Teaching retinal surgery

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Contributed by request and dedicated to Sir Stewart Duke-Elder

It was in 1953 that Sir Stewart asked me to undertake some work in the field of retinal detachments at the Institute of Ophthalmology.

The scene of retinal work at that time was one of small islands of individual professional excellence in an ocean of professional ignorance and much apathy about the subject. The giants at that time, Weve of Utrecht, Shapland of London, Pischel of San Francisco, Schepens of Boston, and Paufique of Lyons, dominated other surgeons in their capability to produce cures for their patients with retinal detachments. No one could approach their results and unfortunately little was being done to disseminate their methods.

It was interesting to note at that time the different methods of ophthalmoscopy used in the various countries, which certainly had a bearing on the relative successes of individual treatments.

On the continent of Europe, the standard method was monocular indirect ophthalmoscopy, using exceedingly bright sources of illumination. In the U.S.A. indirect ophthalmoscopy was again the method of choice, reflecting the countries of origin of the surgeons involved. In Boston, there was developing the stereoscopic improved method of binocular indirect ophthalmoscopy which was later to sweep the world as the standard method of examination in this type of work. In England, direct ophthalmoscopy was used almost exclusively and only succeeded because of the incredible experience and powers of observation of the one man making a singular success of this type of work.

From a diagnostic unit at the Institute the work spread to a retinal surgery unit at Moorfields Eye Hospital, City Road, with beds at a separate unit at Highgate, North London.

Examination

The teaching of fundus appearances is difficult unless it is possible for two people to observe the features at the same time. To this end there was available initially only one instrument, the Gullstrand ophthalmoscope, a table-mounted apparatus with a binocular eyepiece. This enabled two observers to look at individual fundus details uniocularly; it was clumsy in use and observation was confined to the posterior parts of the eye, not the periphery where the more interesting pathology of retinal detachments lay.

An English version of the binocular indirect ophthalmoscope was based on the original Girard Teulon instrument of 1861, the Zeiss Gullstrand instrument of about 1910, and the Schepens binocular indirect ophthalmoscope. It was discovered that, by using a partially-coated mirror, an observer could watch with ease the image viewed by the examiner. This enabled the student to know which particular fundus feature was being described, so as to

enable him to examine it subsequently in stereoscopic detail for himself. This small advance in ophthalmoscopy produced a new method whereby all those people who were looking after patients—doctors, students, and nurses—could become involved in the detailed progress of a patient's condition. It was useful not only as a means of detailed teaching but as a method of helping everyone around the patient to become involved with the gradual improvement of the eye, so that a sense of participation improved the knowledge and morale of everyone in the team.

The binocular indirect ophthalmoscope is the main and constant tool of all the medical staff, it is the constant companion, the essential piece of equipment, without which a member of the unit feels undressed and awkward. It is considered essential that all current methods of ophthalmoscopy are used in addition to the indirect method; direct ophthalmoscopy to verify central details at greater magnification, slit-lamp and three-mirror contact lens examination to provide a binocular view in even greater magnification for individual items which require identification and elucidation.

The fundus examination is recorded in coloured pencil on a standard white chart, details being gradually accumulated for drawing. The peripheral details are examined with scleral indentation, partly to push them into view and partly to look at them in dynamic perspective, as they move in relation to adjacent vitreous structures. The vitreous is then observed with the slit lamp, both as a stationary object and then when set in motion by ocular movements. Strands, sheets, and attachments of the vitreous are noted, the presence or absence of pigment granules, opercula, and other abnormal constituents.

The normal full examination of each eye is conducted for each patient and the results tabulated in the hospital records.

Organization of a retinal unit

PERSONNEL

The primary teaching purpose of the Retinal Unit is directed towards two individuals who occupy the posts of resident surgical officers. It is intended to expose them to "a way of life", so to speak, by a period of 4 months' total devotion to retinal surgical patients and their problems. They have no other duties or commitments.

A few other observers are often attached to the Unit, who may clearly regard the work going on, but who are not involved in patient care.

