

Fluorescein Angiography

[FROM A SPECIAL CORRESPONDENT]

An international symposium on fluorescein angiography was held at Albi, France, from 9 to 14 June. It was organized by Dr. PIERRE AMALRIC (Albi), assisted by a committee of eminent ophthalmologists.

Fluorescein angiography was introduced by Novotny and Alvis in 1961 as a technique for studying the retinal circulation, and its importance as a tool for the investigation of diseases of the retina and choroid was quickly appreciated. Over 130 papers were presented at the symposium, and the opening session dealt with some of the technical problems involved in fluorescein photography. A major difficulty was the avoidance of pseudo-fluorescence, and it was agreed that barrier filters were less important than high-quality monochromatic film. In an attempt to avoid natural fluorescence Dr. K. MATSUI (Fukuoka, Japan) had employed colour photography, as had others, but the results had had no advantage over black-and-white films and there was some loss of resolution. Dr. EDWARD NORTON (Miami, U.S.A.) said that his hopes for the future included some technique of simultaneous stereophotography, higher magnification, and better resolution with improved monochromatic film, together with cinephotography at very rapid rates to answer some of the more fundamental problems—for example, in diabetic retinopathy—and the use of a dye that could be fixed in the tissues.

Experimental Findings

In a session devoted to experimental findings it was concluded that measurements of dye circulation had proved of limited diagnostic value, even with automatic timing and rapid serial photography. The normal arm-to-retina circulation time was 6–13 seconds based on the first appearance of dye in the retina. Nevertheless, neither Dr. W. A. NEWSOM (Iowa, U.S.A.) nor Dr. D. ARON-ROSA (Paris, France) had found any significant difference in circulation time in animals and patients with chronic unilateral carotid occlusion. The explanation was almost certainly the development of a collateral circulation, since immediately after acute occlusion in animals the arm-to-retina time was prolonged. Professor C. T. DOLLERY (London) felt that more information could be obtained by measuring the transit time of the dye between artery and vein in different quadrants of the retina, but careful attention to photographic technique was essential. Perfusion of the retina was normally uneven, so that it was difficult to define the normal retinal circulation time.

Laminar flow could be demonstrated in the arteries of some patients, according to Dr. K. SHIMIZU (Tokyo, Japan). The calibre of blood vessels appeared to be 25% larger after fluorescein photography than on ophthalmoscopy, and both Dr. W. LEMMINGSON (Tübingen, West Germany) and Dr. C. J. BULPITT (London) showed that this was due to fluorescence in the plasma layer. The vexed question of leakage of dye out of the circulation was still unsolved, owing largely, as Dr. H. BAURMANN (Bonn, West Germany) pointed out, to the difficulty of distinguishing between tissue staining and choroidal fluorescence. In animals he had

found that the intense staining of the optic disc which occurred when papilloedema was induced could not be demonstrated on histological examination after enucleation. It was possible that this had something to do with freeze-drying of the tissues, since Dr. P. Y. EVANS (Washington, U.S.A.) had found that frozen blood containing fluorescein did not fluoresce, whereas after thawing fluorescence returned.

Diagnosis by Angiography

The diagnostic patterns of choroidal melanomata were discussed by Dr. G. OFFRET (Paris, France), Dr. I. STANKOVIC (Belgrade, Yugoslavia), S. S. HAYREH (London), P. BONNIN (Paris, France), and Professor D. W. HILL (London). In general benign naevi did not fluoresce, while malignant melanomata showed a spotty fluorescence, which appeared in the arterial phase and faded very slowly. Fluorescence probably depended on the presence of both abnormal pigment and vascular epithelium, and the appearance could be difficult to differentiate from that seen in angiomata. Reliance should never be placed on angiography alone, and other diagnostic methods such as ultrasound and radioisotope studies should be used in the doubtful case. Lesions near the optic disc were particularly difficult to diagnose. If the area was small and flat and vision was good it was wise to follow it with serial angiography.

The differentiation of the various forms of oedema of the optic disc was another area in which fluorescein photography was valuable. Dr. P. WEINSTEIN (Budapest, Hungary) showed that papilloedema resulted in definite fluorescence while pseudopapilloedema did not fluoresce. Dr. T. MOTEGI (Tokyo, Japan) listed the angiographic features of early papilloedema as: prompt appearance of dye in the arterial phase; an increase in capillaries in the nerve head; and prolonged fluorescence of the disc. The site of leakage of dye was shown by Dr. C. RAITTA (Helsinki, Finland) to be the peripapillary capillary network.

The place of fluorescein angiography in diagnosis was well exemplified by a combined paper from Professor J. A. OOSTERHUIS (Amsterdam, Netherlands) and Mr. K. RUBINSTEIN (Birmingham) on haemangioma at the optic disc. In the early arterial stage a typical pattern of fluorescence appeared in the network of vessels which partly overlay the disc. This increased in intensity and persisted for a considerable time. Such tumours were often difficult to diagnose, and fluorescein angiography was an important aid; moreover, its use had suggested that such haemangioma were a good deal commoner than was generally thought.

