

FLUORESCEIN STUDIES OF THE RETINAL CIRCULATION IN DIABETICS* †

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THIS paper describes the abnormalities in the small vessels and the capillary bed of the retina observed in 51 diabetic patients by a method of fluorescence retinal photography devised by Novotny and Alvis (1961) and modified by Dollery, Hodge and Engel (1962). The following results were obtained:

(1) Many more micro-aneurysms are shown up in the fluorescent photographs than can be seen with the ophthalmoscope. Some micro-aneurysms have a rapid circulation, in others there is stasis of blood, and a third category show leakage of fluorescein through their walls (Fig. 1).

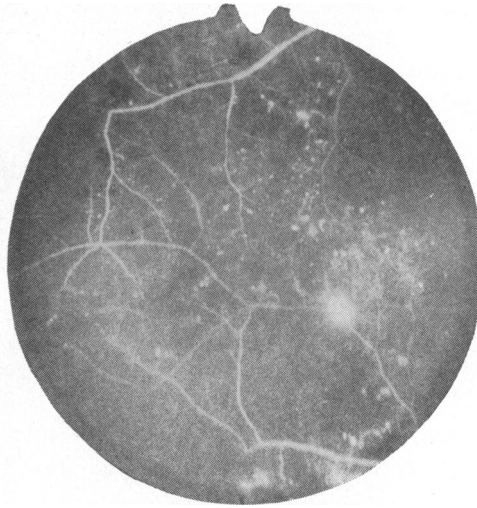


FIG. 1.—Circulation of fluorescein through micro-aneurysms. The fluorescein is just passing out of the right inferior macular artery leaving a glowing patch of retinitis astride the artery. The superior macular vein contains fluorescein. About 100 micro-aneurysms are shown. Some of those above the retinitis proliferans have enlarged from small discrete spots into diffuse patches of fluorescence, signifying leakage.

* This work is supported by the Medical Research Council.

† Paper presented at the joint meeting of the Irish Ophthalmological Society and British Diabetic Association held in Dublin in April, 1963.

‡ In receipt of a grant from the British Diabetic Association.

§ In receipt of a grant from the Medical Research Council.

|| In receipt of grants from the Nuffield Foundation and the Medical Research Council of New Zealand.

(2) Fine new vessels are revealed in detail. They have a haphazard arrangement and follow a tortuous course. When situated on the retina they are associated with micro-aneurysms. New vessels show stasis of blood and transudation of the fluorescein.

(3) Retinitis proliferans is highly vascular in all nine patients who had this type of lesion. There is considerable transudation from the vessels and this may account for vitreous haze (Fig. 2).

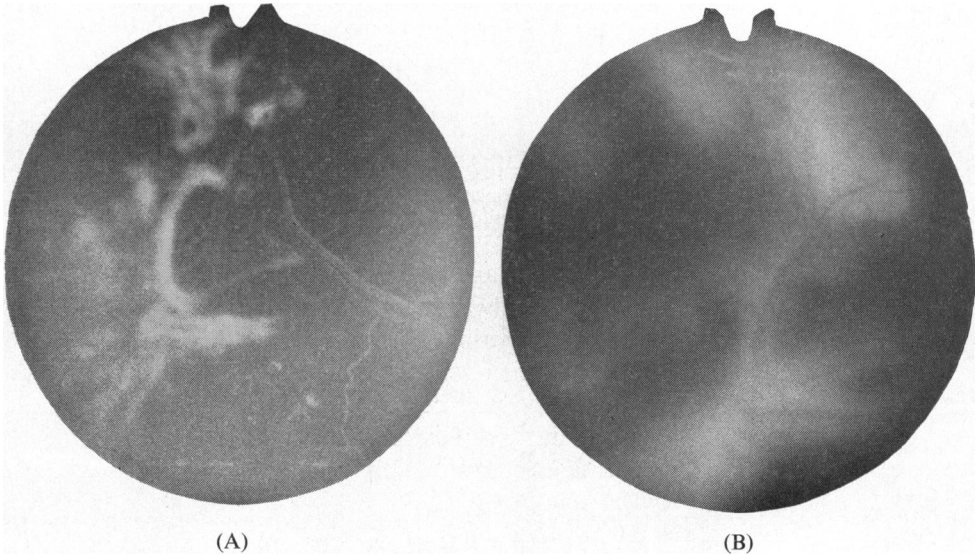


FIG. 2.—Leakage of fluorescein from retinitis proliferans.

(A) Venous stage of the transit of fluorescein in the left inferior quadrant. Prompt leakage is occurring from vessels in the area of retinitis proliferans over the disc and in the irregular star-shaped patch below the disc.

(B) Two minutes after the passage of fluorescein. There has been considerable leakage with fluorescence of the area of retinitis proliferans and the adjacent vitreous. Within the diffuse glow are the black lines of the vessels now empty of the dye.

(4) Most of the patches of hard exudate show no obvious abnormality during the passage of fluorescein through the overlying capillary bed.

An extended report of this work is to be published elsewhere.

REFERENCES

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