BRITISH JOURNAL OF HOSPITAL MEDICINE

REVIEW

Recognising and managing retinal detachments

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Abstract

Retinal detachments are a potentially sight-threatening ophthalmic emergency that may result in significant, irreversible vision loss. The risk of developing retinal detachment increases with advancing age, myopia and trauma. Pre-existing retinal degenerations can precipitate a pre-detachment symptomatic period of photopsia or floaters, allowing clinicians to intervene early and prevent detachments. Novel imaging techniques, such as spectral-domain optical coherence tomography, and well-established topographic modalities, such as B scan, can help to elucidate the type of detachment and any underlying causes, and help with surgical management. The overarching goal of treatment is to identify and seal all retinal holes, relieve vitreoretinal traction and prevent further recurrence. Prompt prophylactic retinopexy of retinal holes and tears is crucial in preventing retinal detachment, the main treatments of which are pars plana vitrectomy, tamponading agents and silicone scleral buckle.

Key words: Ophthalmic emergency; Retinal degeneration; Retinal detachment; Retinal pigment epithelium

Submitted: 2 March 2021; accepted following double-blind peer review: 24 May 2021

Introduction

Retinal detachment is a sight-threatening ophthalmic emergency in which the photosensitive tunic of the retina separates from its underlying epithelium. The reported annual incidence of retinal detachments is between 6.3 and 17.9 per 100 000 population and, without prompt diagnosis and treatment, may lead to blindness (Mitry et al, 2010; Liao and Zhu, 2019). The incidence of retinal detachment has bimodal distribution, affecting individuals in their 20s and 50s (Kunikata et al, 2019).

Retinal detachment requires emergency surgical repair, particularly when the macula has not detached (ie 'macula-on'). If left untreated, the macula may detach, potentially leading to irreversible sight loss. Early diagnosis, treatment and identification of the underlying cause can salvage the visual outcome. This article gives an overview of the subtypes of retinal detachment and the ways in which these can be differentiated, as well as outlining the diagnosis and management.

Anatomy and pathophysiology

The retina can be divided in two factions: the inner neurosensory retina and the outer retinal pigment epithelium (Figure 1). The pigment epithelial cells have numerous microvilli in their apices, which interact with the photoreceptors' outer segment. A rich network of glycosaminoglycans, known as the interphotoreceptor matrix, maintains apposition of the retinal pigment epithelium and neurosensory retina (Porrello and LaVail, 1986; Sparrow et al, 2010). Accumulation of fluid between the retinal pigment epithelium and neurosensory retina impairs retinal pigment epithelium function and photoreceptor nutrition, resulting in apoptosis, which impairs phototransduction (Liao and Zhu, 2019). Retinal detachments can be broadly categorised as rhegmatogenous, exudative and tractional.

Rhegmatogenous retinal detachment

Rhegmatogenous retinal detachment is the most common type of retinal detachment and results from a combination of vitreous degeneration, traction on the underlying retina and the presence of a retinal break (Ghazi and Green, 2002).

How to cite this article: Ibrar A, Panayiotis M, Mohamed E-A. Recognising and managing retinal detachments. Br J Hosp Med. 2021. https://doi.org/10.12968/hmed.2021.0145

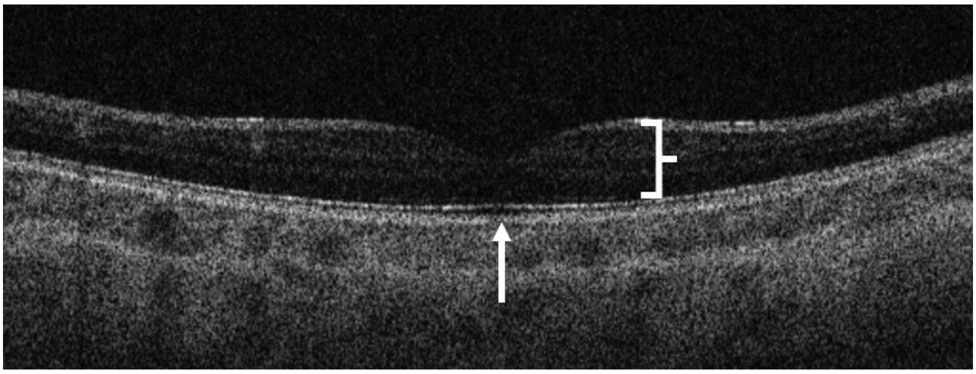

Figure 1. Optical coherence tomography macula of a healthy individual's left eye demonstrating the inner neurosensory retina (brace) and outer retinal pigment epithelium (arrow). Retinal detachment forms between these layers.