Diabetic Retinopathy

Dr. H. W. LARSEN (Hellerup, Denmark), reviewing the natural history of diabetic retinopathy, said that this was never present at the onset of juvenile diabetes, but took at least 15 years to develop, by which time the incidence was 80%. Six to 8% of patients showed proliferative changes, but it was not possible to predict which eyes would

change from the simple to the "malignant," proliferative form. Professor NORMAN ASHTON (London) said that the first microaneurysms appeared on the venous side of the retinal circulation, but it was still not clear whether they were the basis of new vessel formation. Possibly the primary lesion was a widespread, selective degeneration of mural cells in the capillaries, the effect of which would be aneurysm formation as well as leakage of materials, especially lipids out of the capillary. The role of other factors in the progression of the disease—for example, capillary closure, shunts, retinal oedema, and changes in blood viscosity—was not clear, but it was tempting to explain all the features of diabetic retinopathy on the basis of arteriolar damage. Such early lesions, however, might not be detectable by fluorescein angiography.

Dr. G. DE VENECIA (Madison, U.S.A.) had correlated angiographic findings with the subsequent histological changes in a diabetic patient who had had his eye enucleated for a malignant melanoma. Some microaneurysms had fluoresced, especially those with thickened hypercellular walls; those that contained blood did not. Dr. G. S. HARRIS (Vancouver, Canada) had investigated cotton-wool spots in seven patients and confirmed that they did not stain, but were clearly outlined because of surrounding capillary dilatation. The spots, thought to be due to infarcts in the nerve layer, tended to disappear in 6–12 weeks, with a gradual change in the angiographic appearance. Dr. T. BEHRENDT (Philadelphia, U.S.A.) advocated regular examination of the fundus by fluorescein angiography in juvenile diabetes because it could demonstrate vascular changes which were not seen ophthalmoscopically. For instance, venous stasis was an early and significant finding, though later the arterial circulation was affected. A whole variety of vascular changes had been revealed by angiography which were not necessarily interrelated.

Laser Coagulation

The preliminary results of treatment by laser coagulation were discussed by Dr. M. C. BALODIMOS (Boston, U.S.A.). Of 72 patients 65 showed improvement in retinopathy and 57 improvement in neovascularization. Angiography was important to assess whether treatment produced haemodynamic alterations. Dr. A. WESSING (Essen, West Germany) said that neovascularization, venous changes, and oedema disappeared after photocoagulation, while hard exudates regressed. Spread into the vitreous could be prevented, but macular lesions were not affected. Angiography revealed new capillary networks which were less permeable to fluorescein and were often some way from the area coagulated. Professor G. MEYER-SCHWICKERATH (Essen, West Germany) reported that, of 189 patients who had been followed for up to eight years after photocoagulation, 63% with background retinopathy had improved while only 20% with proliferative changes had done so.

Dr. E. RAVERDINO (Milan, Italy) emphasized the importance of not coagulating veins; the small arterioles only should be treated. There was no point in using photocoagulation for advanced lesions when the

macula was involved, but vitreous haemorrhages could be treated if the vessels could be seen. Dr. P. C. WETZIG (Colorado, U.S.A.) emphasized the value of angiography in demonstrating areas of maximal fluorescence where photocoagulation could be applied. In discussion, several speakers

urged the need for a controlled trial of photocoagulation in which one eye only was treated, and Professor D. W. HILL said that a multicentre trial was about to start in Britain. Professor ASHTON wondered whether photocoagulation acted by altering the retinal circulation or by destroying areas of retina

which were producing toxic metabolites. Dr. ALMARIC pointed out that diabetic retinopathy was less severe in a myopic eye and in patients with unilateral carotid occlusion, so that therapy might be beneficial by reducing arterial inflow, a problem that angiography might help to solve.

Medical Press Congress

[FROM A SPECIAL CORRESPONDENT]

The International Union of the Medical Press met in Lucerne from 18 to 21 June for its ninth biennial congress, under the presidency of Professor J. PÉQUINOT (Paris). The Union is a federation of national associations of medical journals and where such groups do not exist of certain individual journals. It serves as an international forum for the discussion of anything that may concern the well-being or effectiveness of the medical press. The recent congress attracted some 60 participants, mostly medical editors, coming predominantly from Germany, Switzerland, and France, though there were also several from Eastern Europe and elsewhere. Trilingual (French, German, English) texts were available and the discussions were translated in summary.

