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14 Primary Vitrectomy in Rhegmatogenous Retinal Detachment

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14.1 Introduction

Primary vitrectomy has largely replaced scleral buckling as the treatment of choice in rhegmatogenous retinal detachment (RRD) with proliferative vitreoretinopathy (PVR) [1, 2]. While most simple rhegmatogenous retinal detachments can be managed by scleral buckling, there are situations wherein vitrectomy is the treatment of choice.

14.2 Indications of Primary Vitrectomy in RRD

- Posterior breaks
- Multiple breaks at varying distance from the ora serrata
- RRD caused by/associated with macular hole [3, 4]
- Media haze significant enough to prevent visualization of break [5]
- Aphakic and Pseudophakic RRD [6–10]
- Cases in which primary break is not seen preoperatively [11]
- RRD associated with choroidal detachment (CD) [12, 13] and PVR more than C1

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Rhegmatogenous retinal detachments associated with the above situations were managed with scleral buckling alone until a decade back. Improved anatomical results with vitrectomy in these situations and the lack of familiarity with the techniques of scleral buckling amidst younger generation surgeons has led to primary vitrectomy being the current treatment of choice.

14.3 Steps of Surgery

14.3.1 Conjunctival Peritomy

Conjunctival Peritomy would be necessary only if an encerclage is to be placed, which in itself is required only in select situations. Otherwise, a trans conjunctival entry is most often employed.

14.3.2 Encerclage

An encerclage is often not necessary in primary vitrectomy for RRD [14–16]. Select situations when one would feel safer to place an encerclage are:

(a) Phakic eye with multiple inferior breaks and/or lattices wherein a thorough vitreous base shaving would not be possible without lens touch [17].

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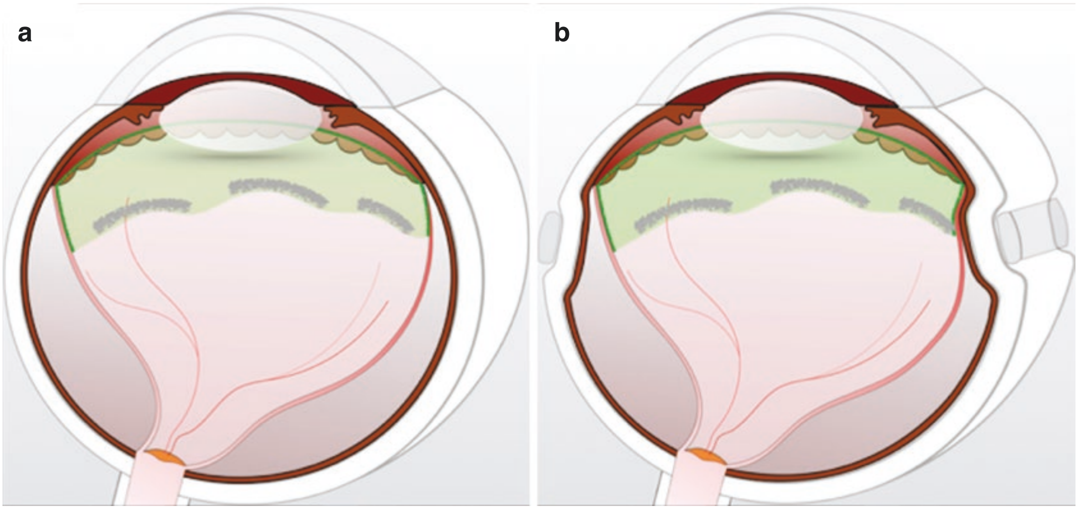

Fig. 14.1 (**a**) The vitreous attachment anterior to the lattice to the vitreous base is adherent and cannot be detached. (**b**) In such cases, an encerclage is used to indent the anterior retina

(b) RD associated with multiple rows of lattices in the detached retina at varying distances from the ora. In such cases, if the vitreous anterior to the lattice is detached, it would be possible to relieve this anterior traction satisfactorily. In such situations an encerclage is inessential. However, in most patients, the vitreous attachment would extend from the anterior lattice margin to the vitreous base. In such cases one may consider an encerclage (Fig. 14.1).

(c) Younger patients would have an adherent vitreous and one may consider an encerclage in them.

14.3.3 Sclerotomy

Trans conjunctival sclerotomies are placed 3.5–4 mm from the limbus in phakic eyes and 3–3.5 mm from the limbus in pseudophakic and aphakic eyes. The distance of sclerotomy from the limbus varies with age (Table 14.1). The temporal sclerotomies are placed in line with superior and inferior borders of the lateral rectus. The nasal sclerotomy is placed in line with superior border of the medial rectus. The infusion cannula is placed traditionally at the inferotemporal quadrant, but the use of a cannula system allows the flexibility of moving the infusion to the other sclerotomies as well.

Table 14.1 Distance of sclerotomy from the limbus [18]

Age	Distance of sclerotomy from limbus
0–6 months	1.5 mm
6–12 months	2.0 mm
1–2 years	2.5 mm
2–3 years	3.0 mm
Adult	3.5 mm

Trocar based systems of 23g, 25g, and 27g can be used to perform vitrectomy in RRD. These cannulas are usually 4 mm in length. The cannula is introduced into the vitreous cavity with the help of a trocar over which the cannula is loaded. The trocar is introduced in a biplanar direction in 23G and 25G to achieve a self-sealing wound [19]. The 27G trocar can be introduced perpendicular to the sclera and the sclerotomy is uniplanar [20, 21]. In eyes with RRD with CD, a 6-mm cannula is placed for infusion. A 6-mm cannula with the trocar cannula system is available for the 23g systems.

In rare situations, a 20g vitrectomy is performed. A limited peritomy of 1 clock hour superonasally and 3 clock hour temporally, straddling the lateral rectus is performed. A 20g micro vitreo retinal (MVR) blade is used to make the sclerotomy and it is placed circumferentially to the limbus. The infusion cannula is secured with polyglactin mattress suture with a slipknot that is placed away from the cornea to avoid disturbance in the visualization by the free ends of suture. A 20g entry may be required in the presence of RRD with choroidal detachment, wherein a 6-mm cannula is placed for infusion [22]. The 6-mm length of the cannula traverses the boggy choroid in eyes with choroidal detachment completely, thereby preventing inadvertent suprachoroidal infusion.

Special Situations:

(a) Sclerotomy in eyes with CD and RD:
In eyes with choroidal detachment, the choroidal detachment should be drained prior to placing the infusion cannula and the following modifications in the placement of sclerotomy are required:

1. Eyes with RD associated with CD are hypotonic: So an intravitreal injection of balanced salt solution is necessary to make the globe firm, prior to placement of the infusion cannula.
2. A simultaneous drainage of suprachoroidal fluid along with intravitreal injection would be required prior to placement of the cannula.
3. To drain the suprachoroidal fluid, the trocar of the trocar cannula system is used to make a partial entry into the globe. The trocar would reach the suprachoroidal space by penetrating the sclera until the broadest part of the tip of the trocar enters the eye (Fig. 14.2). It is indicated by drainage of the suprachoroidal fluid around the trocar. Twisting the trocar would enable the sclerotomy to remain open, allowing drainage of the suprachoroidal fluid. Simultaneous intravitreal injection through a superonasal site using a 30g needle aids replacement of the drained suprachoroidal fluid and pushes the choroid/ciliary body toward the sclera. With cessation of the suprachoroidal fluid drainage, the trocar is mounted with the cannula and re-entered with the trocar placed perpendicular to the sclera to allow the cannula to clear the boggy ciliary epithelium.

