EDITORIALS

ARE WE GETTING BETTER AT TREATING RETINAL DETACHMENT? TECHNOLOGY, REFERRAL PATTERN OR PRIMARY CARE?

Within a generation there has been an explosion of sophisticated and expensive technology for the treatment of retinal detachment. The widespread use of the closed microsurgical technique of vitrectomy; indirect operating microscope systems; the availability of highly purified silicone oil and long-acting gases to act as internal tamponade; intra-operative use of heavy liquids and endolaser have greatly facilitated the repair of the detached retina. Yet despite these advances, in patients under the age of 65 years this condition remains a significant cause (fourth) of 'avoidable' blindness and partial sight in the UK.[1]

In recent years there has been a national trend to develop specialised centres where most of the retinal surgery is carried out by vitreoretinal surgeons. However, there are few published audits of the results of retinal re-attachment operations from these specialised centres in the UK. For the profession, there is a lack of a standard against which individuals can readily compare their own results. In this respect, the report from the Moorfields' group is welcome.[2] It not only provides information on the anatomical and visual outcomes but sheds light on the surgical techniques that were employed to achieve this result. The need for information on the results of retinal surgery is recognised by the Royal College of Ophthalmologists and a nationwide audit has been initiated.[4]

In Mersey Region, we have conducted three audits: in 1988, 1992 and 1995. The results for successful re-attachment of the retina with one single operation were 81% (119 patients), 83% (216 patients) and 88% (200 patients) respectively.[4] We attribute the apparent increase in success rate not necessarily to an increase in effectiveness of the treatment but possibly to the changing patterns of referral. In 1992 we enlisted the participation of all 24 consultants within Mersey Region (who together served a population of 2.5 million) in a pan-regional prospective audit. We found that the audit process itself had the effect of changing clinical practice. The onset of the audit period coincided with most general ophthalmologists abandoning retinal surgery, opting to refer virtually all the patients to a vitreoretinal unit. During the audit period, 216 operations were carried out. One vitreoretinal unit carried out 189 operations, one vitreoretinal surgeon based in another unit carried out 18 procedures and the remaining 7 cases were carried out by 7 surgeons each performing one operation.[3]

The Moorfields' group rightly emphasised the result of primary retinal re-attachment. Most of the technology and resources are consumed by the group of patients requiring two or more retinal operations.[5] The visual morbidity and ocular complications associated with re-operations are high. Our results in 1995 showed that 55% of patients whose retina was re-attached with primary surgery achieved a visual acuity of 6/18 or better whilst only 30% of patients requiring further surgery achieved 6/60 or better.[3] All patients injected with silicone oil will require cataract surgery, oil removal and usually a longer period of follow-up. The trend of developing vitreoretinal surgery as a tertiary referral service must be a positive one.

Even if the evidence points to an improvement in success rate, as a result of either changing referral pattern or an improvement in surgical technique, there is little room for complacency. In 1989, Scott pointed out in the Duke Elder Lecture that 86% of patients with retinal detachment presented with symptoms before the loss of sight.[6] The majority of patients presented with symptoms related to retinal detachment itself, so that early treatment might have prevented involvement of the macula.[5] It is therefore disappointing that 60% of patients in the Moorfields' audit presented with macula-off detachment.[2] The failure of early diagnosis might be related to the difficulty of detecting retinal detachment by the primary health care team. Many patients with visual disturbance present in the first instance to their general practitioners and optometrists in whom they place their trust. Yet for the condition of retinal detachment this trust might be inappropriate. The early signs cannot easily be detected by optometrists or general practitioners using the direct ophthalmoscope since retinal tears and detachments begin in the peripheral retina and can only be seen by indirect ophthalmoscopy.[7]

If the profound visual loss associated with retinal detachment is to be significantly reduced, then further technological advances or changes in the referral pattern are unlikely to be sufficient. The awareness of the general public needs to be raised, and if it is decided that optometrists as a paramedical group should be the key personnel in detecting this condition, then they must be equipped for and be proficient at indirect ophthalmoscopy and bio-microscopy. There are some signs that this is happening already.

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ANTIMETABOLITES FOR ALL?

The use of antimetabolites to prevent scarring and failure of glaucoma filtration surgery has been one of the major advances in ophthalmology over the last two decades. The use of convenient single intraoperative sponge applications of the antimetabolites mitomycin-C (MMC)[1] or 5-fluorouracil (5FU)[2] rather than inconvenient subconjunctival injections of 5FU[3] has further accelerated the conversion of many ophthalmic surgeons to the use of these agents. However, there are still problems even with the use of single applications of antimetabolites, and these include hypotony and associated complications including choroidal haemorrhage and maculopathy, bleb leaks and an increased risk of endophthalmitis.[4,5] Furthermore, these risks may continue or even increase in the long term (particularly with MMC) because of the relatively permanent effect of this agent on the local tissue cellular population. On the other hand, certain patients may fail surgery even with higher concentrations of MMC.[1] How can the practising ophthalmologist decide which agent(s) to use on individual patients to achieve maximal pressure lowering with the least complications?

In the previous issue, Bell and co-workers reported the retrospective results and complications of a single 5 minute intraoperative application of 5FU 25 mg/ml on a mixture of low- and high-risk patients with an average follow-up time of 24 months.[6] A small proportion of patients also received up to five subconjunctival injections of 5FU (13%). The technique they used was the Moorfields intraoperative 5FU regimen,[2] which was originally designed based on experimental studies that showed prolonged fibroblast growth arrest with single exposures to 5FU.[7,8] However, these laboratory studies did show long-term fibroblast recovery following treatment with 5FU (compared with MMC), which led us to suggest at the time that intraoperative 5FU may be more appropriate for lower- rather than higher-risk patients.[8]

So what is the message from this and other studies on the role of intraoperative 5FU in the various groups at risk of surgical failure after glaucoma surgery? First let us consider the so-called high-risk patient group. Although the study by Bell *et al.*[6] appeared to show some difference between the high- and low-risk groups this was not statistically significant. However, the study had a very small chance of detecting a statistically significant difference because of the relatively small number of patients.

Our experimental studies suggest that for high-risk patients intraoperative 5FU is less likely than MMC to prevent long-term failure in these patients, probably because of fibroblast recovery after temporary growth arrest. The only prospective randomised study comparing intraoperative 5FU (50 mg/ml) with intraoperative MMC (0.5 mg/ml) was performed on a West African glaucoma population with a high risk of failure without antimetabolites.[9] This study showed MMC to be superior to 5FU in achieving pressure control, without a significant increase in short-term complications. It is still difficult to completely define high risk, but most glaucoma specialists would include neovascular glaucoma, aphakia, previous failed filtration surgery (especially if antimetabolites had previously been used) and active persistent uveitis as high risk factors. We would now use intraoperative MMC combined