Exudative retinal detachments

Exudative (or serous) retinal detachments arise as a result of damage to the eye's outer blood retinal barrier, formed by tight junctions of the retinal pigment epithelium cells. The damage leads to the accumulation of fluid and separation of the retinal pigment epithelium from the outer retina. The fluid can arise from the retina, choroid or both. If the retinal pigment epithelium cells are functioning, the subretinal fluid can be pumped out, preventing its accumulation, but if their function is impaired through inflammation or ischaemia, fluid can accumulate subretinally, causing an exudative retinal detachment (Amer et al, 2017). Vogt–Koyanagi–Harada disease and posterior scleritis are typical inflammatory causes of an exudative retinal detachment. Vascular aetiologies such as Coat's disease, an idiopathic retinal telangiectasia seen in younger men, is frequently associated with subretinal exudation causing a detachment. Rarer pathologies such as choroidal malignancies may also disrupt choroidal vascular permeability, precipitating serous fluid accumulation and detachment.

Tractional retinal detachment

Tractional retinal detachment arises most commonly from proliferative retinopathy, which causes progressive cellular proliferation and contraction of fibrovascular membranes within the posterior hyaloid and retina. Proliferative retinopathy is secondary to advanced proliferative diabetic eye disease, retinopathy of prematurity or sickle cell retinopathy. Tractional retinal detachments can also occur secondary to traumatic events, as haemorrhage within the vitreous stimulates a fibroproliferative response and contraction of epiretinal membranes.

Risk factors

Age

With increasing age, the vitreous gel undergoes molecular changes, causing the vitreous to shrink and detach from the retina, a condition called posterior vitreous detachment. With an incidence of 30–60% in healthy populations, posterior vitreous detachments are extremely common, and may precede a retinal tear and therefore a retinal detachment (Gariano and Kim, 2004).

Myopia

Axial elongation of the globe in an anteroposterior diameter causes peripheral retinal thinning, making retinal tears and detachments more frequent. In pathological myopia (>6 dioptres (D), >26 mm axial length), there is a greater degree of mechanical stretching and progressive thinning of the retinal pigment epithelium and choroid. Myopia of up to 3 D increases the risk of retinal detachment by four times and myopia beyond 3 D has a 10-fold increased risk of retinal detachment (Feltgen and Walter, 2014). Spontaneous retinal detachment lifetime risk is 15–200 times in myopes than emmetropes (Moisseiev and Yiu, 2017). Other associations of degenerative myopia include retinal tears, lattice degeneration, lacquer cracks and chorioretinal atrophy.

Trauma

Trauma can precipitate retinal detachment through sudden compression and decompression of the globe causing a retinal tear or hole. Blunt trauma most commonly results in rhegmatogenous retinal detachments, with an incidence of 0.6–2 per 100 000 individuals per year (Mitry et al, 2010).

Peripheral retinal degenerations

Peripheral retinal degenerations, notably lattice degeneration, are present in 6–8% of individuals (Flaxel et al, 2020), and are well-documented risks for retinal detachment (Straatsma et al, 1974). The overlying vitreous liquefies creating a lacuna, while the vitreous at the border of the lesion creates tractional forces (Straatsma et al, 1974).

Cataract surgery

Retinal detachment following cataract surgery has a reported incidence of 1.2% with a mean time to retinal detachment of approximately 2 years (Kassem et al, 2018). The underlying pathogenesis is theorised to be a result of the acceleration of vitreous liquefaction following cataract surgery, leading to a posterior vitreous detachment (Jaffe and Light, 1966).