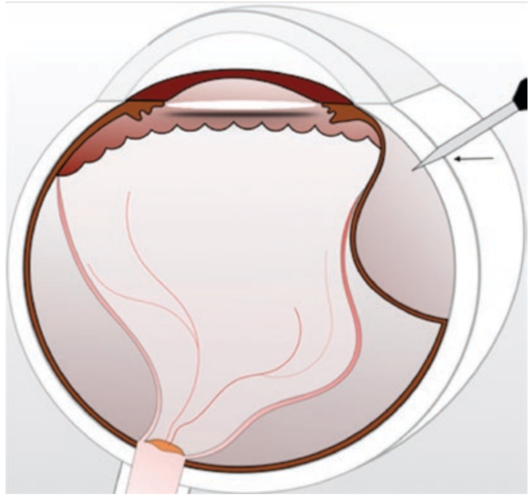

Fig. 14.2 The trocar is inserted until the broadest part (arrow) of the trocar enters the eye. The trocar reaches the suprachoroidal space and fluid starts draining

Once the sclerotomies are made or the cannulas are placed, the tip of the infusion cannula is inspected for its intravitreal location. It is particularly important in eyes with pre-existing CD. Failure to visualize the tip of the cannula within the vitreous cavity indicates that the cannula can be in the suprachoroidal space and the infusion should not be turned on. In such cases, a 24G needle or 23G MVR (in cases with 23G surgery) is introduced through the superonasal sclerotomy (in pseudophakic and aphakic eyes) to incise the ciliary epithelium overlying the infusion cannula to expose the cannula (Fig. 14.3). In 25G surgery, 26G needle can be used to achieve the same. In phakic eyes, trying to reach the inferotemporal infusion cannula from the superonasal port may result in iatrogenic lens damage. In such cases, one can try reaching it from the superotemporal port to incise the overlying ciliary epithelium (Fig. 14.4). It is preferable to switch to a 6-mm cannula if one is unsure of residual ciliary epithelium overlying the infusion cannula tip, rather than the risk of

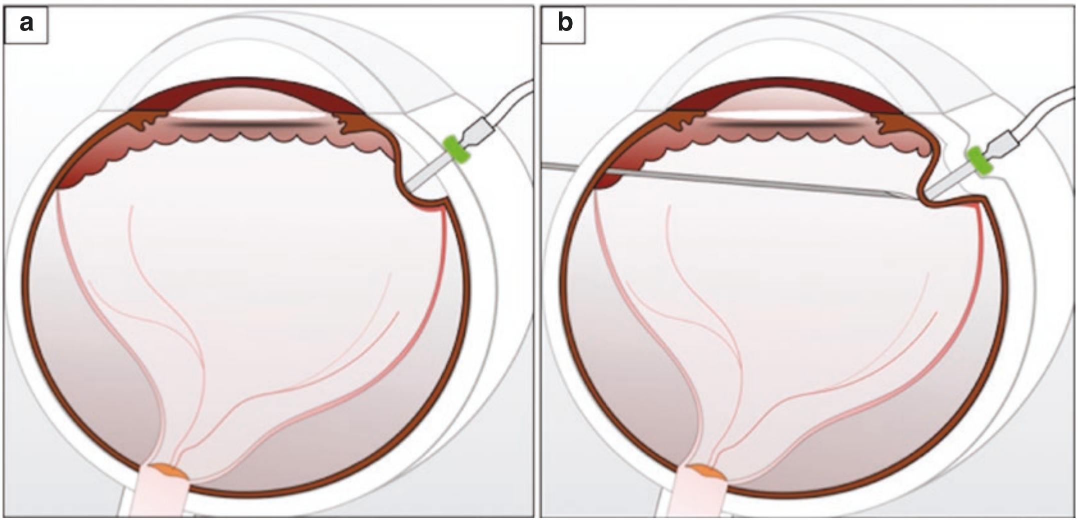

Fig. 14.3 (**a**) Suprachoroidal infusion cannula (**b**) 24G (or 26G) needle is introduced through the superonasal sclerotomy to incise the ciliary epithelium overlying the infusion cannula to expose the cannula

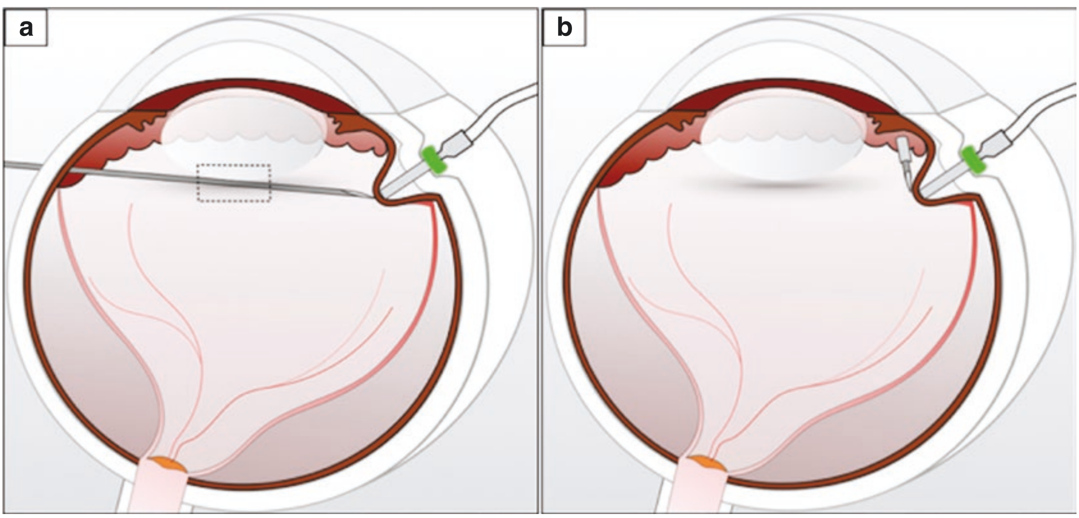

Fig. 14.4 (**a**) Using the opposite port to incise the ciliary epithelium in phakic eye can lead to lens touch (indicated by box). (**b**) The superotemporal port can be used to prevent lens touch

suprachoroidal infusion and its attendant complications.

(b) Placement of routine temporal sclerotomies using the trocar cannula system in an eye that has recently undergone a temporal small incision cataract surgery (SICS) can result in inadvertent gaping of the cataract wound, shallowing of the anterior chamber, hyphema, displacement of the lens, etc. In such eyes, it is preferable to expose the SICS wound and secure it with sutures prior to placing the sclerotomies. The inferotemporal and superotemporal sclerotomy placement needs to be modified, so that the sclerotomy does not go through the SICS wound.

