CASE NOTES

ORBITAL CELLULITIS WITH EXUDATIVE RETINAL DETACHMENT*

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Exudative detachment of the retina in orbital cellulitis is not common and has not often been recorded in the literature (Duke-Elder, 1940, 1952).

The pathogenesis of exudative retinal detachment in orbital cellulitis is due to venous congestion and reactive oedema across the tough fibrous sclera. The detachment is usually not extensive and there is no hole. The vitreous is clear and the treatment is that of orbital cellulitis in general.

Case Report

A boy aged 12 years attended the hospital on September 1, 1956, complaining of pain in the left eye, headache, and bulging of the left eye of rapid onset 10 days before. There was no history of trauma, sinus infection, skin or general infectious disorder, or haemorrhagic diathesis.

The boy was under-nourished, and had a dry skin, and a dry and heavily-coated tongue. Temperature 100° F., pulse 86.

Examination.—Visual acuity in the right eye was 6/9, and in the left counting fingers at 3 m. The left palpebral fissure was narrow, and a horizontal swelling was seen immediately below the left eyebrow. A left proptosis of 10 mm. (right 12 mm.; left 22 mm.) was axial and irreducible, and no alteration could be made by change of posture or pressure on the neck veins (Figure).

The left ocular movements were markedly restricted, and a soft swelling was felt immediately above the left eye. No bruit was heard on auscultation. The conjunctiva was markedly chemosed in the upper part, and the cornea was anaesthetic. The pupil was normal in shape and showed normal reactions. Fundus examination showed dilated veins and exudative retinal detachment in the upper part. No hole could be seen. The confrontation test showed a loss of the lower visual field. A thick-bore needle was

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inserted through the swelling a little above the upper lid, and 1 ml. thick, yellow, creamy pus was withdrawn.

The total leucocyte count was 6,800 per c.mm. (polymorphs 57 per cent., leucocytes 39 per cent., eosinophils 4 per cent.). The erythrocyte sedimentation rate was 54 mm./hr (Westergren). The Kahn test was negative. X-rays of the chest, sinuses, orbit, and optic foramen showed no abnormality.

A provisional diagnosis of orbital cellulitis and abscess was made.

Treatment and Follow-up.—The boy was given antibiotic injections, penicillin ophthalmic ointment into the conjunctival sac, and hot fomentations. Next day, the abscess burst through the superior fornix, and a large amount of pus escaped. On the third day, the general condition was markedly improved, the visual acuity improved to 6/12, and the proptosis diminished, although the movements were still markedly restricted, and the detachment had begun to subside.

On the sixth day no detachment was seen, the visual fields were full, and the visual acuity improved to 6/9. There was still 5 mm. of proptosis, but some ocular movements had returned. The erythrocyte sedimentation rate was 27 mm./hr. (Westergren) on September 8.

The patient left the hospital on September 9, 1956. He was advised to report to the follow-up Tuberculosis Clinic for investigation, but did not do so. A month later there was still 2 mm. of proptosis, but there was no detachment of the retina, the ocular movements had markedly improved, and the visual acuity was 6/9. The patient did not complain of any visual disturbances. The eye was normal 6 weeks later.

Aetiology of Exudative Retinal Detachment

The following classification is suggested:

I. PRIMARY EXUDATIVE

(a) Inflammation

(i) Uveitis: Choroiditis, equatorial and anterior, particularly of tuberculous allergic origin, and exudative choroiditis.

(ii) Retinitis: Exudative retinitis of Coats (may be chorioretinitis).

(b) Vascular Anomalies

(i) Angiомatosis retinae (von Hippel's disease).

(ii) Retinal degeneration with multiple miliary aneurysms.

(iii) External haemorrhagic retinitis of Coats.

(iv) Trauma in newly-born infants leading to haemorrhage from the outer molecular layer into the subretinal space.

This type of haemorrhagic extravasation is almost indistinguishable from inflammatory exudation by routine fundus examination, except where vascular abnormalities give a clue to the causative lesion.

II. SECONDARY EXUDATIVE

(a) Local Causes

(i) Inflammation leading to reactive oedema across the tough fibrous layer of the sclera. Inflammation of the orbit (von Graefe, 1863; Berlin, 1866; Becker, 1922). Orbital cellulitis (Laas, 1901; Holm, 1932). Scleritis.

Tenonitis of inflammatory origin.

(ii) Neoplastic choroidal tumours, malignant melanoma, choroidal metastases (particularly from breast, lungs, and stomach), rarely angioma of choroid.
(b) **General Causes.**—These may lead to a generalized rise in venous pressure and may passively affect the choroidal circulation:

(i) Toxaemic retinopathy of pregnancy.
(ii) Albuminuric retinopathy.
(iii) Malignant hypertension.

It may be that, in addition to the rise in venous pressure, certain other toxins hitherto unidentified, such as histamines, may have an important role in the causation of retinal detachment. Cardiac lesions causing a rise in venous pressure are unlikely to be responsible for the detachment.

The diminution of vision in orbital abscess may be due to several causes:

(a) Mechanical pressure on the nerve fibres of the optic nerve, so that their conductivity is interfered with. If the pressure is relieved early (as it was in the case reported above), complete and almost immediate recovery of vision follows. Ophthalmoscopy is likely to show only dilated veins.

(b) Compression of the vascular tree supplying the optic nerve. In extreme cases the fundus picture may resemble that of obstruction of central retinal artery.

(c) Inflammation of the vascular tree leading to dramatic loss of vision and early atrophy (Eagleton, 1935).

(d) Inflammation of the nerve leading to retrobulbar or optic neuritis. If this lasts for some time, small necrotic areas may appear (Bartels, 1906). This may cause a positive Marcus Gunn pupillary phenomenon, and fundus examination may reveal optic neuritis or extreme swelling resembling papilloedema, or there may be little evidence at the nervehead. Recovery of vision will not be so rapid as in (a) above.

It may be said that the nerve fibres of the pupillary pathways are affected early in cases of inflammation (as in retrobulbar neuritis) but later in cases of compression. In the case reported above, all the pupillary reactions were normal.

The abscess, once formed, tends to follow the path of least resistance; in the case of an abscess within the periosteum, the fornices may be perforated, while in the case of a subperiosteal abscess, the skin is the favourite site. In this case, the abscess burst through the superior conjunctival fornix. The greatest difficulties are encountered in abscesses of the central compartment, where symptoms may resemble those of meningeal irritation.

**Summary**

A case of orbital cellulitis and abscess with exudative retinal detachment is described. There was a marked loss of vision, but this was rapidly restored on evacuation of the pus. It appears, therefore, that mechanical pressure on the nerve fibres was a cause of marked diminution of vision. The abscess in this case burst through the superior fornix. The retinal detachment subsided rapidly on the fifth day after admission.

**REFERENCES**