Genetic factors

Patients with hereditary vitreoretinopathies, such as Stickler's syndrome, are more susceptible to developing retinal detachments. Rhegmatogenous retinal detachment develops in 60% of patients with Stickler's syndrome (Coussa et al, 2019), whereas tractional retinal detachments are more frequently seen in those with sickle cell disease and familial exudative vitreoretinopathy.

Clinical presentation

Rhegmatogenous retinal detachments can present with persistent photopsia ('flashes') from traction on the retina, myodesopsia ('floaters') from collagen fibrils condensing within the vitreous and a shadow or 'curtain-like' defect in the field of vision that is typically immotile on eye movements. If extending to the macula, patients report a sudden onset painless loss of vision.

Exudative retinal detachments present more insidiously with mild discomfort, irritation, photophobia mimicking uveitis, which is likely secondary. Retinal detachments may be asymptomatic in the initial stages in children or present with leukocoria and strabismus.

Tractional retinal detachments are often asymptomatic, but patients may present with metamorphopsia or a painless reduction in visual acuity if there is macular involvement. There may also be evidence of any underpinning disease processes such as diabetic retinopathy or sickle cell retinopathy.

Examination

Underpinning retinal detachments, specifically rhegmatogenous, are vitreous changes or synaeresis (Table 1). Posterior vitreous detachments may be incomplete or complete when the vitreous becomes detached from the optic nerve head. The latter is visible on slit lamp examination as a Weiss ring; a ring of glial tissue overlying the optic nerve. An important clinical sign on slit lamp examination is pigment cells in the anterior vitreous cavity (Shafer's sign), which suggests retinal detachment or a retinal tear rather than a posterior vitreous detachment.

Examination can reveal the presence of retinal holes or tears in the periphery. Tears are most common in the superotemporal quadrant (60–69% are located here), with around 15% found superonasally, 15% inferotemporally and 10% inferonasally (Shunmugam et al, 2014; Kanski and Bowling, 2016). Hence it is crucial to perform a careful, well-dilated fundus examination with scleral indentation to allow identification. A retinal hole is a full-thickness retinal defect caused by atrophy in the absence of vitreoretinal traction. Types of retinal tear include u-shaped tears, horseshoe tears (where a flap of the retina is torn leaving two anterior extensions orientated toward the posterior vitreous base, and with the apex of

Table 1. Types of retinal detachments, their presentation and clinical differentiators

		Types of retinal detachment			
		Rhegmatogenous	**Exudative**	**Tractional**	**Chronic**
Visual acuity	Macula on	About the same ↔	About the same ↔	About the same ↔	About the same ↔ or reduced ↓
	Macula off	Reduced ↓	Reduced ↓	Reduced ↓	
Anterior vitreous		Shafer's positive, +/- red blood cells	Shafer's negative, +/- inflammatory cells	Shafer's positive or negative	Shafer's negative
Retina		Convex, corrugated surface. Retinal tears or degenerations may be visible. Folds or bullae that vacillate on eye movements	Convex, smooth surface. Features of underlying aetiology may be visible, eg tumour	Concave borders with taut, immobile retina. Pre-retinal fibrosis or gliosis	Thin, atrophic retina with a demarcation line. Retina commonly immobile on eye movements
Subretinal fluid		Clear. Remains static	Turbid. Shifts according to gravitational forces	Clear. Minimal amounts on non-shifting fluid	Subretinal fibrosis secondary to proliferative vitreoretinopathy

the tear remaining intact pointing posteriorly) and operculated tears (where a flap of the retina is completely detached by vitreous traction). Giant retinal tears are circumferential, full-thickness tears of more than 90° or 3 clock hours associated with posterior vitreous detachment. In giant retinal tears, liquefaction of the central vitreous with concomitant dynamic traction results in a neurosensory retinal tear at the posterior vitreous base.