14.3.4 Core Vitrectomy

Once the infusion is switched on, the vitreous gel at the port site and the anterior vitreous is removed with the cutter. Removal of the vitreous at the port sites at the beginning of the surgery decreases the risk of subsequent port site breaks. Mid and posterior vitrectomy is then performed with the aid of wide-angle viewing system. The highest cut-rate available with the vitrectomy console employed for the surgery is used to perform core vitrectomy to minimize vitreoretinal traction. A maximum vacuum of 300 mmHg (23g), 500–600 mmHg (25g and 27g) aids efficient removal of the vitreous.

Caution: A careful vitrectomy with a low vacuum is essential in eyes with bullous RD, as the mobile retina can get aspirated into the vitreous cutter and lead to iatrogenic retinal damage. Eyes with densely attached peripheral vitreous such as those with extensive lattices more often tend to get caught at the vitreous cutter port. Using perfluorocarbon liquid to stabilize the posterior retina, draining the subretinal fluid to flatten the retina, using the light pipe as a guard between the retina and the cutter are techniques one can employ to limit the risk of this complication.

14.3.5 Induction of Posterior Vitreous Detachment

Induction of Posterior Vitreous Detachment (PVD) is a crucial step in pars plana vitrectomy (PPV) for RRD. Posterior vitreous detachment extends up to the flap of the horse-shoe tear (HST) and over an operculated hole. Posterior vitreous detachment may not be present over atrophic holes and over patches of lattice degeneration. In myopic eyes, vitreoschisis and anomalous PVD is often seen.

Posterior vitreous detachment is induced in a posterior to anterior direction. Triamcinolone stain the posterior cortical vitreous and aids in its visualization and removal. Posterior hyaloid is densely adherent at the disc, macula, and along the retinal vessels. Grasping the hyaloid overlying the disc with the vitreous cutter in suction only mode and moving the cutter toward the mid vitreous cavity would aid separation of the hyaloid from the disc (Fig. 14.5). An aggressive core vitrectomy close to the posterior pole is better avoided, as there would be inadequate gel to be held by the cutter to aid PVD induction. Once hyaloid over the optic disc is detached, the detachment of hyaloid is advanced anteriorly by aspirating and lifting the posterior edge in all the directions up to the vitreous base.

In cases with difficulty in induction of PVD, a sharp needle (24G or 26G) or MVR blade can be used to make an opening in the posterior hyaloid by gently slicing it in a tangential motion. This is usually done over the papillomacular bundle or in the peripapillary region. Care is taken to prevent inadvertent damage to retina. Once an opening is created, the edge of the opening can be grasped with the active suction of the cutter and lifted to induce the PVD (Fig. 14.6). If there is a possibility of retinal incarceration in the vitreous cutter during this maneuver, forceps can be used to grasp and pull the edge of the hole created in the posterior hyaloid.

Injecting a bubble of perfluorocarbon liquid (PFCL) through the hole in the posterior hyaloid and slowly increasing the size of the bubble can help cleave the posterior hyaloid from the retina (Fig. 14.7). Alternatively, viscoelastic agents (hydoxypropyl methylcellulose) can be used for the same purpose.

Vitreoschisis is a fairly common occurrence in RRD particularly in young individuals and myopic eyes (Fig. 14.8). Repeated use of triamcinolone in these eyes will ensure identification and removal of all the layers of schitic vitreous. The residual adherent cortical vitreous in myopic eyes needs to be peeled with the aid of a micro forceps, needle or an instrument with a rough surface such as the Tano's diamond-dusted membrane scraper. Recently a technique of "vitreous wiping" has been described wherein a small piece of polyvinyl alcohol (PVA) sponge has been used to aid separation of the cortical vitreous [23]. The irregular surface of the PVA sponge entangles the vitreous fibrils enabling its removal. If the mobility of the retina is a hindrance to removal of the cortical vitreous, attaching the retinal using PFCL can aid removal of the same.

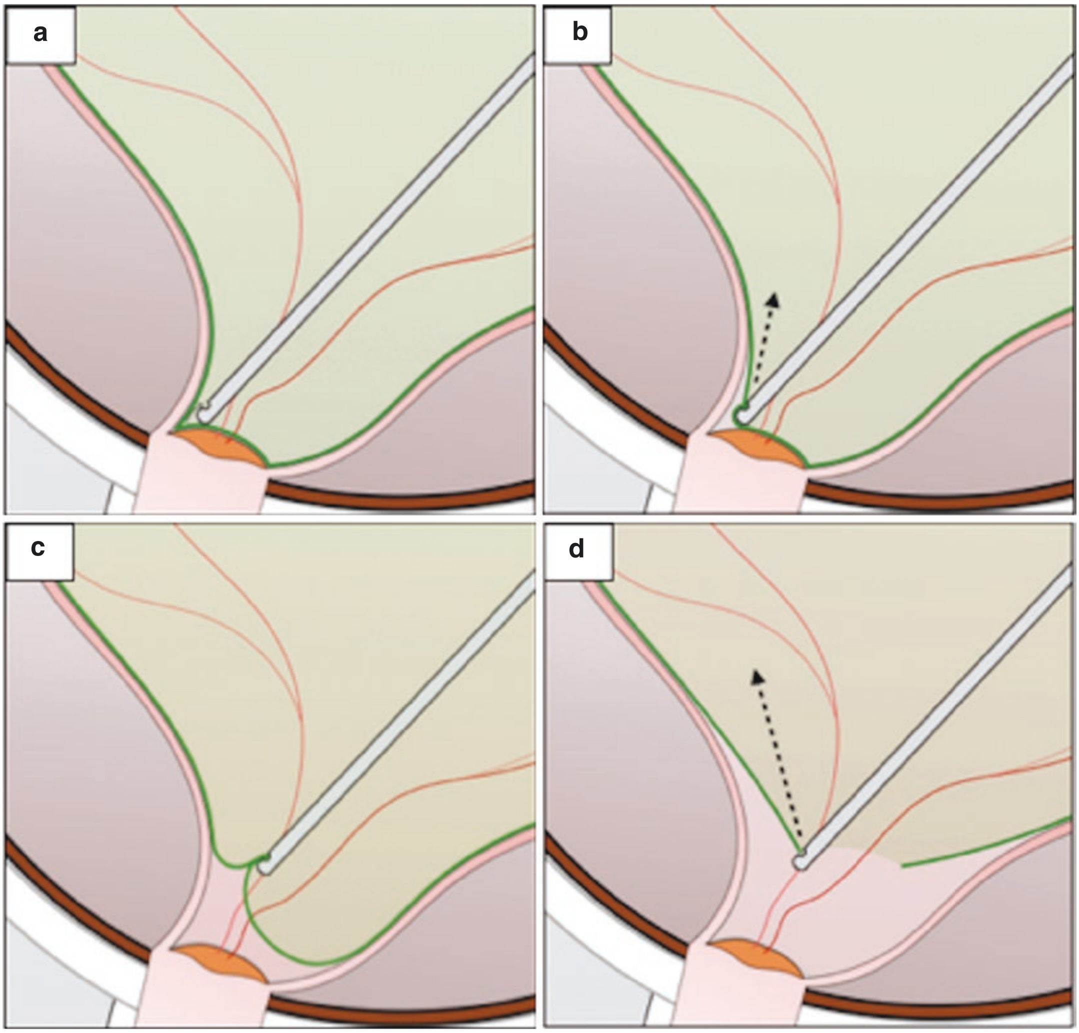

Fig. 14.5 (**a**) Suction is applied with the cutter in suction only mode over the optic disc. (**b**, **c**) Once the vitreous is grasped, the vitreous cutter is moved towards the mid-vitreous cavity. (**d**) Once the posterior hyaloid is detached from the disc, the PVD is extended anteriorly

14.3.5.1 Other Techniques of PVD Induction

A silicone tipped extrusion needle connected to an active aspiration port of the vitrectomy console is used to identify the cortical vitreous and aid PVD induction. The tip is gently swept over the retinal surface. In the presence of cortical vitreous, the tip of the silicone cannula bends down to attach itself to the residual cortical vitreous (Fish strike sign). Maintaining the aspiration and exerting anteroposterior traction aids PVD induction [24].

