

# Acute choroido-retinitis in secondary syphilis *Presence of spiral organisms in the aqueous humour*

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The importance of syphilis as a cause of eye disease has been appreciated since the discovery of the relationship between interstitial keratitis, uveitis, and congenital syphilis by Jonathan Hutchinson in the middle of the 19th century (Hutchinson, 1858). Many years ago Moore (1931) made a plea for a greater awareness of syphilis as a cause of uveitis and reported that 4.6 per cent. of patients with early secondary syphilis had iritis; in recurrent secondary syphilis the incidence was as high as 9.3 per cent. Guyton and Woods (1941), in Baltimore, considered that 59 (10.5 per cent.) of a series of 562 cases of uveitis were due to syphilis, of which 22 were congenital and 37 acquired. Perkins (1961), however, found that only 1.2 per cent. of 1,718 cases of uveitis seen in London were due to this cause. The incidence of intraocular inflammation in patients with early infectious syphilis is obviously variable in different areas of the world, and Duke-Elder and Perkins (1965) are of the opinion that the incidence varies from 3 to 15 per cent. The diagnosis of anterior uveitis in secondary syphilis can usually be made with reasonable certainty on clinical grounds and the condition responds rapidly to antisyphilitic treatment. The diagnosis of other ocular lesions in early infectious syphilis is less certain and is frequently open to doubt. For this reason and because infectious syphilis is a comparatively rare cause of acute choroido-retinitis (Blodi and Hervouet, 1968; Rice, Jones and Wilkinson, 1968; King and Nicol, 1969), we think the following case may be of interest.

## Case report

A 43-year-old man was first seen in October, 1968, complaining of blurred vision in the right eye of 3 weeks' duration. The visual acuity was 6/24 in the right eye and 6/12 in the left. In the right eye there was a moderate anterior uveitis with flare and cells, but the main finding was a dense anterior vitreous haze associated with a patch of active peripheral choroido-retinitis in the lower nasal quadrant. Apart from a refractive error, no abnormal signs were seen in the left eye. He was treated with local corticosteroid drops and mydriatics, but 7 days later the uveitis was more marked and he was started on systemic prednisolone 30 mg. daily. One week later there was a slight improvement of the visual acuity to 6/18 in the right eye

and, after a further 7 days, the dose of prednisolone was reduced to 20 mg. daily, but 10 days later he noticed that the vision in the left eye was blurred and examination revealed that the visual acuity was reduced to less than 6/60 in both eyes. The uveitis in the right eye was more marked, but the left eye, which had previously been normal, now showed dense vitreous haze and macular oedema. The patient was admitted to hospital for further investigation and treatment.

There was no past history of serious illness and he had not noticed any penile lesions, skin rashes, or other symptoms of early syphilis. He was a homosexual but stated that there had been no exposure to infection for about 9 months, when there had been an isolated episode with a casual acquaintance.

## Examination

The inguinal lymphatic nodes were enlarged, discrete and non-tender, and there were several fleshy lesions of the prepuce suggestive of condylomata lata. There was no rash, no lesion of the mucous membranes, and no other lymphadenopathy, and the liver and spleen were not palpable. The rest of the physical examination yielded normal results, apart from the visual findings, and the blood pressure was 130/70 mm. Hg.

## Investigations

The blood Wassermann reaction, the Reiter protein complement-fixation test, and the fluorescent treponemal antibody absorption test were all positive and the Venereal Diseases Research Laboratory (VDRL) test was positive 1 in 64 dilutions. Dark-ground examination of serum from the penile lesions was negative for *Treponema pallidum* on two occasions. Tests of the cerebrospinal fluid gave normal results. Haemoglobin 14.0 g. per cent. White cell count 11,800 with a normal differential count. Erythrocyte sedimentation rate 22 mm. in 1 hour. Urine normal. Chest X-ray no abnormalities.

Tests for antibodies against mitochondrial cardiolipins of cardiolipin F type were positive in the serum and the pattern of the reactions was regarded as being typical of early infectious syphilis.