A retinal dialysis is a circumferential, full-thickness retinal disinsertion from the ora serrata that occurs spontaneously or through trauma. In contrast to giant retinal tears, dialyses are not typically coupled with posterior vitreous detachments; the vitreous remains adherent to the posterior margin of the retinal tear, reducing the mobility of the retina.

Rhegmatogenous retinal detachments have a protruding, dome-shaped, corrugated elevation of the retina, which is often mobile and associated with subretinal fluid accumulation. The gravitation forces and anatomical factors impact the location of subretinal fluid and govern how subretinal fluid behaves. Consequently, clinicians are able to predict the location of primary breaks as well as the shape and position of the detachment based upon the well-established 'Lincoff rules' (Lincoff and Gieser, 1971):

- Rule 1 (superior temporal or nasal detachments): in 98% of cases, the primary break lies within the 1.5 clock hours of the highest border
- Rule 2 (total or superior detachments that cross the 12 o'clock meridian): in 93% of cases, the primary break is at 12 o'clock or within 1.5 clock hours
- Rule 3 (inferior retinal detachments): in 95% of cases, the higher side of the detachment indicates the side of the break
- Rule 4 (inferior symmetrical bullous retinal detachments): detachment arises from a small hole close to 12 o'clock.

Further rules have been described but have yet to be validated (Abbott, 1999; Sultan et al, 2020).

Exudative retinal detachments may have features of an underlying pathology, such as posterior inflammation or coexisting ocular malignancy. Serous retinal detachments often present with a smooth, convex, dome-shaped detachment.

Examination features of tractional retinal detachments include multilayered haemorrhage within the vitreous, subhyaloid, subretinal or preretinal layers. The retina itself may have a concave or puckered appearance as a result of contraction of the fibrovascular membrane distorting its appearance and overlying vasculature. Traction involving the macula can cause macular 'drag' or ectopia.

Features of chronic retinal detachment differ and can include retinal thinning, subretinal demarcation lines ('high tide marks') visible after 3 months and intraretinal cysts that are visible after 1 year. Inflammation can spill over into the anterior cavity and intraocular pressure can vacillate in chronic retinal detachments. Intraocular pressure may be low in a retinal detachment as a result of loss of intraocular fluid into the subretinal space.

Alternatively, intraocular pressure may be high when photoreceptor outer segments that have traversed into the anterior chamber obstruct trabecular outflow, a condition known as Schwartz syndrome.

Investigations

Gray-scale ocular ultrasound, or B-scan, uses a high-frequency transducer (7.5–15 megahertz) transpalpebrally or transsclerally. B-scan can identify retinal detachments or tears quickly and effectively as it produces echoes when reflected by structures of varying densities (Figure 2). B-scan is particularly useful for examining the vitreous chamber and subretinal space for exudation, malignancy or haemorrhage as potential secondary causes of retinal detachments (Table 2). B-scan also overcomes limitations of a fundoscopic assessment such as a mature cataract or vitreous haemorrhage.

Optical coherence tomography assists in identifying retinal detachments, vitreoretinal pathology, macular involvement and subretinal fluid location (Table 2). Optical coherence tomography imaging also provides a three-dimensional cross-sectional view of the retina to assess microstructural changes that impact postoperative anatomical and visual outcomes (Sridhar and Flynn, 2014).

Ultra-wide field retinal imaging systems make the peripheral retina more easily visible with a higher resolution and provide an accurate and reproducible assessment. Their use in retinal detachment is multifactorial: the extent of a detachment can be delineated, the presence of proliferative retinopathy can be identified and retinal tears or breaks in the far periphery can be detected earlier. They are also useful for imaging poorly visualised retina resulting from media opacification, such as in gas- or oil-filled eyes. Ultra-wide field imaging is particularly beneficial for non-specialists or referrers who are less experienced in examining or indenting the retina.