Non-aspiration technique of PVD induction is described by Takeuchi M et al. In this technique a hole is made in the posterior hyaloid with a diamond-dusted membrane scraper. The separation of posterior vitreous from the retina progresses due to the influx of irrigating fluid through the hole. The scraper is inserted under the posterior hyaloid through the hole and it is lifted to achieve PVD [25].

A hydro dissection technique is described by Dr. Paul Hahn. In this technique, the initial separation of posterior hyaloid is attempted along the

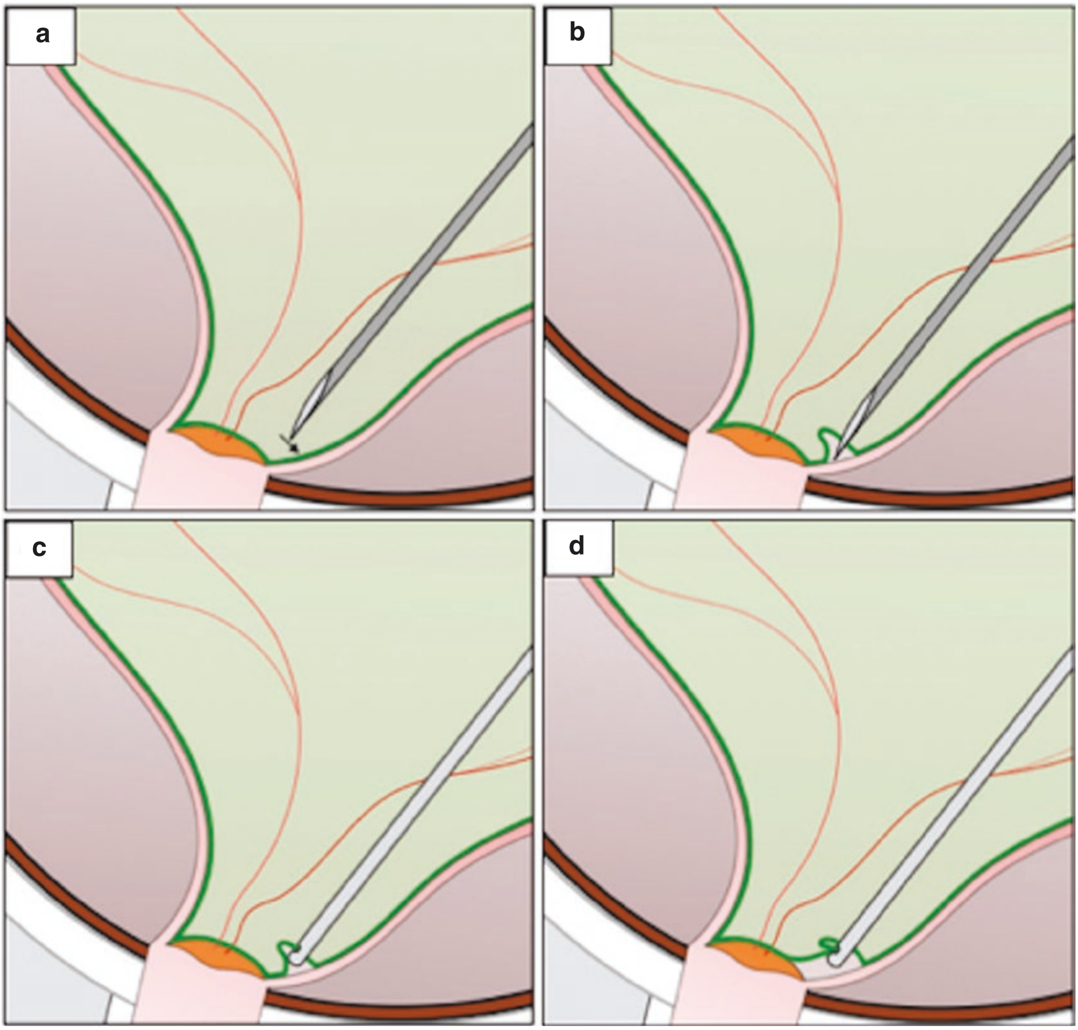

Fig. 14.6 (**a**) A sharp needle (24G or 26G) is used to slice the posterior hyaloid in a tangential motion. (**b**) A hole is created in the posterior hyaloid. (**c**, **d**) The edge of the opening is grasped with the active suction of the cutter and lifted to induce the PVD

temporal vascular arcade using a cutter with its port facing toward the retina. Then the cutter is used to achieve the separation circumferentially. The vitreous is aspirated anteriorly and the infusion fluid is forced posteriorly. This results in hydro dissection of posterior vitreous from the retina. This technique is claimed to have a lesser risk of iatrogenic break. But this would not be feasible in cases with detached mobile retina.

Combined sharp dissection of posterior hyaloid and active aspiration is described by Ellabban AA et al. In this technique, a micropick (25-gauge needle with bent tip) connected to active aspiration tubing of vitrectomy machine is used to induce PVD. Active aspiration is applied so as to engage the posterior hyaloid adjacent to optic disc. Then the tip of the micropick is used to penetrate the posterior hyaloid by tangential movement. Once the tip is in the subhyaloid space, the micropick is lifted toward the center of vitreous cavity to achieve separation of posterior hyaloid mechanically [26].

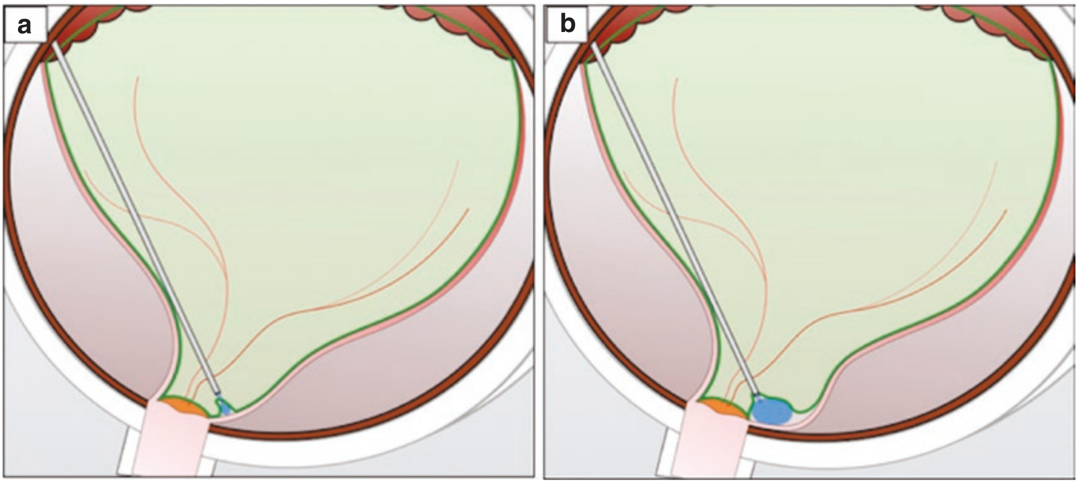

Fig. 14.7 (**a**) A bubble of perfluorocarbon liquid (PFCL) (blue bubble) is injected through the hole in the posterior hyaloid. (**b**) Slowly increasing the size of the bubble cleaves the posterior hyaloid from the retina

