

Diabetic oculo-motor nerve palsy giving rise to acute secondary glaucoma

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Diabetes mellitus is known to cause ocular complications, especially cataract, macular retinopathy, and gross intraocular vascular disease, but paralysis of the ocular motor nerve trunks is rarely due to diabetes mellitus (Whittington and Lawrence, 1963); or the underlying cause may be overlooked, as such patients are mostly over 45 years of age, appear to be in comparatively good health, and may have no other sign of diabetic disease.

The nerve most commonly affected is the sixth on one side, next the third on one side, and then either of these bilaterally; very rarely the third and sixth or the third and fourth may be affected. This paper reports the case of an apparently healthy woman who developed acute secondary glaucoma following third cerebral nerve palsy due to hitherto unsuspected diabetes, which gradually regressed when the diabetes was controlled.

Case report

A 78-year-old woman, who was otherwise healthy, was admitted to the Eye Ward of the Maelor General Hospital, Wrexham, on July 9, 1970, complaining of swelling of the right eyelids with severe pain and redness, accompanied by a feeling of nausea, for the past 24 hours.

EXAMINATION

Both lids of the right eye were swollen. There was marked ciliary injection and corneal oedema. The anterior chamber was shallow with a dilated fixed pupil. The left eye also showed a shallow anterior chamber. The ocular tension was 59.1 mm.Hg (Schiötz) in the right eye and 18.5 mm.Hg in the left. There were macular changes in the left fundus, but the right fundus could not be examined because of marked corneal oedema. Previous notes showed circinate retinopathy with visual acuity 6/60 with correction in the right eye. The visual acuity in the left eye was 6/9 with correction.

The patient's general health was excellent, except that she was hypertensive without complications; a neurological examination revealed no abnormality.

Blood pressure 240/120 (she was known to be hypertensive).

Urine + sugar (this was detected for the first time).

Radiology chest – no abnormality detected; skull – no space-occupying lesion;

There was no sign of cerebrovascular accident.

TREATMENT

With Diamox 250 mg. four times a day and 4 per cent. intensive pilocarpine therapy, the intraocular pressure was controlled and good miosis achieved.

On the third day, when the oedema of the lids subsided, it was noticed that the patient could not lift her right upper lid (Fig. 1). The upper lid was lifted (Fig. 2), and the ocular movements found to be restricted in all directions except abduction and looking down and in, indicating paralysis of the muscles supplied by the 3rd cranial nerve.

The diabetes was first controlled by Diabenesse, one tablet twice daily, and then by a sugar-free diet only. She was discharged on July 17, 1970, after the glaucoma was controlled, at which time gonioscopy revealed a moderately open anterior chamber angle. She was advised to continue with pilocarpine drops three times a day to the right eye.

PROGRESS

When she attended the out-patients clinic for the second time on September 11, 1970, she could raise her upper lid to some extent (Fig. 3) and the ocular movements had also improved by some degrees in all directions.

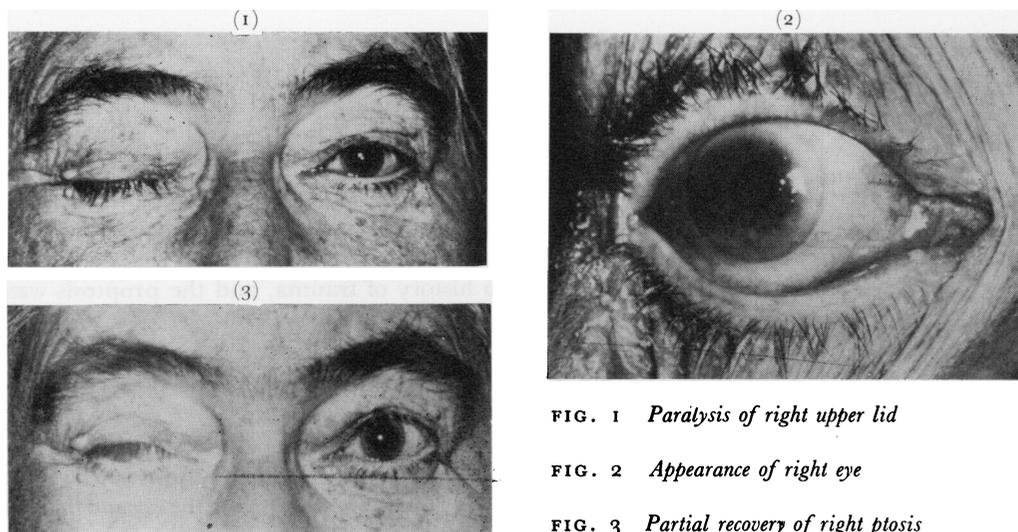


FIG. 1 *Paralysis of right upper lid*

FIG. 2 *Appearance of right eye*

FIG. 3 *Partial recovery of right ptosis*

TERMINATION

It was arranged for her to attend the clinic again on October 9, 1970, but she died on the same day in congestive cardiac failure.

Discussion

As there was no sign of cerebrovascular accident and the neurological examination did not show any abnormality, it was fairly clear that diabetes must have been the cause of the paralysis of the third cranial nerve.

The mechanism of the acute glaucoma seemed to be the blockage of the drainage of the aqueous humour through crowding of the iris in the angle of the anterior chamber as a result of paralysis of the sphincter pupillae.

Summary

A case is presented of mild diabetes which caused acute glaucoma by paralyzing the 3rd cerebral nerve in an anatomically predisposed eye, with gradual recovery after treatment of the diabetes.

My thanks are due to Mr. J. F. Bras who encouraged and advised me to write this paper.

Reference

- WHITTINGTON, T. H., and LAWRENCE, R. D. (1963) "Diabetes mellitus", in "Modern Ophthalmology", ed. A. Sorsby, vol. 2, pp. 317-333.