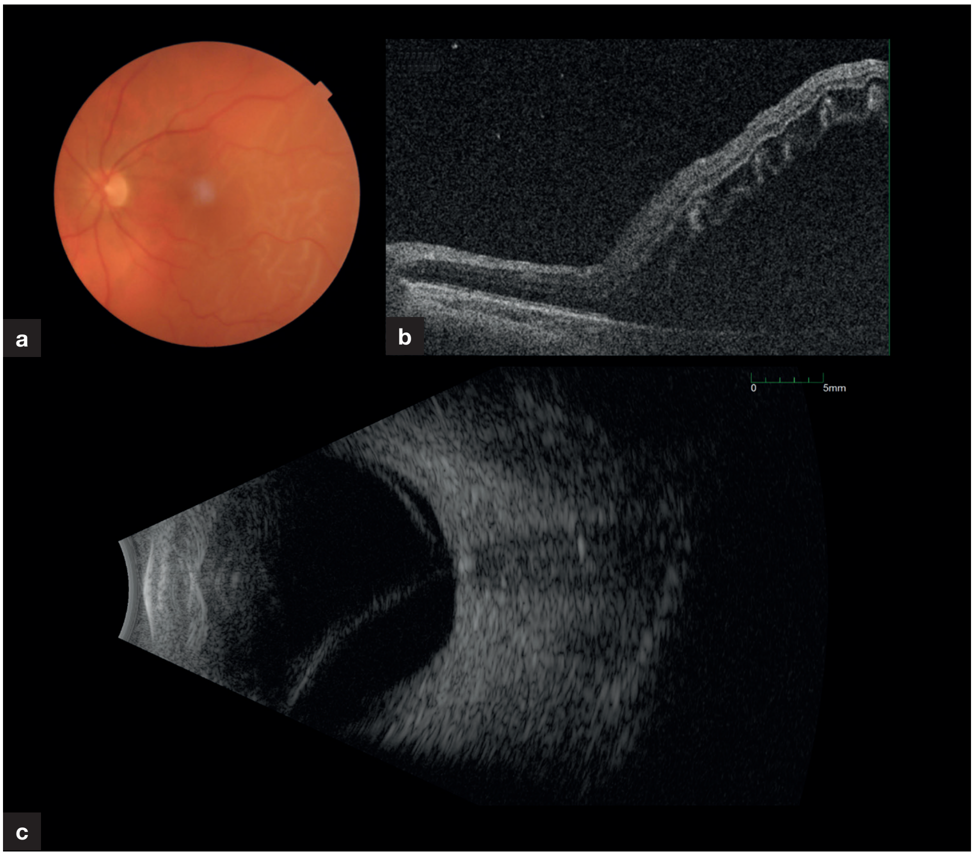

Figure 2. a. Colour fundus photograph and (b) optical coherence tomography macula of a left eye showing a rhegmatogenous retinal detachment with macula involvement. c. B-scan of a right eye showing a rhegmatogenous retinal detachment.

Table 2. Topographical and spectral domain optical coherence tomography characteristics of different types of retinal detachments

	Types of retinal detachment			
	Rhegmatogenous	**Exudative**	**Tractional**	**Chronic**
B-scan	Smooth or folded, highly reflective convex echogenicity. Can be open or closed funnel shaped detachment. Slow undulating after-movements with ocular motility. Presence of retinal tears	Underlying pathology may be visible, eg tumour, metastasis, posterior scleritis showing the characteristic T-sign	Tenting of retinal membranes into vitreous. Absence of after-movements as a result of proliferative vitreoretinopathy	Thick, non-motile, hyperechoic retina with an absence of after movements. Predisposing retinal tears or anechoic retinal cysts may be seen
Optical coherence tomography	Cystoid cavities in the inner nuclear layer and outer nuclear layer. Undulations of photoreceptor layer	Location and extent of subretinal fluid. Presence of underlying mass, serous detachments or other predisposing aetiologies	Evidence of underlying disease process, eg diabetic macular oedema. Presence of macular ectopia	Retinal thinning or atrophy, presence of intraretinal cysts, outer retinal tubulations

Differential diagnosis

A detailed history and careful fundoscopic assessment, together with relevant imaging modalities, enables an appreciation of subtle differences between retinal detachment and similar presentations (Table 3).