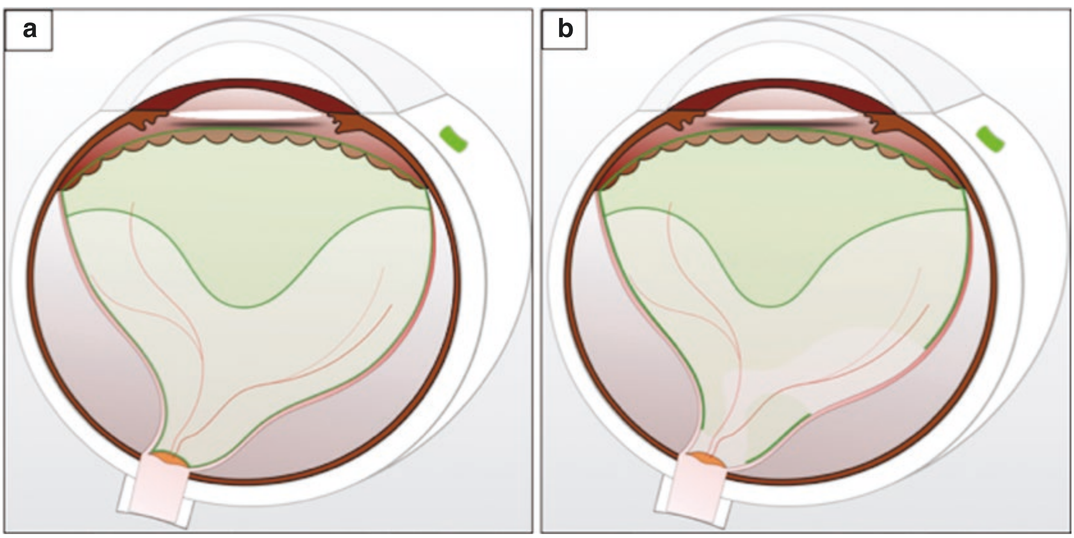

Fig. 14.8 Vitreoschisis. (**a**) During PVD, the cortical vitreous is split and a layer of remnant hyaloid is adherent to the retina as a continuous sheet (indicated by green line). (**b**) The remnant hyaloid is adherent to retina in multiple patches

14.3.6 Peripheral Vitrectomy

The induction of PVD is advanced anteriorly up to the point where vitreous is firmly adherent to retina and peeling beyond it may result in a retinal tear (Fig. 14.9). This point can be vitreous base, peripheral retinal degeneration, or in some myopic eyes anomalous posterior vitreous attachment. In cases with lattice degeneration or focal areas of vitreoretinal adhesion, an attempt can be made to induce the PVD anterior to the attachment, thereby isolating the island of the adherent vitreous from the rest of the posterior hyaloid (Figs. 14.10 and 14.11). Accomplishing this obviates the need for an encerclage and also minimizes the risk of recurrent RD.

The remnant vitreous adherent to the vitreous base or areas of abnormal vitreoretinal adhesion is shaved using high cut rates and low vacuum. Cutters with smaller/double ports and consoles