The senior structure of the Unit comprises a consultant surgeon in charge, with three assistants who are undertaking the surgical care of patients, in order to acquire mature experience to enable them to become retinal experts in their own right and to start up retinal units in other hospitals later on.

TEACHING

In order to understand the plan of surgery, it is essential to have a clear picture of the fundus oculi of each eye with all its abnormalities and the physical defects of the associated tissues. The initial effort is directed towards learning to use the binocular indirect ophthalmoscope and to record the observed features. Skill in this faculty develops gradually, with supervision and help from seniors who are doing ward rounds and examining patients preoperatively or observing progress after surgery.

The residents assist at the surgery of each patient, gradually assimilating the various techniques used for differing situations, handling the tissues, and later performing surgery with senior assistance.

Surgical note-taking is part of the method whereby the steps in surgery are memorized for record purposes, and for following the progress of the work done at the time of operation with its effects on tissue healing thereafter.

WARD ROUNDS

Ward rounds of patients in the unit are undertaken daily by the residents in the normal way. Ward rounds are also done twice a week by each of the four seniors, who are accompanied by the residents. All the patients are examined and a note or comment made at the time of each examination. In this way the surgeon in charge of a particular patient has the written views of his colleagues on the details and plan for surgery of each patient, both preoperatively and on their progress postoperatively.

This written documentation has many benefits. It ensures that at least six people examine each patient on separate occasions at the preoperative stage, so that opinions are expressed on all observable ocular features and a general plan of treatment evolves. The surgeon in charge of the patient can then make up his mind on the plan to adopt. The written document avoids multiple conversations and ideas being given to the patient, who may become confused by varying opinions or by misunderstood comment between doctors. It supplies to the surgeon in charge an up-to-date picture of the patient's progress, so that either he or the resident can talk to the patient and explain details of treatment.

In a closed community of patients having retinal surgery, the effect on morale of having one master is great, while at the same time the continued observation by several people is reassuring by the amount of attention which they receive.

From the viewpoint of the residents and other visiting doctors in training, it is most valuable to be able to study the opinions expressed in the notes, so that after a ward round the variations in opinion can be discussed.

WEEKLY DISCUSSION

At a set time once a week, all members of the team meet to read over, evaluate, and discuss each patient's record. This frank discourse permits everyone to take part in understanding the treatment employed, and permits proposals for alternative treatment to be discussed and a plan adopted. Each member learns from every case and gradually a method is decided for the better treatment of similar problems in the future. At the end of the discussion on patients, different treatments seen at other units may be described after visits by individuals on study leave. New instruments come under scrutiny for future evaluation or modification to the unit's needs.

OUTPATIENT CLINIC

A weekly outpatient clinic is held at which all members of the team are required to follow up the old cases and to examine the new ones. All new patients are examined by one of the residents before further examination by a senior for opinion and advice about treatment. Since all members are present any unusual problem submitted for opinion only can be seen by several surgeons so that the resulting advice offered to the referring surgeon will be a team document.

The outpatient clinic is often attended by former members of the unit who may have units of their own in other hospitals, and who take part in the clinic for additional experience and ability to discuss problems weekly. Their attendance is encouraged and forms an even wider breadth of opinion for the two residents in training to absorb.

YEARLY SYMPOSIUM

Each year a 2½ day symposium is held in November. This takes the form of a series of short talks, with discussion, some examination of current patients and problems, and adequate food and refreshment when individuals can discuss their difficulties.

The basic principle underlying the course is that all members of the team and additional teachers work, discuss, eat, and relax together in congenial surroundings for several days. It provides for a short time a kind of total immersion in retinal and allied topics, with sufficient people actively practising the work able to have time to discuss any topic of interest at length.

Summary

Through the foresight of Sir Stewart Duke-Elder a retinal unit was started in 1953 which has developed into a teaching unit for surgeons wishing to take up retinal surgery. As a result of this teaching the general level of understanding of retinal problems has improved in Great Britain and a number of new retinal units have been set up to do the special work.

Teaching in the unit is mainly directed towards two resident surgical officers who become immersed in the team work of an active retinal unit.

Additional teaching is undertaken for observers and a yearly symposium is held for the re-education of surgeons who want a short refresher course in the subject.