Treatment

Retinal detachment prevention is vital in preserving patients' long-term visual potential. To this end, predisposing retinal tears should be pre-emptively treated with laser retinopexy, photocoagulation or trans-conjunctival cryotherapy. The retinopexy prevents the spread of the tear to a retinal detachment by creating a chorioretinal scar around it. The choice of treatment modality depends on user preference and experience, but cryotherapy may be favoured in very peripheral retinal breaks that are beyond the reach of laser treatment.

Table 3. Differential diagnoses of retinal detachment comparing their respective clinical features and findings of various ophthalmic imaging modalities

	Rhegmatogenous retinal detachment	**Degenerative retinoschisis**	**Posterior vitreous detachment**	**Choroidal detachment**
Clinical features	Shafer's positive. Convex, opaque, corrugated appearance with no laser uptake	Clear vitreous with smooth, thin, dome-shaped, uniform convexity. Usually bilateral. Good blanching response to laser	Shafer's negative. May be haemorrhagic. Weiss ring may be visible if detached from optic disc	Smooth convex dome shaped elevations, usually darker brown in colour; seen in acute hypotony
A-scan	Steep single peak with high reflectivity	Splitting of retinal layers at the outer plexiform/ inner nuclear layer	Low internal acoustic reflectivity with variable spike height	Steeply rising, thick twin peak
B-scan	As above	Smooth, convex dome shaped elevation with minimal movement	Partial or complete detachment of posterior hyaloid face, motile on eye movements	Smooth, dome-shaped, highly-reflective detachment. If multiple, can result in 'kissing choroidals'
Optical coherence tomography	Separation of neurosensory retina from retinal pigment epithelium with an accumulation of subretinal fluid	Split at the level of outer plexiform and inner nuclear layers of the retina. Smaller inner leaf holes	Partial or complete detachment of posterior hyaloid face. May cause traction on the inner retinal surface	Nil

A subclinical retinal detachment, defined as subretinal fluid extending at least one optic disc diameter away from the nearest retinal break but not more than two disc diameters posterior to the equator, may be treated as above. If a clinical retinal detachment (more extensive than that of a subclinical retinal detachment) is present, surgery is often required.

Surgical modality will vary depending on the patient, clinical factors as well as surgeon preference. Clinical factors include type, size, distribution of retinal break(s) and detachment, macular involvement, lens status and state of the vitreous gel. The goal of surgery is to seal or prevent further extension of retinal tear(s) and successful apposition between retinal pigment epithelium and neurosensory retina. Surgical techniques are discussed in further detail below.

Scleral buckling

Surgical treatment of rhegmatogenous retinal detachments without prior posterior vitreous detachment involves scleral buckling wherein a silicone explant or 'buckle' is sutured onto the sclera to create an indentation. The indentation pushes the retina towards the posterior vitreous cortex to reduce vitreoretinal traction. Complications of scleral buckling can be intraoperative (choroidal haemorrhage, scleral perforation) or postoperative (buckle extrusion, infection, elevated intraocular pressure, choroidal haemorrhage, anterior segment ischaemia and cystoid macular oedema). Primary anatomical success, defined as retinal reattachment without further vitreoretinal surgery, has been reported between 64% and 83% (Brazitikos et al, 2005; Heimann et al, 2007).

Pneumatic retinopexy

Pneumatic retinopexy uses laser photocoagulation or cryotherapy with long-acting expansible gases. Sulfahexafluoride or perfluoropropane gases are injected into the vitreous cavity via a sclerostomy through the pars plana to appose retinal tears maintained by appropriate posturing. This procedure is therefore only available to patients who are able to posture for extended periods and for tears above the horizontal meridian. Rhegmatogenous retinal detachments often require posturing pre- and postoperatively to prevent accumulation of subretinal fluid towards the macula. Pneumatic retinopexy can be performed in outpatients as a cost-effective, non-incisional procedure requiring less technical equipment and skill than surgical interventions. However, the efficacy of pneumatic retinopexy is debatable. Success rates vary between 60% and 80% (Narula, 2018), and complications include failure, re-detachment and proliferative vitreoretinopathy.