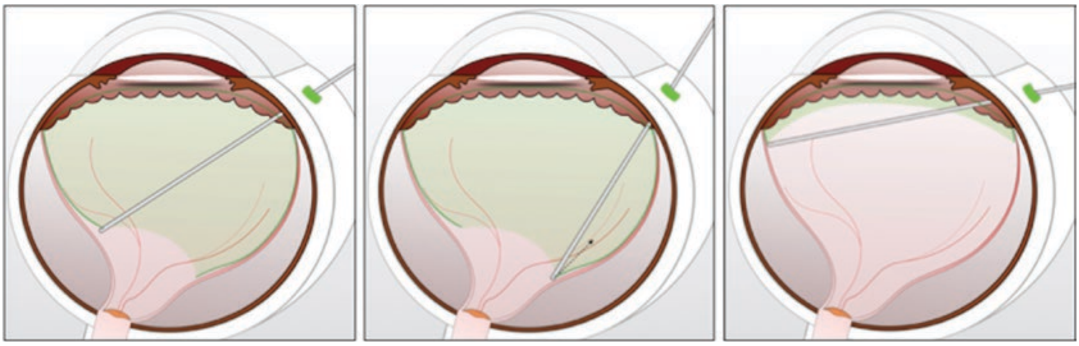

Fig. 14.9 PVD is advanced anteriorly in all directions up to the vitreous base

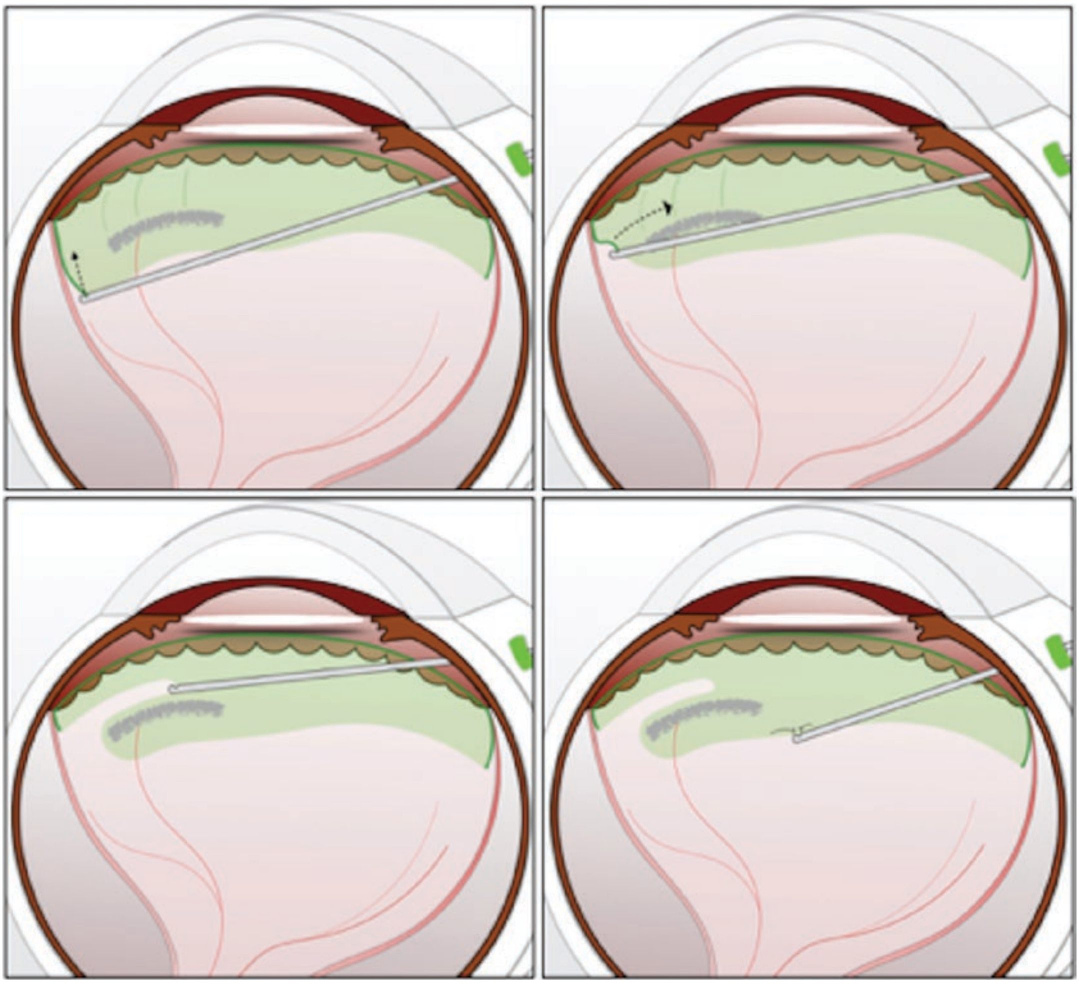

Fig. 14.10 Step-by-step illustration of peripheral vitrectomy in case with lattice degeneration. Posterior hyaloid is detached anterior to the lattice

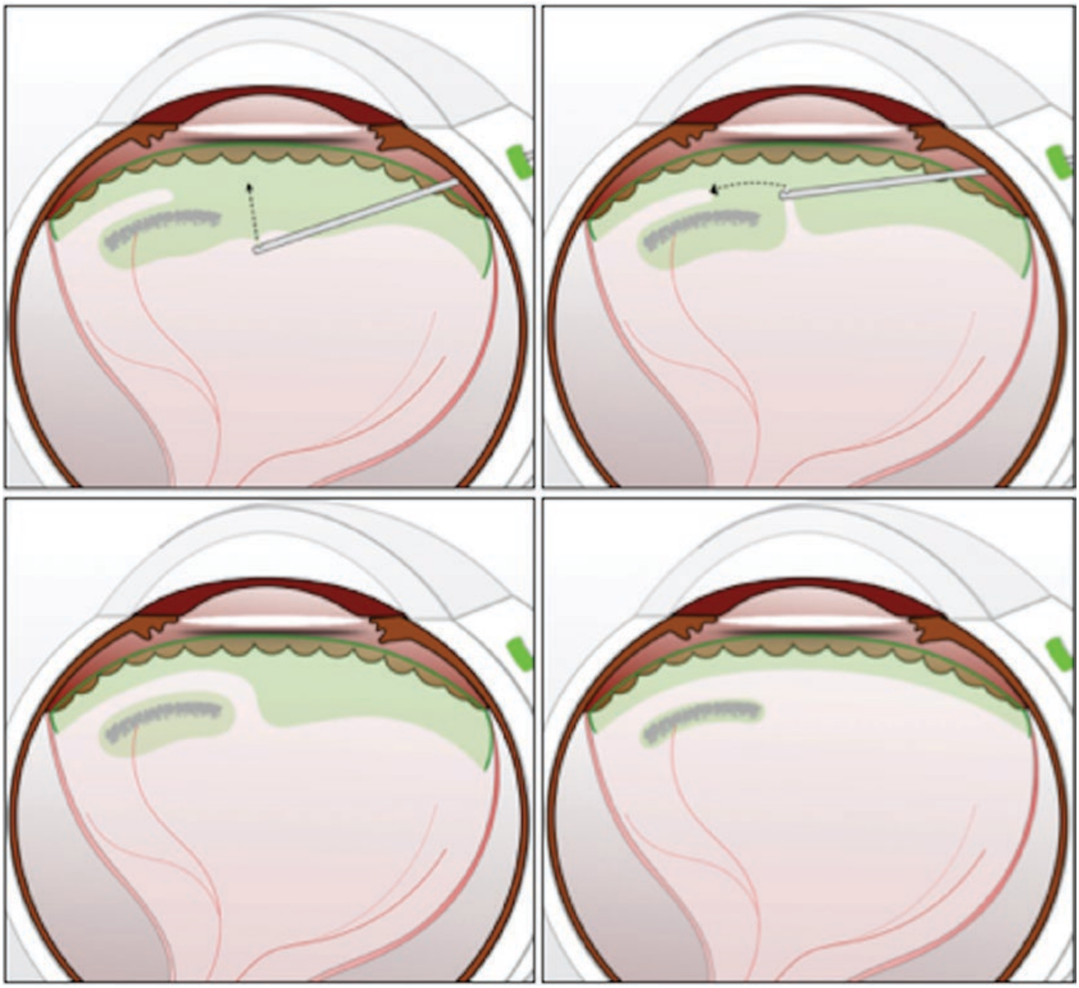

Fig. 14.11 Step-by-step illustration of peripheral vitrectomy in case with lattice degeneration (continued). Vitreous around the lattice is detached and cut to leave an island of vitreous adherent to lattice

with vitreous shave mode would aid safe removal of the peripheral vitreous. Using PFCL to keep the posterior retina attached decreases the mobility of the retina and increases the safety of peripheral vitrectomy.

While it is good to debulk as much of the vitreous base as possible, it may not always be necessary or possible. In an eye with a single break, it may be imprudent to be aggressive with vitreous base dissection. In contrast, in eyes with multiple breaks and peripheral retinal degeneration, it is preferable to do as complete vitrectomy as possible.

Vitreous base debulking is aided by scleral depression. An assistant aided scleral depression would allow surgery under wide-angle visualization. The surgeon can also depress and debulk the vitreous base by visualization using the microscope illumination, with the vitreous cutter in one hand and the depressor in the other. A cotton-tipped applicator can be used to depress. This does not slip over the sclera in contrast to a muscle hook. The advantage of the muscle hook is wider area of scleral depression.

Ease and completeness of vitreous base debulking would depend on the lens status of the patient. It is easiest and most complete in an apha-

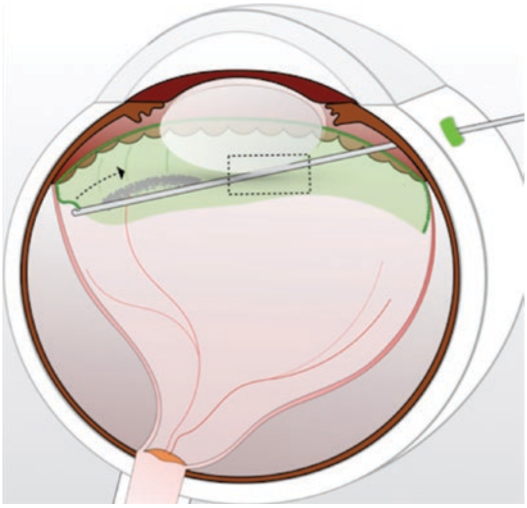

Fig. 14.12 Reaching the vitreous across the lens can lead to lens touch (indicated by the box) in cases with thicker lenses

kic eyes. In pseudophakic eyes, while one can attempt removal of the anterior vitreous base, there is a risk of iatrogenic zonular damage. This can result in migration of the tamponade agent (gas or silicone oil) into the anterior chamber resulting in elevated intraocular pressure and other complications. In young phakic eyes, the lens is thin and it is possible to debulk the vitreous base adequately with careful depression. Reaching an area across the lens should be avoided (Fig. 14.12). The sclerotomy on the side of area of interest is to be used preferably. In eyes wherein a good vitreous base dissection is preferred but not possible, an encerclage can be placed.

