Diabetic papillopathy and proliferative retinopathy*

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Abstract. Diabetic papillopathy has been characterized as a syndrome in which predominantly young, insulin-dependent diabetics develop transient edema of the optic disc with minimal impairment of the function of the optic nerves. In this study, four patients with long-standing insulin-dependent diabetes mellitus and acute disc swelling in one or both eyes were evaluated. The most unusual finding in these cases was that three had proliferative retinopathy either at the time the disc edema was discovered or very shortly afterwards. The fourth patient also developed this condition subsequently. It is important to be aware of diabetic papillopathy and to recognize the condition early enough so that the patient may be spared unnecessarily extensive neurological evaluations and invasive procedures. Patients with diabetic papillopathy should be closely observed so that the presence or development of proliferative retinopathy may be established.

Introduction

Diabetic papillopathy has been characterized as a syndrome in which predominantly young, insulin-dependent diabetics develop transient edema of the optic discs with minimal impairment of the function of the optic nerves (Toussaint and Verougstraete 1981). Most patients with this syndrome are in the second or third decade of life and have minimal ocular symptoms. Although optic disc edema is present, visual acuity in most patients is relatively good. No afferent pupillary defects have so far been detected. Patients with this syndrome have normal blood pressure and intracranial pressure. The visual fields are normal or minimally affected. There is a spontaneous favorable resolution of the disc edema and the condition is non-recurrent. The presence of diabetic papillopathy is not supposed to signal the development of neovascular proliferation from the disc or elsewhere (Barr et al. 1980). It has been stressed that this condition should be recognized to avoid unnecessary neurological examinations and invasive procedures (Appen et al. 1980; Barr et al. 1980). One must be on the alert, however, for the rare diabetic patient who might develop a neurological problem that would cause papilledema. Indeed, it would be prudent, especially in patients with bilateral disc edema, to obtain a CT scan to rule out a neurological basis for their fundus findings. (A CT scan is a non-invasive and usually benign radiological procedure.)

Patients and methods

Four patients (2 males, 2 females; aged 18–59 years) with long-standing insulin-dependent diabetes mellitus and acute disc swelling in one or both eyes were studied. In three patients only one eye was involved, in the other both were involved. Initially, visual acuity was 20/50 or better in all but two of the eyes involved. Almost all of the eyes involved demonstrated either a normal visual field or an enlarged blind spot. All four patients were taken from a pool of 1023 diabetics seen over a 5-year period in a private practice. This represents an incidence of about 0.4%, which is in agreement with the incidence reported by Barr et al. (1980). Three of the patients presented had neovascularization initially or within a very short time after the initial examination. The other developed this condition subsequently. One patient was in the 7th month of pregnancy when initially seen. One patient was in the fourth and one in the sixth decade of life. Eyes that developed neovascularization were treated with scatter photocoagulation; only one eye did not respond favorably to treatment. The follow-up period ranged from 2 to 5 years (mean 3.4 years).

Case reports

Case 1

This 18-year-old white male had had insulin-dependent diabetes mellitus for 16 years and was initially examined in June 1979 after complaining of a shadow in the vision of the left eye. At that time, the best corrected visual acuity was 20/25 in the right eye and 20/40 in the left. The abnormal findings consisted of bilateral disc edema, with mild edema being seen in the upper part of the right disc, and more extensive edema in the left disc. In addition, disc neovascularization was probably present at this time. Intraretinal microvascular abnormalities, microaneurysms, hemorrhages, and hard exudates were seen in both fundi as well (Fig. 1).

On fluorescein angiography there was dilation of the disc capillaries bilaterally, which leaked fluorescein into the disc and peripapillary retina (Fig. 2). In the left eye some areas of capillary non-perfusion were seen in the macula. On the late phase photographs there was persistent staining of the
Fig. 1. Case 1. Left, right optic disc. Right, left optic disc in June 1979. Mild disc edema is present superiorly in the right eye, and more diffuse edema is present in the left. Background diabetic retinopathy is also noted in both eyes.

Fig. 2. Case 1. Fluorescein angiography, June 1979. Left, right optic disc. Right, left optic disc. Note radially oriented capillaries, which leak fluorescein into the disc and peripapillary retina. Areas of macular capillary non-perfusion are present in the left eye.

Fig. 3. Case 1. Fluorescein angiography, late phase, June 1979. Left, right optic disc. Right, left optic disc. The major retinal vessels are silhouetted against the fluorescent background of the optic nerve heads.