Pars plana vitrectomy

Robert Machemer developed one of the earliest forms of pars plana vitrectomy using a 16 gauge (16G) vitreous infusion suction cutter (Machemer et al, 1971). With advances in microsurgical instruments, pars plana vitrectomy uses increasingly smaller needles (27G or 30G), reducing operating times, recovery times and minimising postoperative inflammation and patient discomfort (Lakhanpal et al, 2005; Yanyali et al, 2006; Misra et al, 2009).

Modern-day pars plana vitrectomy uses three sclerotomy ports for an infusion cannula to maintain intraocular pressure, a light source and a vitreous cutter. After creating these ports, the vitreous is cut and aspirated with a high-speed vitrector and balanced salt solution is infused to compensate for the lost volume of vitreous humour. Following vitrectomy, the intraocular cavity is filled with air and the subretinal fluid is simultaneously aspirated. Finally, laser photocoagulation is performed around the edge of the retinal tear, and tamponading agents such as expansile gases or silicone oil are inserted to maintain retinal apposition.

Pars plana vitrectomy approach may be favoured for giant retinal tears, retinal detachment with vitreous opacification limiting fundal view, significant traction or proliferative retinopathy, thin sclera (making scleral buckling ineffectual) or very peripheral breaks that may not be reached by scleral buckling or pneumatic retinopexy. Well-documented complications include iatrogenic retinal tears, cataract development, lens touch and raised intraocular pressure. Pars plana vitrectomy is largely successful; Heimann et al (2007) reported a primary anatomical success rate of 72% and a final anatomical success rate of 97%. Visual outcomes vary depending on the pre-detachment macular status, as well as the impact of any complications.

Evidence base

Scleral buckling vs pneumatic retinopexy

Single operation success (≥6 months of reattachment or anatomical success) for patients undergoing scleral buckling varies between 81 and 96%, whereas the success of pneumatic retinopexy ranges from 52–73% (Chronopoulos et al, 2021). Visual outcomes of these two procedures are comparable, with one study reporting visual acuity of 20/50 or better 6 months postoperatively in 56% of eyes treated with scleral buckling compared with 80% of eyes treated with pneumatic retinopexy (Tornambe et al, 1989). Han et al (1998) retrospectively compared the success of scleral buckling vs pneumatic retinopexy in 100 patients and observed a significant difference of a primary anatomical success rate of 84% in eyes treated with scleral buckling compared with 62% of eyes treated with pneumatic retinopexy. Aside from non-phakic eyes, there was no significant difference in visual outcomes between the two groups. The authors also reported a significantly higher rate of postoperative retinal detachment in those treated with pneumatic retinopexy than scleral buckling (38% vs 16%), and hence greater reoperation rates in the pneumatic retinopexy group than scleral buckling group (38% vs 14%) (Han et al, 1998).

Scleral buckling vs pars plana vitrectomy

A large multicentre randomised controlled trial by Heimann et al (2007) found improved visual outcomes following rhegmatogenous retinal detachment in phakic patients treated with scleral buckling compared to those treated with pars plana vitrectomy. However, primary anatomical success rates of pseudophakic eyes were greater in those treated with pars plana vitrectomy (72%) compared to those treated with scleral buckling (53.4%) (Heimann et al, 2007). A Cochrane systematic review of 10 randomised controlled trials comparing scleral buckling and pars plana vitrectomy showed no significant difference in postoperative visual acuity or anatomical success (Znaor et al, 2019). However, retinal re-detachment rates were lower in patients who had undergone pars plana vitrectomy than in those who had been treated with scleral buckling (relative risk 0.75) (Znaor et al, 2019).

Pars plana vitrectomy vs pneumatic retinopexy

The Pneumatic Retinopexy versus Vitrectomy for the Management of Primary Rhegmatogenous retinal detachment Outcomes Randomised Trial (PIVOT) compared visual and anatomical success rates of pneumatic retinopexy vs pars plana vitrectomy in 176 patients (Hillier et al, 2019). At 12 months, visual acuity following pneumatic retinopexy exceeded that of pars plana vitrectomy patients by 4.9 letters, yet primary anatomical success was significantly greater in the pars plana vitrectomy group compared with pneumatic retinopexy group (93.2% vs 80.8% respectively) (Hillier et al, 2019).

