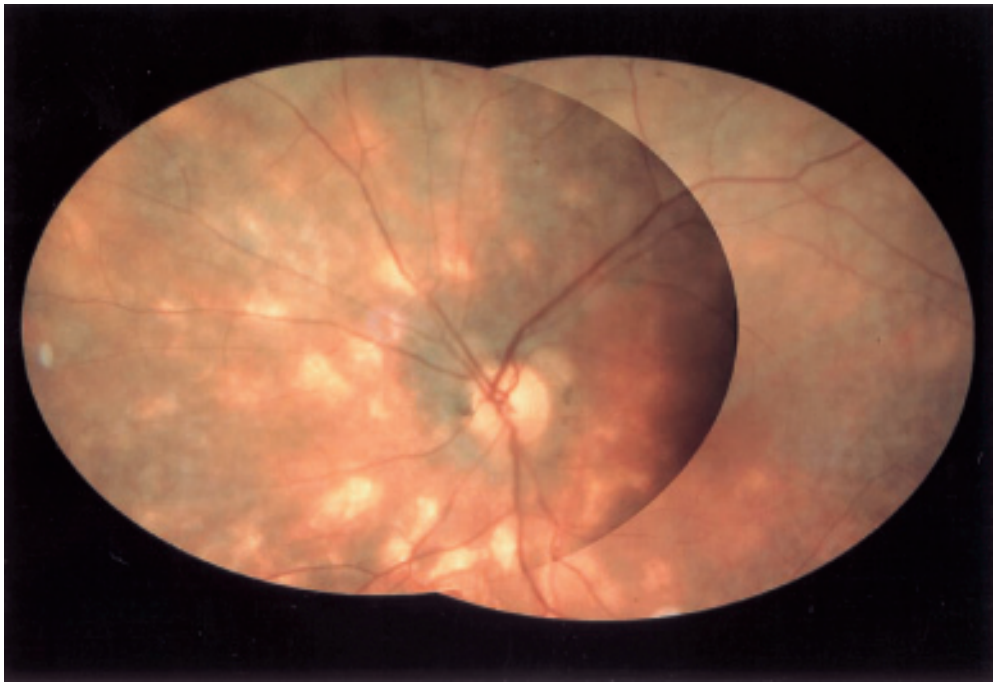

Fig 2. Right (2A) and left (2B) fundus 8 years later (1992). Appearance of atrophic lesions with sharper borders around the optic disc, in the macula area and along the inferior nasal and temporal retinal veins.

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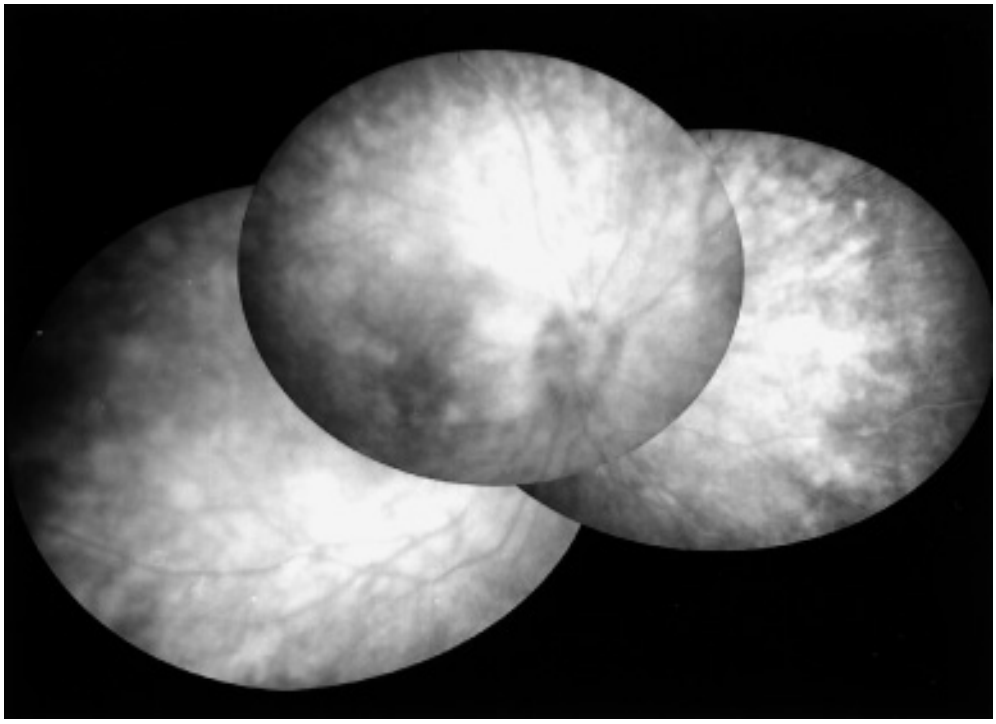