## Progress

The appearance of bilateral, acute, multifocal choroido-retinitis associated with condylomata lata and strongly positive serological tests for syphilis supported a diagnosis of secondary syphilis. When he was admitted to hospital the dose of prednisolone was increased to 80 mg. daily because of the profound visual loss, and within 48 hours the vitreous haze had subsided, revealing the widespread multifocal choroido-retinal lesions, consisting of yellowish-

white dots associated with sheathing of the retinal vessels (Figs 1 and 3, opposite).

The syphilis was treated with daily intramuscular injections of 600,000 units procaine penicillin for 14 days and, in addition to the systemic corticosteroids, the ocular condition was treated with daily atropine drops and prednisolone drops 3 times daily. There was no Herxheimer reaction and the condylomata lata disappeared during the first week of treatment. His eyes improved rapidly and the dose of prednisolone was gradually reduced.

In January, 1969, 3 months after the onset of the symptoms, the vision in the right eye had improved to 6/6 and N.5 unaided and there were no signs of active inflammation. Vision in the left eye, however, was barely 6/60 with a persistent dense central scotoma resulting from damage to the macula. Both fundi showed peripheral pigmentary changes and scarring (Figs 2 and 4). The peripheral visual fields showed constriction consistent with the retinal changes (Figs 5 and 6).

#### Result

In May, 1969, the patient was readmitted to hospital for assessment. No abnormalities were found in the central nervous system or elsewhere on physical examination. An anterior chamber tap was performed and spiral organisms were found in the aqueous humour by fluorescent microscopy. The serological tests for syphilis were still positive, the VDRL test being positive 1 in 16 dilutions.

#### Follow-up

The patient has been followed-up at 3-monthly intervals since May, 1969, and there has been no reactivation of the choroïdo-retinitis. The normal visual acuity has been maintained in the right eye, but there has been no significant improvement in the central vision of the left eye.

The serological tests for syphilis became negative 14 months after he had completed the antisypilitic treatment and have remained negative ever since.

#### Discussion

The incidence of infectious syphilis has increased throughout the world during the past decade. Improved serological tests for the detection of reagin and antitreponemal antibodies and the recent demonstration of treponemal-like forms in material from patients with treated late syphilis by workers in France, the United States of America, Britain, and Italy has resulted in a great revival of interest in the disease (Dunlop, 1970). More recently, persistent treponemes have been found in patients with treated early syphilis. Much of the recent work has been carried out on material from patients with diseases of the eye and this has led to a reappraisal of syphilitic ocular disease.

The diagnosis of anterior uveitis due to secondary syphilis can usually be made with assurance on clinical grounds and the response to treatment with penicillin usually provides confirmatory evidence. In patients with late syphilis, however, it is frequently

FIG. 1 *Multifocal, yellowish-white choroïdo-retinal lesions in right eye*

FIG. 2 *Peripheral scarring and pigmentary changes in right eye after treatment*

FIG. 3 *Yellowish-white, multifocal dots of choroïdo-retinitis with sheathing of retinal vessels in left eye*

