



MANAGEMENT OF ACUTE RETINAL DETACHMENT

Introduction

The management of acute retinal detachment in the United Kingdom has improved over the past two decades with patients experiencing better outcomes from surgical intervention for this potentially blinding ophthalmic emergency. A combination of sub-specialisation (retinal detachment surgery being performed by specialist vitreo-retinal surgeons) and improvements in technology have driven the progress, such that between 80-90% of primary retinal detachments can be repaired with a single intervention when managed optimally. In general, the sooner a rhegmatogenous retinal detachment is repaired the better. The early diagnosis of a retinal detachment is important because the rate of successful reattachment is higher and the visual results are better if a retinal detachment is repaired before the macula is involved. The rate of evolution of a retinal detachment is a key factor when scheduling emergency surgery, and where there is imminent danger that the fovea is about to detach surgery must be carried out urgently within 24 hours. Optimal timing for intervention must also take into consideration the need for sophisticated and complicated equipment with back up from a trained and experienced theatre team. Where there is a low risk of progression of the detachment to involve the fovea, the patients interests are often best served by taking steps to limit detachment progression (posturing and bed rest) and organising surgery for when the appropriate skill mix of the theatre team can be assembled, often on the next vitreo-retinal list.

The Development of Acute Retinal Detachment

The annual incidence of retinal detachment is approximately 10-15 per 100,000. Patients are more at risk of retinal detachment with myopia, following cataract surgery, and with ocular inflammation and trauma. Other risk factors include prior retinopathy of prematurity and Sticklers syndrome. Acute retinal detachment is usually preceded by a symptomatic separation of the posterior vitreous from the retina, a posterior vitreous detachment (PVD), giving rise to tractional retinal breaks (retinal tears). Symptoms of PVD include light flashes and floaters, and patients with such symptoms are at high risk of retinal detachment. Floaters may occur as a result of vitreous mobility with condensation of collagen, epipapillary glial tissue (weiss ring) or blood. Approximately 26% of patients with acute symptoms of PVD have a retinal tear at the time of initial examination. Approximately 50% of untreated symptomatic retinal breaks will progress to clinical retinal detachment and the patient will become aware of a visual field defect, or shadow once the detachment has progressed sufficiently posteriorly.

Patients who present acutely with flashes and floaters should be examined through dilated pupils and at the slit lamp for pigment cells within the vitreous and by 360 indentation indirect ophthalmoscopy to exclude the presence of tractional tears.



Treatment of Tractional (Horseshoe) Retinal Tears.

Detection and treatment by Laser Photocoagulation or Cryotherapy of tractional breaks can reduce significantly the chances of retinal detachment. All eye departments who accept emergency patients should have facilities to diagnose and manage these patients, and patients who present with symptomatic tractional retinal tears should be treated urgently.

Asymptomatic retinal breaks and atrophic round holes and localised sub retinal fluid

Asymptomatic retinal breaks and atrophic round holes, often in association with lattice degeneration, are often detected on routine examination of the peripheral retina and do not require treatment. They rarely give rise to retinal detachment, however where localised sub retinal fluid is detected in association with these lesions, treatment may be required. This type of localised retinal detachment is often asymptomatic, progresses very gradually (if at all), does not need to be treated as an emergency. Non urgent referral should be to a local retinal specialist or department to determine what management is best tailored to the patients needs.

The organisation of urgent retinal detachment services

Vitreo-retinal surgeons are employed in the United Kingdom in variable size groups of specialists distributed between Teaching and District General Hospitals. Surveys of the members of BEAVRS (British and Eire Association of Vitreo-Retinal Surgeons) in 2000 and 2008 demonstrated a considerable degree of flexibility of the working patterns of most Consultant Vitreo-Retinal Surgeons to accommodate patients who require urgent retinal detachment surgery. Arrangements for out of hours cover vary between departments and regions, with the larger metropolitan departments often having a greater critical mass of trained and staff in training to accommodate a significant proportion of the emergency work. Formal and contracted V-R on-call rotas are generally not the norm in the NHS, with many VR surgeons sharing general on-call commitments with colleagues in other ophthalmic sub-specialties. There are often not sufficient VR specialists in a locality to organise an acceptable rota to provide sub-specialty on-call. In some hospitals, local arrangements are in place for cross cover at weekends, and in others additional sessions are commissioned where needed. Flexible working of the current workforce and the ability to safely defer a proportion of acute retinal surgery, allows many cases to be scheduled urgently to the next available surgical session. Some departments will manage adequately the demand for urgent surgery over the week-end, by organising additional sessions on a regular basis on a Saturday morning and having a regular Monday morning session reserved for emergency vitreo-retinal surgery.