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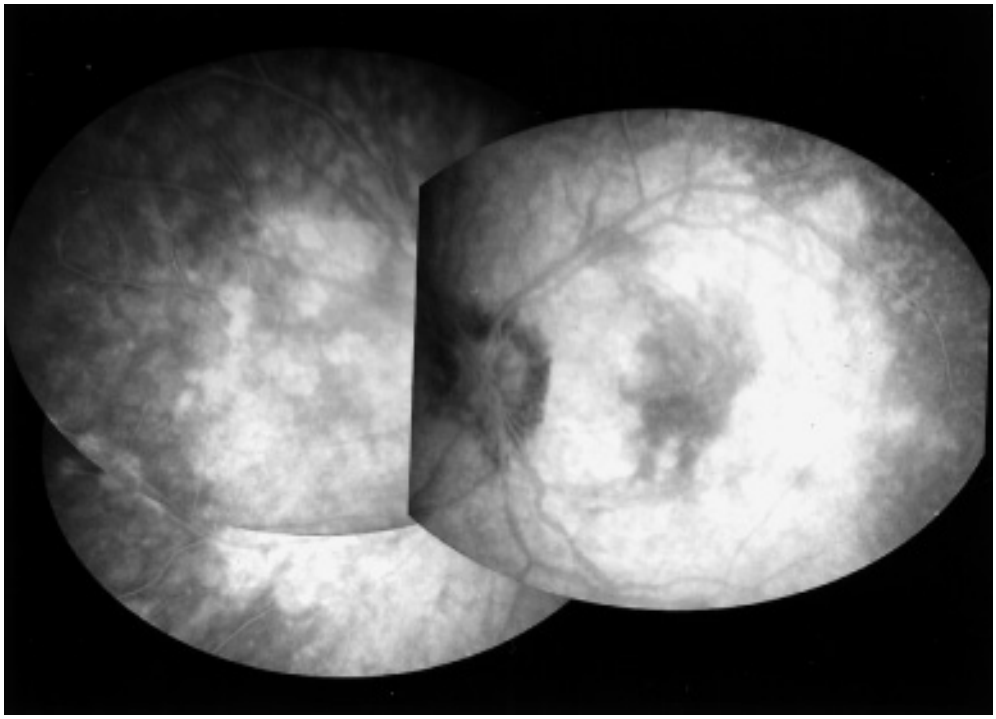
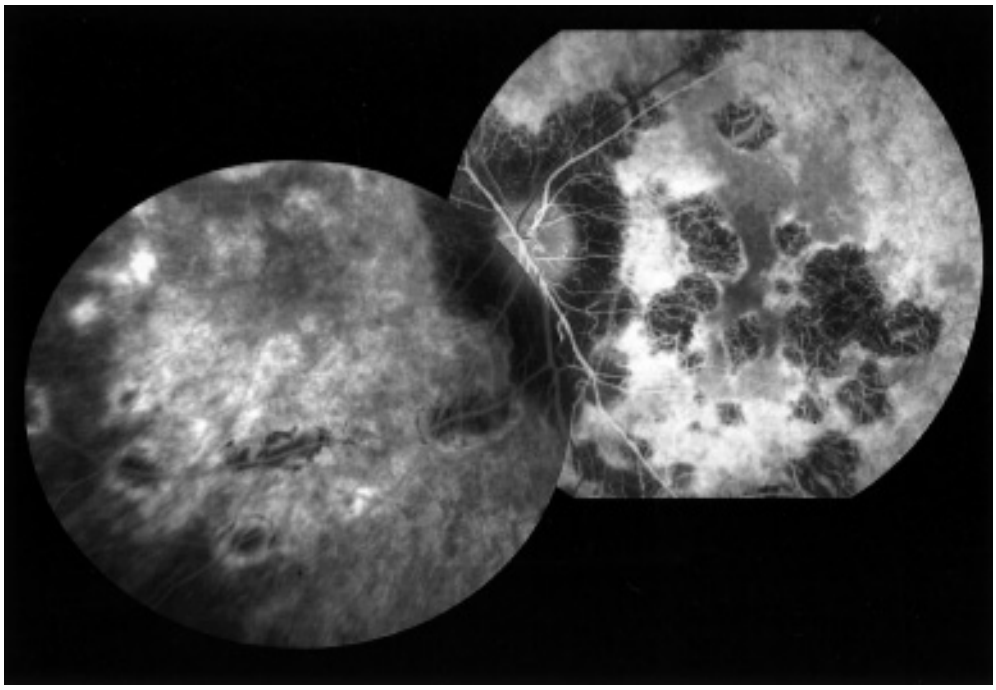