FIG. 4 *Peripheral pigmentary changes and scarring in left eye after treatment*

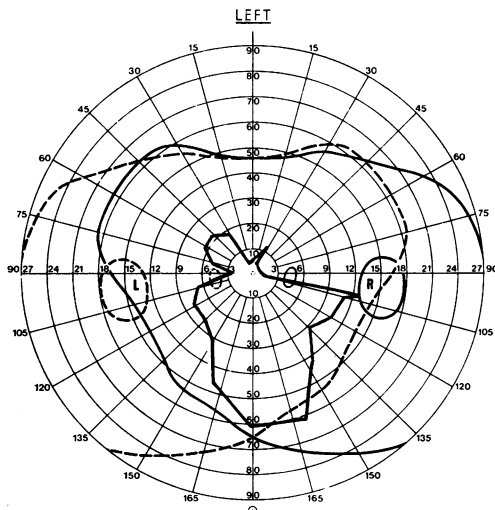


FIG. 5 *Constriction of peripheral visual field of left eye*

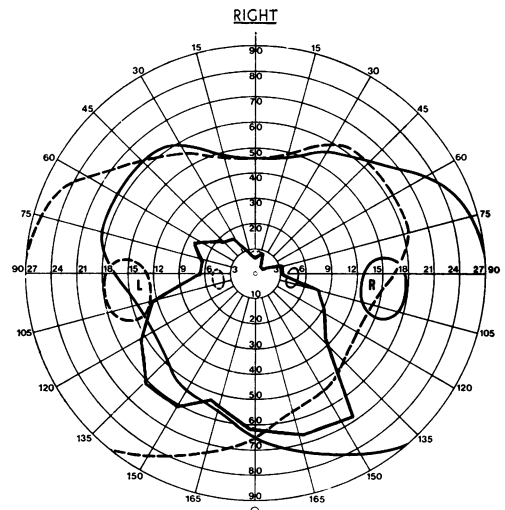
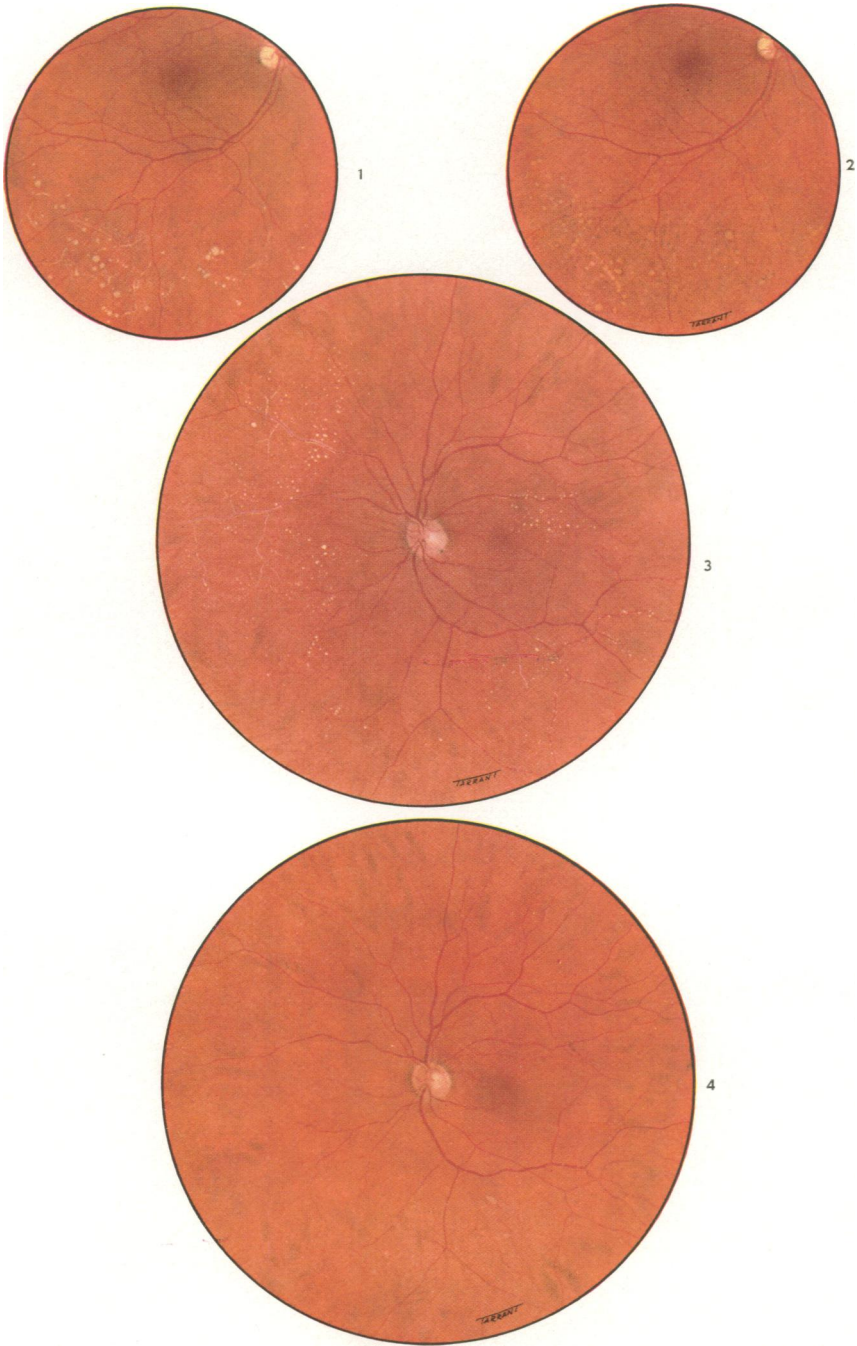