14.3.7 Internal Limiting Membrane Removal

Internal Limiting Membrane (ILM) need not be removed in every eye undergoing primary vitrectomy for RRD.

- ILM needs to be removed in RRD with a peripheral break and macular hole, to attempt macular hole closure.
- In eyes with residual cortical vitreous over the macular region, staining the ILM and removing it will aid removal of the irregular islands of cortical vitreous as well.
- In eyes with immature PVR wherein one is suspicious of subsequent PVR progression and re-detachment, ILM peeling can be done.
- ILM peeling in RRD is preferably performed under PFCL. Staining the ILM using BBG can be performed under air to ensure adequate staining. An initial nick in the stained ILM can be made using a forceps or needle. PFCL is injected to flatten the posterior pole. ILM can then be peeled from the site of initiation, peeling it under the PFCL in a tangential manner. Some would prefer ILM peeling without done PFCL.

14.3.8 Identification of Breaks

All retinal breaks need to be identified during vitrectomy to enable subsequent retinopexy. Intravitreal stream of yellow-colored fluid called schlieren, noticed during the process of PVD induction and peripheral vitrectomy guides one to the retinal break [27]. It is preferable to mark the breaks with cautery to aid in visualization of the breaks after retinal reattachment under air. This is particularly important in myopic eyes with chorioretinal atrophy wherein the break may "disappear" indistinctly after retinal reattachment following fluid gas exchange. Rolled edges of a retinal tear are rolled because of the PVR membranes, which may result in late failure of the surgery by reopening of the break. Diathermy to the edge of the tear results in necrosis of this PVR, decreasing the risk of re-detachment.

At times it may not be possible to identify the causative retinal break despite an extensive and careful inspection. Transretinal injection of a small quantity of a dye (trypan blue) with a narrow-gauge needle and injecting PFCL over the posterior pole will result in the expression of the subretinal dye into the vitreous cavity through the retinal break, allowing one to identify the break [28]. Our modification (unpublished data) is to inject the dye transclerally, using a 26g or 30g needle into the subretinal space, so that retinotomy can be avoided. The dye is injected transclerally by the dominant hand of the surgeon. The needle entry and the injection can be performed under direct visualization using wide-angle viewing system.

14.3.9 Fluid Air Exchange

A soft tip cannula or flute cannula or active suction is placed at the posterior most break and air is injected via the infusion cannula by the air pump of the vitrectomy console at 30–40 mm of Hg pressure. As the air flattens the peripheral retina, the subretinal fluid is driven towards the break and out of the eye through the flute needle.

An anterior break can also be used effectively to drain the subretinal fluid (SRF). It can be aided by rotating the eye toward the break so that the SRF gravitates toward the break (Fig. 14.13a). A fluid–fluid exchange wherein most of the SRF is removed under fluid infusion before turning on the air infusion when the retina is nearly flat, would also aid near complete drainage of the fluid. Once the intravitreal fluid level crosses the posterior edge of the retinal break, then the flute needle is moved to the optic disc to drain the residual intravitreal fluid. If the flow of the SRF through the break is impeded while performing FAE by moving the flute needle away from the break before complete drainage, it results in incomplete drainage of SRF.

When draining through an anterior break, SRF can get trapped posteriorly. This can be left to absorb if the eye is to be left with gas tamponade. If one is planning silicone oil tamponade in such a case, it may result in suboptimal tamponade due to under fill of silicone oil as the volume of vitreous cavity is reduced by the trapped SRF.

If residual SRF is undesirable or if the peripheral break is not easily accessible, a posterior drainage retinotomy may be made to drain the SRF (Fig. 14.13b). The drainage retinotomy is preferably placed in the superior half of the retina (if possible nasal half), in line with one of the sclerotomies to enable easy access and complete drainage. It is preferable to place it in an area with copious SRF. The area of the retinotomy is marked with cautery. Placing the flute at the area where retina was cauterized will result in the retinotomy and initiation of the drainage. Alternatively, PFCL can be injected to flatten the posterior retina up to the break. Then SRF is drained up to the break and then PFCL is drained completely (Fig. 14.14). In myopic eyes, longer cannulas can be used to perform FAE.

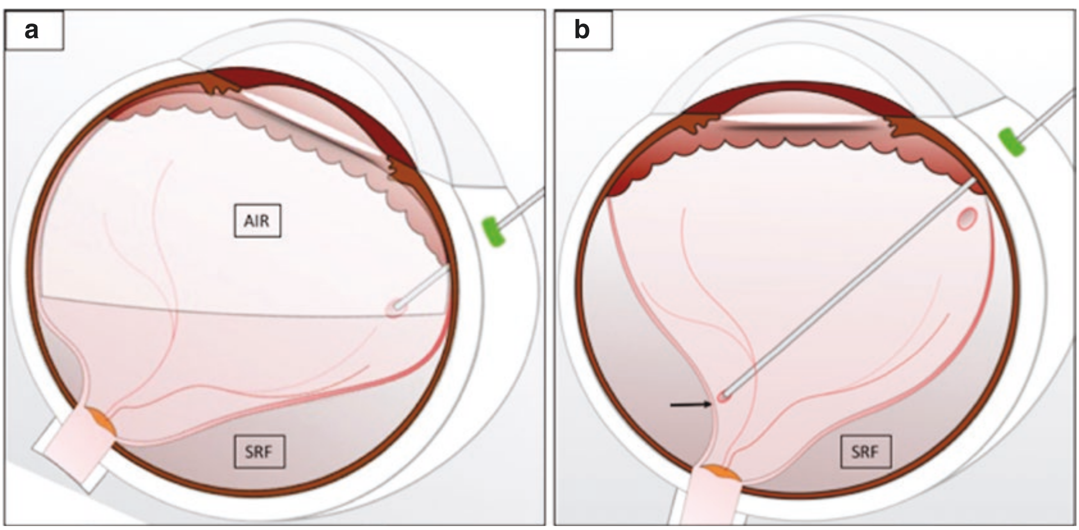

Fig. 14.13 (**a**) While draining the SRF through the anterior break, the eye is rotated toward the break so that the SRF gravitates toward the break. (**b**) A posterior drainage retinotomy (arrow) is used to drain SRF