Discussion

Despite advances in microsurgical technologies, successful primary anatomical and visual outcomes of these techniques, retinal detachment repairs can be markedly hindered. The greatest risk factor for failure of retinal detachment surgery is proliferative retinopathy, with success rates dropping from 90% to 68% if present preoperatively (Williamson et al, 2013). Proliferative retinopathy is a complex process managed with meticulous surgical intervention to remove vitreoretinal adhesions and epiretinal membranes, relieving all significant traction, with adjunctive tamponades such as perfluorocarbons or heavy silicone oils and encircling scleral buckles. Despite these interventions, proliferative retinopathy remains one of the biggest challenges for vitreoretinal surgeons, and new strategies to prevent and treat proliferative retinopathy are required.

Chronic retinal detachments are often treated with scleral buckling as it is associated with less trauma to the eye (Yao et al, 2006). Pars plana vitrectomy for chronic retinal detachments, particularly in younger patients who often have a more adherent hyaloid face, may result in remaining vitreous matter, causing contraction of fibrocellular membranes which increases the risk of proliferative retinopathy postoperatively (Yao et al, 2006).

Tractional retinal detachment can be managed with intravitreal injections of anti-vascular endothelial growth factor (anti-VEGF) or steroid and laser therapy (Stewart

Key points

- Retinal detachments are a commonly encountered ophthalmic emergency with a risk of potential blindness if left untreated.
- Prominent risk factors include advancing age, myopia, trauma and peripheral retinal degenerations.
- Retinal detachments of different aetiologies can vary in presentation on examination and imaging.
- Treatment modalities include pars plana vitrectomy, scleral buckling and pneumatic retinopexy.
- Early management such as surgery or laser therapy improves visual and anatomical outcomes.

et al, 2018). With the advent of these therapies, surgical treatment can often be deferred, or avoided altogether. For example, peripheral tractional retinal detachments may not require surgical intervention. On the other hand, tractional retinal detachments with macular involvement require prompt surgical attention with pars plana vitrectomy to remove vitreous opacification and reduce vitreoretinal fibroproliferation. Pars plana vitrectomy improves both functional and anatomical outcomes in tractional retinal detachment (Jochmann and Hammes, 2002).

Management of exudative detachments is underpinned by its cause, with surgery seldom indicated. Although some exudative retinal detachments may spontaneously resolve, others may require steroids or antibiotics. Laser or cryotherapy may be indicated for exudative retinal detachment secondary to Coat's disease. External drainage of subretinal fluid with or without vitrectomy has been described for severe disease with exudative retinal detachment (Kusaka, 2018). Choroidal melanoma treatment is dependent on various clinicopathological features and treatment will vary from external beam radiotherapy or plaque brachytherapy to enucleation.

Prognosis

The prognosis of retinal detachment is multifactorial, depending on the type and location of detachment, the time from onset to presentation, the type of repair and any complications. Peripheral detachments may be prophylactically treated, conserving macular function and maintaining visual acuity. Retinal detachments with macular involvement are less likely to have a favourable outcome. With advances in surgical technology and increasingly minimally invasive surgery, successful reattachment of a retina with good anatomical result may not always correlate with a good visual prognosis. With timely presentation and early repair, the overall functional and anatomical outlook is more encouraging.

Conclusions

This review highlights key features and findings of retinal detachment, its subtypes and how to differentiate it from its imitators clinically, and through use of various ophthalmic imaging techniques. Prompt treatment of predisposing retinal holes and tears is vital in offsetting a retinal detachment that could progress to involve the macula, significantly impairing visual outcome. Retinal detachment requires early treatment in the form of laser, cryotherapy or surgery with the use of retinal tamponading agents. With early diagnosis and prompt treatment, retinal detachments are a largely preventable cause of what would otherwise be irreversible sight loss.

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Conflicts of interest

The authors declare that they have no conflicts of interest.

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