FIG. 6 *Constriction of peripheral visual field of right eye*



difficult or impossible to be certain whether the anterior uveitis is due to the syphilis or to some other condition. Choroido-retinitis is uncommon in early infectious syphilis and this case confirms that it is important to consider syphilitic eye disease in the differential diagnosis of acquired posterior uveitis.

The rarity of the condition was one of the reasons for the delay in carrying out serological tests for syphilis in this case. As it happened, the results of the serological tests became available at about the same time as the increased dose of systemic corticosteroids unmasked the changes of choroido-retinitis. Both sarcoidosis and tuberculosis, which may produce disseminated, multifocal choroido-retinitis, were excluded, because there was no clinical or laboratory evidence in support of either condition.

It is interesting to consider the role of corticosteroids in the development of intraocular inflammation. It has been clearly shown in experiments that corticosteroids depress the level of immunity to treponemes and may even activate a dormant syphilitic infection (Turner and Hollander, 1957; McLeod and Magnuson, 1956; Collart, Borel, and Durel, 1962). Nevertheless, corticosteroids are frequently used in late syphilis in an attempt to prevent or minimize a Herxheimer reaction, to control inflammatory reaction such as uveitis or interstitial keratitis, and in the treatment of deafness and vestibular symptoms in late congenital syphilis. There is general agreement that, if corticosteroids are to be used locally or systemically for the treatment of manifestations of syphilis, antitreponemal treatment should be given at the same time or immediately after the course of corticosteroids. If this is not done there are reasons to believe that the number of treponemes may increase and new lesions may appear, especially when the corticosteroids are stopped or the dosage is reduced so that the tissue reactions are no longer suppressed.

In this case the severity of the uveitis made the use of corticosteroids essential and, although at first they created an alarming clinical situation, the intraocular manifestations responded rapidly when anti-syphilitic treatment was given to the patient. It is possible that the corticosteroids were a factor in the appearance of the very florid manifestations of uveitis and choroido-retinitis by suppression of local immunity. It is interesting to note that, in this patient, treponeme-like forms were found in the aqueous humour 6 months after the completion of penicillin therapy, but when the serological tests were still positive.

In the present state of knowledge it is probably desirable to give antitreponemal therapy simultaneously with or immediately after the use of systemic or local corticosteroids, not only in late syphilis, but also in early infectious syphilis.

### Summary

A case is described of bilateral, acute, syphilitic choroido-retinitis in a patient with late secondary syphilis, in whom spiral organisms were detected in the aqueous humour. The importance of considering acquired syphilis as a possible cause of posterior uveitis is stressed and the role of corticosteroids in the development and treatment of the condition is discussed.

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### Choroido-rétinite aigüe au cours d'une syphilis secondaire. Présence d'organismes spiralés dans l'humeur aqueuse

#### SOMMAIRE

On décrit un cas de choroido-rétinite syphilitique aigüe bilatérale chez un malade atteint de syphilis secondaire tardive. Des organismes spiralés furent mis en évidence dans l'humeur aqueuse. On souligne qu'il est important de considérer la syphilis acquise comme une cause possible d'uvéite. On discute le rôle de la corticothérapie dans son développement ainsi que les conditions du traitement.