Hypophyseal Stalk Section in Rapidly Progressive Diabetic Retinopathy

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Will be published extensively in this journal

Discussion

Binkhorst wonders if the impressive improvement in the fundus picture and visual function in the patient demonstrated should not be regarded more as the result of removal of the venous obstruction and congestion of the optic disc than as improvement in the diabetic retinopathy.

Schlesinger replies that this possibility, considering the double indication of progressive exophthalmos and diabetic retinopathy, must certainly be considered. It was the opinion of the attendant ophthalmologist (Prof. ten Does-schate) that the fundus picture was more indicative of a rapidly progressive diabetic retinopathy than of venous congestion from another cause.

Goldmann draws attention to the histological similarities and differences between the vascular abnormalities in the kidney (Kimmelstiel-Wilson syndrome) and those observed on pathological examination of the ocular blood vessels. He enquires if the division of the pituitary stalk has had any influence on the kidney condition.

Schlesinger replies that the nodular glomerulo-sclerotic anomaly in the kidney, originally described by Kimmelstiel and Wilson, differs markedly from the pathological histology of the ocular blood vessels in diabetic retinopathy. Recently, however, in addition to the nodular Kimmelstiel-Wilson anomaly, attention has been drawn to a more diffuse anomaly of the glomerular capillaries, which is probably a forerunner of the Kimmelstiel-Wilson anomaly, and which resembles the condition of the ocular blood vessels much more closely. More precise knowledge of the resemblances and differences between the vascular condition in the eyes and the kidney may be expected to result from examination with the electron microscope. With reference to the influence of division of the pituitary stalk or hypophysectomy on the renal function, he refers to the observations of Luft and Olivecrona, who reported that, after the operation, the concentration of protein excreted in the urine did not alter appreciably, the inulin clearance (measure of glomerular filtration) diminished slightly, and the para-aminohippuric acid clearance (renal plasma flow) was unaltered. The filtration fraction (quotient

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of inulin clearance and para-aminohippuric acid clearance), in accordance with the above results, also diminished slightly. The recorded changes in the renal function are not significant. In the case of the patient operated upon by us, also no changes in the renal function were observed.

Houtsmuller: I should like to point out a similarity between the renal glomerular lesions and those found in the retinal capillaries. An essential feature of both conditions is the thickening of the basal membrane {Spargo, Survey of Ophthalmology: Diabetic Retinopathy 6: 600, 1961) and the proliferation of endothelial cells. The microaneurysmata seem to be less important details in the general vascular process. I do not believe that there is an essential difference. Furthermore, in the skin capillaries (Aegenaes, Diabetes 10: 253, 1961), and in other capillaries [Blumenthal, Diabetes 8: 261, 1959), the same essential changes are found, so that we need not be pessimistic about the further orientation from the pathologist's point of view.

Valk: The particularly interesting observations made by Dr. Schlesinger deserve a more extensive discussion than is possible now. The interpretation of the fundus picture demands, in my opinion, some elaboration: at first exophthalmos of the right eye and diabetic retinopathy with numerous haemorrhages, on the left side no exophthalmos and very slight diabetic retinopathy; later on the left side also exophthalmos and numerous haemorrhages. I should like to call to mind Tendeloo's rule: when the pressure increases in a circumscribed mass of tissue or an organ, the first result is that the veins are compressed, with resulting congestion, oedema, extravasation of erythrocytes and haemorrhages.

As a rule haemorrhages are not found in the eye in exophthalmos, although the increased intra-orbital pressure does cause congestion of the retinal veins in the long run. If the retinal vessel wall is altered, as in diabetic retinopathy, this combination of factors could explain the haemorrhages in this case, and could also explain the great initial difference between the left and the right eyes. The regression of the exophthalmos after section of the hypo-physeal stalk would relieve the congestion in the retinal veins, so that no new haemorrhages would be resorbed, and the diabetic retinopathy would continue in an uncomplicated manner, possibly influenced by the substitution therapy.

In connection with the American reports cited by you

in which attention is drawn to the immediate post-operative clarification of the vitreous one is tempted to think of a possible anti-hypophyseal action of the anabolic steroids. These in my experience

even without destruction of the hypophysis

may cause marked vitreous clarification in severe forms of diabetic retinopathy as I have pointed out in my paper.