Fig 3. Right (3A) and left (3B) fundus in 1992. Fluorescein angiography showing hyperfluorescence of the posterior pole corresponding to a diffuse retinal oedema.

A.



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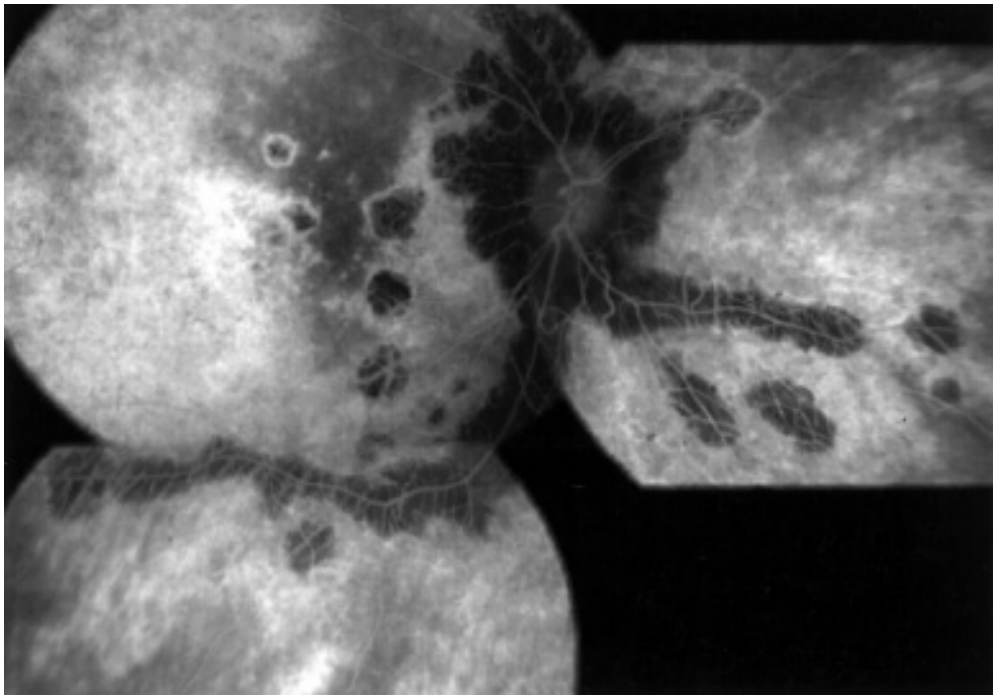

Fig 4. Right (4A) and left (4B) fundus in 2002. Fluorescein angiography showing narrowed vessels, chorioretinal atrophy around the optic disc and along the inferior nasal and temporal retinal veins. Diffuse pigment epithelium alterations are also visible in the posterior pole.