Progression of Retinal Detachment

It is important to determine if a patient with retinal detachment is likely to progress to detach the macula prior to the next scheduled operating session. The rate of progression of retinal detachments varies greatly with the type of retinal detachment and the size, type and number of retinal tears. Generally it is accepted that rate of progression of detachment can be reduced by dependent posturing and bed rest. Proximity of the retinal detachment to the fovea itself is the strongest risk factor and where the detachment is reaching within 1 disc diameter, particularly with a superior bullous detachment then urgent surgery is required. In a survey conducted with BEAVRS members, representing most of the V-R surgeons within the United Kingdom, failure to schedule surgery over a week-end admission and reattach the retina prior to spontaneous macula detachment, was considered by a majority of the respondents to fall below an acceptable standard of care. Where there is imminent danger of foveal detachment and expertise and facilities to operate urgently are unavailable locally, a transfer should be agreed to a suitably equipped and staffed unit with an available vitreo-retinal surgeon. The ability of the receiving unit to manage the case urgently must be confirmed before the patient is transferred

Out of Hours Retinal Detachment Surgery

The preservation of the macula anatomy is the most pressing indication for out of hours retinal detachment surgery. The operation should be undertaken by a vitreo-retinal surgeon with sufficient experience and training to safely manage the condition, in an ophthalmic theatre, with appropriate vitreo-retinal equipment and retinal viewing system, supported by an expert operating theatre team. In addition to the surgeon (who may or may not require a surgical assistant), the vitreo-retinal team should additionally consist of a trained and skilled ophthalmic scrub nurse familiar with the specific VR equipment used, supported by a nurse assistant with knowledge of the department and the location in theatre, of important items of equipment and surgical materials used during VR surgery that may be required during the course of the surgery urgently. The team should be sufficiently experienced to be able to react rapidly in an emergency. Retinal reattachment surgery has a very high rate of success but can be very readily compromised if the operating conditions, equipment and support are not optimal.

Anaesthesia

Many cases of primary retinal detachment can be managed with local anaesthetic particularly if Primary Vitrectomy (non buckle) is utilised. Preferably the patient should be supervised by an anaesthetist as the operating surgeon is unable to contribute to the monitoring of the patient's airway and cardio-vascular systems during surgery.

General anaesthetic cover may be required for some patients, and co-ordinating with emergency anaesthetic teams can be problematical particularly where the on-call anaesthetist is servicing a general hospital on-call rota. Planned additional sessions with anaesthetic cover can help to overcome this problem. Some hospital governance



Ophthalmic Services Guidance

arrangements allow for retinal patients to be operated on using sub-Tenon (non-perforating) local anaesthesia carried out by the operating surgeon, with patient monitoring being undertaken by an operating department assistant. Generally this is in association with a backup facility from an on-call anaesthetic team to be called on should they be required in an emergency.

Special Types of Retinal Detachment

The care and investigation of families with genetic conditions such as Sticklers syndrome, associated with a high incidence of retinal detachment, may be best undertaken in designated specialist units with a specific research and genetic interest, but the management of the acute retinal detachment (often associated with giant retinal tear) in these patients may often need to be in the presenting unit unless it is safe to refer, and the patient is able to travel. Considerable experience and expertise is required in the management of certain other types of retinal detachment, notably those associated with conditions such as proliferative vitreo- retinopathy (PVR). Better outcomes may be achieved in these poorer prognosis cases by concentrating activity in the hands of a VR surgeon or unit with a special interest in this type of retinal detachment, particularly as they are often recurrent and seldom acute.

Conclusion

The management of acute retinal detachment in the United Kingdom has become increasingly successful with subspecialist VR surgeons taking over the management from the general ophthalmologist. Arrangements for out of hours cover vary between regions in the UK, with the fewer numbers of VR surgeons causing some difficulties with on-call arrangements nationally, but local solutions have evolved to accommodate the needs of the patient with an acute detachment of the retina.

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June 2010