Side-effects of Drugs

The two main themes at this year's congress concerned the coverage by medical journals of advances in therapeutics and the impact on medical journals of modern methods of information processing. On the first theme there was a discussion on publicizing the side-effects of drugs. Some representatives of the industry charged the medical journals with dwelling unfairly on these and failing to give proper place to the good side of the picture. Editors replied that it was essential for doctors to know quickly about side-effects, and that they had a duty to print the information. In some countries, the meeting was told, governments had set up agencies for recording and reporting side-effects, but the consensus was that this did not supersede what the journals could do to give early warning of possible dangers. There was also some anxiety by drug firms about adverse publicity getting into the lay press, but the point was made that the therapeutic situation was when the

patient consulted his doctor and individual fears could be dealt with then. The thalidomide disaster had made the German medical press particularly keen to speed up the flow from one country to another of information about drugs and their effects.

Maitre J. MIGNON (Paris), a lawyer, in a paper on ethical and legal aspects of pharmaceutical advertising in medical journals, gave an account not only of current French procedure but also of the proposed Common Market regulations on the subject. These would require in all advertising to prescribers or suppliers of drugs certain minimum information—namely, the names of the manufacturer and product; the active ingredients; the main therapeutic indications, contraindications, and side-effects; dosage and method of administration; and duration of stability and instructions for storage. At the close of the congress Dr. W. TRUMMERT, editor of the *Münchener Medizinische Wochenschrift*, showed some of his collection of slides tracing the development of the technical of drug advertising in medical journals. His samples ranged from the most bare-faced testimonial, through every kind of pictorial aid to attention such as the cartoon, surrealist art, and sexual symbols, to the detailed presentations of drug actions now required of the firms in the U.S.A.

Indexing and Information Recall

In a paper read in his absence on the second main theme of the congress Dr. CLIFFORD A. BACHRACH, chief of the Bibliographic Services Division of the National Library of Medicine, U.S.A., urged authors to help indexers by using titles for their papers that accurately reflected their contents. "Titles," he said, "that arouse the reader's curiosity, or amuse him, instead

of informing him, work a hardship on the user of an index, and have no place in the responsible medical journal." He also was only cautiously welcoming about the use of "key words" in medical journals. Author-suggested terms, he thought, were too inconsistent to be of much direct help to indexers, though they might draw attention to aspects of an article that might otherwise be overlooked or draw attention to gaps in the indexer's thesaurus of terms.

Dr. DIMITRIE NANU (Bucharest) and (in his absence) Professor S. M. BAGDASARIAN (Moscow) described how computer techniques could help the digestion and recall of the now over one million articles that appear in 6,000 medical journals every year. In the last decades, said Professor Bagdasarian, a large network of information institutes had been developed in the Soviet Union, and tens of thousands of technical and scientific workers were collaborating in them. Each institute was allotted a special branch of knowledge and the one concerned with medical science, the Union Institute of Research in Medical Information and Medical Technique, was part of the U.S.S.R. Ministry of Health. It published 90,000 bibliographical reviews a year as well as *Meditsinskii Referativnyi Zhurnal*, of which Professor Bagdasarian is editor.

Dr. P. RENTCHNICK (Geneva), editor of *Médecine et Hygiène*, gave an account of Swiss medical journals, and Dr. ROSINE ANDREEV (Sofia) discussed the problems of the medical press in Bulgaria. At the business session it was decided that the Union's next meeting (in 1971) should if possible be held in a developing country and deal with the problems of the medical press in such places. It was also decided to see if some useful link could be formed with the international meeting of medical editors which is now a regular feature of the World Medical Association's annual assemblies.

NEW APPLIANCES

Adjustable and Detachable Ring for Thomas's Splint

Mr. J. O. IKPEME, assistant orthopaedic surgeon, Harrogate General Hospital, writes: An adjustable and detachable ring* for the Thomas splint has been made in two parts (Fig. 1). Each consists of a shaped semi-circular frame of mild steel 5/16 in. (7.9 mm.) in diameter padded with moulded rubber and covered with soft leather or plastic.

The steel frame of the lower half-ring is welded to the side-stems of a Thomas splint. At the proximal end of each side-stem there is a tubular steel socket. The inner socket

* Patent pending.

has an anteriorly placed knurled nut, or wing nut. (This position avoids contact of the nut with the opposite thigh.) The outer steel socket has a similar nut placed laterally (Fig. 1, right).

The steel frame of the upper half-ring descends on either side of its ring as vertical rods with sloping shoulders (Fig. 1, left). These rods are notched along their lengths, the position of the notches coinciding with the position of the nuts. The rods fit into the tubular sockets and are fixed there at variable levels (depending on the notches

used), thus giving the ring firmness and full adjustability (Figs. 2 and 3). The splint sizes and internal circumferences are shown in the Table. The rounded shape of the ring would be lost if wider adjustments were made from any one size.

Advantages.—(1) It is easier to place the limb on the lower unit rather than to "thread" it through a complete ring. The upper half-ring is fixed in position at a level that is most comfortable. (2) If the limb swells, as often happens, it is a simple matter