RARITIES IN OCULAR SARCOIDOSIS*

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OCULAR involvement in sarcoidosis is both varied and frequent (Longcope and Freiman, 1952). The incidence is about 30 to 40 per cent. (Levitt, 1941 ; Woods and Guyton, 1944 ; Gifford and Krause, 1949 ; Longcope and Freiman, 1952). Almost all the structures in and around the eye may become involved: skin of the eyelid, eye muscles, orbit, uvea, and optic nerve. The commonest lesion is uveitis, which is usually painless and bilateral and may be accompanied by nodules on the iris. The parotid gland may be involved concurrently with either the lacrimal gland or the uveal tract, producing the syndromes of Mikulicz or Heerfordt respectively. Moreover, cerebral sarcoidosis (Colover, 1948; Pennell, 1951; Aszkanazy, 1952; Höök, 1954) may lead to puzzling ocular and peri-ocular symptoms.

The present report relates to two patients with unusual eye signs. Both had unilateral optic atrophy; the first had also episcleral (subconjunctival) nodules in each eye, and the second had a calcareous cataract and eventually secondary glaucoma.

Case Reports

Case 1, a housewife, aged 34, was admitted for splenectomy in February, 1949. The spleen extended to the left iliac fossa, and there was an associated constant dragging pain. Histological studies gave evidence of sarcoidosis (Stengel-Wolbach spleen). The patient had enjoyed good health until 1947, when she began to complain of lassitude, frontal headaches, giddiness, tinnitus, intermittent blurred vision, and redness of the eyes. These were not attributed to hypertension (150/100) but to an intracranial lesion, possibly disseminated cerebral sarcoidosis. From August, 1950, onwards she was rarely free from retro-orbital headaches, bursting in character, worse in the morning and on stooping, and 3 months later these were accompanied by vomiting which was unrelated to food and provoked by mere head-movement.

She was next seen in October, 1950, at the Eye Department, when she complained of an exacerbation of burning pain and redness in the eyes.

Visual Acuity: 6/6 in each eye.

Episcleral (subconjunctival) sago-like nodules on the temporal and nasal sides of the cornea in the palpebral fissures (Fig. 1 *a, b*, opposite).

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FIG. 1.—Localized hyperaemia and small sago-like nodules in the conjunctiva in the palpebral fissure. The photograph was taken with a flash-light and the reflection is broken up by the nodules. The nodules were clearly seen by slit lamp.

A further striking feature was swelling of pre-auricular and cervical lymph-nodes, one of which on biopsy gave confirmatory evidence of sarcoidosis. Moreover, a biopsy from the conjunctiva showed a giant-cell reaction which, although not typical of sarcoidosis, was considered (Figs 2, 3, 4, and 5, overleaf) to show the early stage of the disease. The episcleral deposits and surrounding hyperaemia slowly subsided but had a tendency to flare up. The interesting histological features of these conjunctival lesions have been fully discussed elsewhere (Ashton, 1954).

In July, 1952, the patient was re-admitted to hospital. She now complained that she was blind in the left eye. No nodules were present on the iris or retina.

Visual Acuity: 6/6 in the right eye and counting fingers in the left.

Visual Fields: right, normal; left, grossly impaired.

Pupils: right, normal; left, direct reaction to light absent but consensual reflex present. Convergence reflex intact.

Fundi: right, normal; left optic disc somewhat blurred.

The remaining cranial nerves were intact, apart from bilateral partial nerve deafness. There were no cerebellar, meningeal, or peripheral nerve signs.

Wassermann Reaction: Negative.

Mantoux Reaction: Negative at 1/1,000.

Treatment with topical cortisone, streptomycin, para-aminosalicylic acid, and later with calciferol, proved ineffective.

FIG. 2.—Folded conjunctival tissue showing mild subepithelial inflammatory reaction and irregular pieces of hyaline material scattered diffusely under basement epithelium. Large giant cells are engulfing this material. Haematoxylin and eosin. $\times 72$.

FIG. 3.—High-power view of giant cell engulfing hyaline material. P.A.S. stain shows this to be muco-protein in nature. Haematoxylin and eosin. $\times 120$.

FIG. 4.—High-power view of Fig. 2. Haematoxylin and eosin. $\times 270$.

FIG. 5.—High-power view of Fig. 2. Haematoxylin and eosin. $\times 270$.

The vision in the left eye remained unchanged and the optic disc became pallid. Moreover, incipient deterioration in the visual acuity of the right eye was now noted.

In September, 1952, the patient was transferred to Charing Cross Hospital (under Dr. Elliott) for systemic cortisone therapy aimed at restoring the failing vision in the right eye. During the course of cortisone (100 mg. intramuscularly daily) the vision in the right eye improved to 6/18, but that of the left was unaltered. After 7 weeks this treatment was suspended because of incipient uraemia. During this period the blood urea value rose from 31 to 129 mg. per cent. but it declined to 78 mg. per cent. a fortnight later. Cortisone administration was then resumed, but a month later increasing azotaemia again enforced its cessation. Fortunately the vision in the right eye was maintained and it later improved to 6/6 without further treatment.

Case 2, a housewife, aged 62, was admitted in November, 1947, after a fall. A rib-fracture was suspected but not demonstrable radiologically. She had, however, typical cutaneous sarcoidosis, which she stated had been present for fully 10 years. It had never led her to seek medical advice. She could recall no previous illness apart from failing vision in both eyes for the last 3 years, during which she had had nine operations on her right eye and one on her left eye.

