3rd International Symposium on Fluorescein Angiography

The 3rd international symposium on fluorescein angiography was held in Ghent from March 28 to April 1, 1976, under the presidency of Prof. J. Francois and was attended by 400 ophthalmologists from 35 different countries.

The first session was devoted to instrumentation and techniques. In the previous symposium in Tokyo, preliminary reports were given on wide-angle cameras covering up to 100° of the fundus. These cameras are now commercially available and at this meeting clinical experiences were presented by Allen and Pomerantzeff. However, it seems that the gain of field which is of great value for a panoramic viewing of the fundus results in a loss of detail. The use of image intensifiers has improved the quality of TV fluoroangiography (Feman) and the computerized elaboration of data obtained by TV angiography will allow a more precise analysis of haemodynamic changes. Riva described a new method for direct measurements of retinal blood flow based on the Doppler effect. Delori obtained with modified filters a better visualization of the choroid, but even with these filters, fluorescein is certainly not the ideal dye to study the choroid. Indeed, not only is there absorption by the pigment epithelium but also a rapid diffusion out of the choriocapillaris. Indocyanin green, on the other hand, does not tend to leak out of the choroidal vessels. Flower has discovered the fluorescent properties of indocyanin green in the near infrared region and has developed a clinically acceptable method. The main indications are the study of choroidal vascular dynamics and perhaps the diagnosis and follow-up of choroidal tumors (Patz).

Three sessions were devoted to retinal diseases. In the first, special emphasis was put on retinal vein occlusions. The pathophysiology was explained by Kohner. Laatikainen and Asayama stressed the importance of fluorescein angiography in assessing prognosis and Archer presented his classification of branch vein occlusion. During the discussion Hayreh presented a classification of central vein occlusion. Enough knowledge has been obtained on the natural history of this group of diseases to allow good clinical trials for different methods of therapy. It might very well be that early light coagulation favourably influences the evolution of central vein occlusion (Oosterhuis and Theodossiades).

Several papers described aspects of diabetic retinopathy. According to Little, the severity of the retinopathy is related to the degree of red cell aggregation. Impaired carbohydrate metabolism with hyperglycaemia may stimulate the release of growth hormone which influences the synthesis of fibrinogen and a2-globulin. These large proteins bind red cells into aggregates, which impair the microcirculation, causing ischaemia. However, this is certainly not the only cause (Kohner). On the one hand, acromegalics do not get diabetic retinopathy and on the other hand, patients who underwent pituitary ablation for their diabetic retinopathy still have increased fibrinogen levels.
Toussaint was able to demonstrate that the first change in juvenile diabetic retinopathy was a modification in permeability of capillaries and that spontaneous regression of all types of retinal lesions was not excluded in infantile diabetic retinopathy. Takajashi examined 117 workers suffering from chronic carbon disulfide poisoning. In 78% of the cases, he found a retinopathy which was in no way to be differentiated from diabetic retinopathy. This indeed is a very important observation as perhaps it will allow us to develop an animal model for diabetic retinopathy.

Perhaps the most significant aspect of peripheral retinal disease is the finding of vascular changes in retinal detachment as well as in the degenerative periphery of the undetached fellow eye of juvenile retinal detachment. This seems to indicate that, at least in the younger age group, vaso-obliteration precedes hole formation. Perhaps there is some relationship with retrolental fibroplasia where Patz as well as Lem-ningsohn demonstrated local ischaemia. In the younger age group, the peripheral degeneration may very well be related to developmental anomalies of the peripheral vessels. Wessing considers those as the retinopathy of prematurity.

In the session on choroidal circulation, Spitznas demonstrated electronmicroscopy of pigment epithelium and choroid capillaris, Heimann discussed the embryonal development of choroidal vessels. Shimizu presented a correlation of fluorescein angiography of the choroid and in vitro cast techniques. Hayreh gave an extensive summary of his investigations on choroidal physiology and of his acute experimental occlusion of ciliary arteries, whereas Amalric drew the attention to the pathology of choroidal veins. The different authors agreed on the segmental nature of both arterial and venous choroidal vasculature. Experimental work has confirmed Amalric, who suggested that the occlusion of a ciliary artery could result in a specific localized fundus alteration – the triangular syndrome. The nature of the lesion is dependent on the localization of the diseased vessel. There is still controversy as to whether or not the macular area has a specific blood supply as suggested by Heimann and Amalric. This is strongly denied by Hayreh, who claims that the specific susceptibility of the macular region to several pathological processes is due to the fact that this specific area is the meeting point not only of the watershed zones of the various short posterior ciliary arteries but also of the watershed zones of the vortex veins.

Papers were presented on various other subjects clearly indicating that fluorescein angiography, clinically used for almost 15 years, has become an indispensable method of examination of the eye fundus.