COMMENT

The distribution of deep cream-coloured lesions in Birdshot Chorioretinopathy was initially supposed to follow the major choroidal vessels in the mid-periphery suggesting choroidal vasculitis (8).This hypothesis was confirmed by indocyanin green angiography (2). In our patient, the initial lesions were concentrated around the optic nerve and in the inferior and nasal mid-periphery. Their distribution around the optic disc is well documented; on the other hand, to find them along retinal veins is unusual (8).

Long-term evolution with retinal abnormalities resembling tapetoretinal dystrophy has already been reported in the natural course of Birdshot Chorioretinopathy (9). The efficacy of systemic cyclosporine, alone or in combination with other drugs, has been reported with good control of vitreous inflammation and stabilization or even improvement of vision in the short term (10). Long-term efficacy on the natural evolution remains to be established.

Our patient initially displayed diffuse retinal oedema without cystoid macular oedema and still good preservation of visual acuity. She received systemic treatment (steroids and cyclosporine) during 3 years with a good response on the intraocular inflammation. After treatment, some low grade inflammation recurred, but her vision remained stable and no further therapy was installed.

The retinal findings twenty years after the beginning of the disease evoke the natural evolution of Birdshot Chorioretinopathy. The retinal alterations progressed despite minimal intraocular inflammation and the retinal function according to ERG results and visual field testing deteriorated progressively despite relatively good vision.

Our case demonstrates that visual acuity is not a good parameter to decide for treatment. The same conclusion was reported on a long term follow-up of a case series. Visual acuity was usually preserved till late in the course of disease. Initially, degradation of the visual function was outside the macula explaining the good vision (6). ERG results could be more interesting for this approach. ERG findings were reported variable from supernormal to non recordable depending upon the severity and stage of the disease (3,7). In the same way, on a series of 8 patients who underwent multiple ERG over time, seven demonstrated progressive loss of electrophysiologic indices (6). In our patient, ERG results were abnormal at first examination when her vision was still 20/20 but on the other hand the poor evolution of her vision between 1992 and 2001 did not clearly correlate with her electroretinographic results. Between 1984 and 1992 no comparison of electroretinogram results could be made because the standards were different. The evolution of her visual field also reflects the progressive loss of retinal function and so constitutes a good complementary indicator to decide for treatment.

The pathogenesis of the chronic atrophy and the progressive functional loss in this disease are not yet well known but persistent inflammation is probably one of the main actors. Apoptosis (programmed cell death) of the retinal cells possibly triggered by an inflammatory event has also been suggested to explain this retinal damage. Dysregulation of the Fas-FasL apoptotic pathway has been demonstrated in uveitic eyes (1,5).

There is still no consensus about treatment. Considering the poor evolution of visual function and visual acuity of patients treated episodically for inflammatory exacerbations, a better therapeutic approach would be a prolonged steroid and / or immunosuppressive therapy to avoid the chronic retinal alterations (6). This should have been done in our patient.

In conclusion, we describe a case of Birdshot Chorioretinopathy treated for 3 years with steroids and cyclosporine at the beginning of the disease and followed for 20 years. Retinal alterations progressed despite minimal intraocular inflammation and evoke the natural course of disease. Visual acuity remained stable till late in the course of disease which suggests that vision is not a good parameter to decide for treatment. Retinal functions (ERG, visual field) were altered earlier and should be considered a better criterion to monitor the treatment or the evolution. The therapeutic approach in our patient was inadequate probably due to early interruption. Inflammation, even low grade, should be treated to avoid chronic retinal alterations.

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