Through the courtesy of Moorfields Eye Hospital the following ophthalmic observations since 1946 were made available :

In 1946 she had a dacryocystectomy followed by a cataract operation on the left eye. On discharge the visual acuity in the right eye was perception of light only, and in the left eye, 6/36. A previous iridectomy had been performed on the right eye, probably because of old iridocyclitis, and the left eye had a keyhole iridectomy, was aphakic with a clear gap, and had an iris coloboma (? cause) below. A reflux of pus from the right lacrimal sac had necessitated its excision in October, 1946.

When seen in 1947, the patient was pallid and frail. She had striking lupus pernio, consisting of a violaceous, lichenified, non-ulcerated plaque above the tip of the nose. Both arms showed many bluish, round and oval lesions of variable size up to one inch in diameter, with pale centres. These were considered to be Darier-Roussy sarcoids. There was no superficial lymphadenopathy. The respiratory system was normal apart from tenderness over the site of the recent injury. Other systems were normal except that the tip of the spleen was just palpable.

She remained in hospital for one month for investigation of the sarcoidosis.

The x-ray film of the chest showed signs of chronic bronchitis but not of sarcoidosis; that of the right hand revealed cystic changes in the phalanges suggestive of sarcoidosis in agreement with the histological appearances of a biopsied dermal lesion.

Mantoux Test: Negative at 1/10,000 but positive at 1/1,000.

Erythrocyte Sedimentation Rate: 45 mm./1 hr (Westergren).

Wassermann Reaction: Negative.

She was re-admitted to hospital in February, 1949, for calciferol treatment of the cutaneous lesions. She then complained of low back-ache which subsided in one month without special treatment.

The physical signs were unchanged except for hypertension (160/105). Radiological investigation showed no change in the lung fields, lumbar osteo-arthritis, and a normal intravenous pyelogram.

In April, 1949, calciferol treatment (50,000 units three times a day) was begun.

Just before this hypocalcaemia (serum calcium 7.5 mg. per cent.) and after 3 weeks' treatment hypercalcaemia (13.7 mg. per cent.) were noted, with anorexia, epigastric discomfort, and constipation. Treatment was suspended for one month, by which time the abdominal symptoms had abated and she was almost eucalcaemic (11.6 mg. per cent.). Therapy was re-started, but 2 weeks later hypercalcaemia (16.0 mg. per cent.) was again manifested by considerable abdominal pain, nausea, and vomiting, necessitating prompt cessation of this treatment.

A month later the serum calcium level had reverted to normal (10.5 mg. per cent.). The dermal lesions had shown a partial response to treatment.

In April, 1950, she was seen at the ophthalmic out-patient department on account of rapidly failing vision.

A keyhole iridectomy was seen at 12 o'clock in the right eye, and a long vertical gap from iridectomies at 6 and 12 o'clock with aphakia in the left.

Fundi: Right eye not seen because of calcareous cataract of the lens, accompanied by a band-shaped corneal opacity; left eye showed optic atrophy with patchy pigmentary changes.

Visual Acuity (with glasses): Right eye poor perception of light with faulty projection; left eye 6/36.

She was admitted to hospital for a third time with early congestive cardiac failure which cleared in one month on the Kempner rice diet.

In April 1954, she was admitted to the ophthalmic ward with secondary glaucoma of the right eye. Fig. 6 (overleaf) shows the central area of the face at this time.

Visual Acuity: Right eye no perception of light; left eye 6/36 (with glasses).

FIG. 6.—Case 2, central features of the face, showing nasal lupus pernio and lack-lustre appearance of right eye.

The ocular signs were unchanged from those described for April, 1950, except that the ocular tension in the right eye was now very high. Excision of this blind and painful eye was carried out. It showed histological evidence of inactive uveitis and of anterior synechiae but no signs of recent sarcoidosis.

Discussion

The observations on our two patients meet the requisite rigid diagnostic criteria for sarcoidosis. The literature contains few instances of so many unusual ocular signs as are shared by these two cases. Optic atrophy (Cases 1 and 2), chorioretinitis (Case 2), and secondary glaucoma (Case 2) are uncommon. In the largest series (Longcope and Freiman, 1952), comprising 53 cases of ocular sarcoidosis, glaucoma was recorded only twice and chorioretinitis and optic atrophy once each.

Binocular episcleral nodules (Case 1) and calcareous cataract (Case 2) deserve more detailed comment. The former occurred once in the large series cited, but the latter does not appear to have been recorded. As illustrated in Case 1, episcleral nodules have a predilection for the site overlying the insertion of the recti muscles, and episcleritis is an unusual accompaniment.

The explanation for the calcareous cataract in Case 2 is obscure. It might be an example of dystrophic calcification, but alternatively, it is recognized that metastatic calcification can be a complication of spontaneous or therapeutically-induced hypercalcaemia in sarcoidosis. However, since hypercalcaemia was demonstrable only during the phase of calciferol therapy, spontaneous hypercalcaemia is virtually excluded. Again, this calcific change was apparent only long after the two short courses of calciferol, when the patient was eucalcaemic. This calcareous lesion is

therefore best explained as being due to dystrophic calcification, which was undoubtedly predisposed to by advanced degenerative ocular changes, a view supported by the later histological study of the affected eye.

Concerning therapy, cortisone is indicated in ocular sarcoidosis when visual acuity is endangered. The beneficial effect of systemic cortisone appeared to be shown in Case 1. The rapid deterioration in the vision was arrested during cortisone therapy, after other conventional forms of treatment had had no effect. The hazards of both cortisone and calciferol therapy are well illustrated in our case reports.

Summary

The frequency and classical types of ocular sarcoidosis are briefly surveyed. Two patients are described with rare signs, including binocular episcleral nodules, optic atrophy, and unilateral calcareous cataract. These features are discussed.

The hazards of calciferol and cortisone therapy are discussed. The failing vision in the first patient's right eye improved during systemic cortisone medication, whereas the left eye remained blind.

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