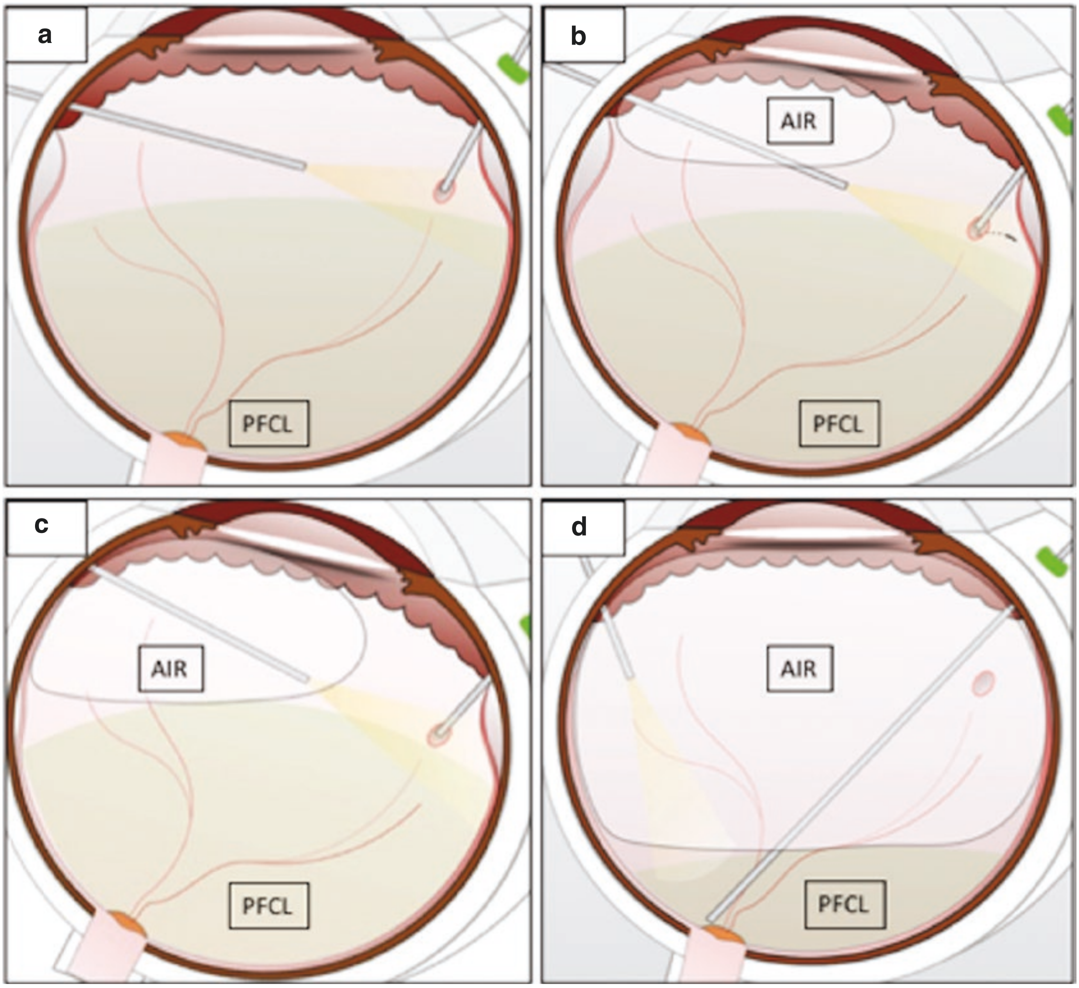

Fig. 14.14 Step-by-step illustration of PFCL assisted SRF drainage. (**a**) PFCL is filled up to the level of break. (**b**, **c**) The eye is rotated towards the break and the air infusion is started. (**d**) Once the fluid air exchange reaches the break, PFCL is exchanged with air

14.3.9.1 Difficulties during FAE

1. If the break is small, the retinal edges can block the cannula resulting in poor drainage of SRF. Keeping the tip of the cannula through the break close to the RPE will aid drainage. Alternately the break can be made larger with cautery.
2. Condensation of water vapor on the exposed posterior surface of intraocular lenses can result in poor visualization during FAE. Coating this surface with a small quantity of viscoelastic will clear the view.
3. Vanishing break—in an eye with an encerclage, the break may fall on the posterior slope of the indent making it invisible. Tightening the buckle after FAE or loosening it prior to FAE can prevent this issue.

14.3.10 Retinopexy

Once the retina is attached, 2–3 rows of contiguous laser burns are placed around each of the breaks. In HSTs, it is preferable to extend the laser up to the ora to prevent delayed opening of the anterior edge of the break due to contraction of the attached residue of the vitreous base. If laser photocoagulation is not possible due to anterior location, cryotherapy can be performed under visualization through the wide-angle viewing system. It is preferable to limit cryotherapy to treating a single break or a small area of retina to decrease the risk of subsequent PVR. In high myopic eyes wherein the poor contrast may limit identification of posterior breaks under air, or in situations with suboptimal fundus visualization through air, laser photocoagulation can be performed under PFCL.

Areas of lattice degeneration are surrounded by 2–3 rows of contiguous laser burns, extending them to the ora in lattices with associated HSTs. Laser photocoagulation to the vitreous base region (~5 rows) may be placed 360° in eyes wherein the causative break cannot be identified, in eyes with extensive peripheral retinal degeneration or in eyes wherein aggressive vitreous base dissection was performed, raising concerns of missing tiny breaks.

In high myopic eyes with breaks within pre-existing chorioretinal atrophy, laser uptake may be poor. Increasing the power or the duration of the laser can help surmount the issue; in rare situations, an endocryo may be necessary to treat such breaks.

14.3.11 Tamponade

The choice of tamponade depends on the location of break.

Short-acting or long-acting gases can be used. Air, sulfur hexafluoride, and perfluoro propane are the commonly used gases. The longevity of gases is listed in Table 14.2. In silicone study, short-acting gas was found to be inferior to long-acting gas in terms of anatomical success [29, 30]. However, completeness of vitrectomy and relief of traction is more important than choice of tamponade.

Table 14.2 Properties of gases used as tamponade

Gas	Percent of gas	Longevity
Air	–	5–7 days
Sulfur hexafluoride	18%	1–2 weeks
Perfluoropropane	14%	6–8 weeks

Exclusive use of air as tamponade is reported to have similar primary reattachment rate compared to long-acting gases [31]. It is reported that re-detachment was recognized early in cases with air as tamponade. We prefer air tamponade in superior RDs caused by peripheral breaks and gas tamponade in eyes with multiple breaks, inferior, or superior but posterior breaks.

Silicone oil may not be required as tamponade in eyes undergoing primary vitrectomy for RRD except in one-eyed patients wherein early visual rehabilitation is required, in patients who cannot maintain position, eyes with multiple inferior breaks at varying distances from the ora. A 1000 centistokes oil is adequate as tamponade with the silicone oil removal planned 3 months later.

14.3.12 Closure of Sclerotomy

In cases with trans conjunctival ports, the ports are removed by grasping the collar. The sclerotomy is self sealing. In cases with trans scleral ports, the sclerotomy is sutured with an absorbable polyglactin suture once the ports are removed. 20G sclerotomies need suturing. Intraocular pressure should be monitored during closure of sclerotomy. If peritomy is performed, it is closed with an absorbable suture or by electrocautery.

14.4 Results of Primary Vitrectomy for RRD

The single procedure retinal reattachment rate varies from 82% to 96.1% [32–35]. The final reattachment rate is close to 100%. In recent studies no statistically significant difference in the rate of anatomical success is seen in cases with established PVR and no PVR [34]. Similarly, no such difference is seen in cases with superior and inferior breaks [35].

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