The management of acute retinal detachment has improved over the past two decades with patients experiencing better outcomes from surgical intervention for this potentially blinding ophthalmic emergency. The vitreoretinal (VR) team at Sankara Nethralaya, for last nearly four decades, has been involved in managing these challenging clinical situations. Owing to the large patient dataset, over the years, the group has published many peer-reviewed articles in scientific journals. This India-centric research could highlight patient–clinical characteristics related to simple and complex rhegmatogenous retinal detachment in Indian subcontinent.

- This India-centric research could highlight patient–clinical characteristics related to simple and complex rhegmatogenous retinal detachment in Indian subcontinent.
- The evidences generated from these studies are now the preferred practice pattern in the management of these cases.
- The success and failure rates have helped us to counsel the patient, preoperatively.
- The understanding of reasons for success and failure of procedures have helped in choosing appropriate management for different clinical situation.

This article compiles these evidences and the take home messages from these studies which would help the clinicians in managing the patients in the best way ‘Evidence-based medicine’.

Evidences regarding scleral buckle

A. Drainage of SRF during scleral buckle
We reported the complications of SRF drainage in 506 eyes which underwent scleral buckle and compared the complications in 49 eyes which had non-drainage.

Take home messages:
- Major and minor complications occurred in 31% of the wherein the subretinal fluid was drained and 4.0% in eyes wherein the fluid was not drained.
- The incidence of complications between the diathermy and cryotherapy groups was similar.
- The location of drainage site close to or away from the retinal break did not make a significant difference in the incidence of complication. Similarly, the drainage in the bed or outside the bed did not have any significance.
- Drainage was attempted in almost all meridians though more often closer to horizontal meridian. There was no statistically significant difference in the incidence of complication in the upper half clock meridians compared with the lower half clock meridians.
- The aphakic patients were more vulnerable to complications during the release of subretinal fluid. There was no significant higher incidence of complications in myopes.
- When perforation was done, the complications occurred in 22% of eyes. The incidence increased with an increasing number of attempts at drainage of subretinal fluid reaching 90% in cases with more than four perforations, most of them were major complications.
- The retina was successfully reattached in 81% of the eyes operated. Inspite of the development of drainage site complications, the retina was successfully reattached in 79% cases. The vision improved in 68%, maintained in 3% and deteriorated in 29% eyes.
- The failure to reattach retina occurred in 24.5% of the cases in which drainage site complications occurred compared with 18.5% in the uncomplicated cases.
- If buckle is placed properly even in cases where subretinal fluid is present at the conclusion of surgery, it tends to get absorbed and results in a higher success rate of anatomical reattachment. Whereas, even if the fluid is drained till dry if the surgical procedure is faulty, it does lead to failure of surgery.

B. Scleral buckle for RD: predictors for anatomical failure
We reported the anatomical results and predictors of anatomical failure in consecutive 601 eyes which underwent scleral buckle by a single surgeon.

Take home messages:
- Retinal reattachment rates after single surgery was 86% which increased to 90% after second surgery (revision buckle and pneumatic retinopexy).
- Preoperative factors which were significantly associated with anatomical failure included the presence of choroidal detachment, the presence
of significant vitreous opacification (due to vitreous haze and haemorrhage) and the presence of multiple lattices at varying distances from ora.

- Intraoperative risk factors for anatomical failure included buckle extent of >2 quadrants, and intravitreal injection of air or fluid.
- Postoperative factors associated with anatomical failure included the presence of sterile vitreitis.
- There was no correlation between intraoperative complications and anatomical failure.
- Proliferative vitreoretinopathy was the most common reason for anatomical failure.

C. Scleral buckle: explant vs. implant
We report the comparison of patients undergoing primary scleral buckling who were randomized to the explant or implant technique.

Take home messages:

- No significant difference was found between the two groups for total duration of the surgery, complications, anatomical results, visual outcome and buckle height.
- For the one- to two-quadrant buckles, duration of the surgery up to the initiation of subretinal fluid drainage was found to be significantly shorter for the explant group.
- Serial ultrasonography showed significant reduction in buckle height over 6 months in both groups to an equal degree.

D. Locating the breaks

Take home messages

- Identification of the retinal breaks in a case of rhegmatogenous retinal detachment is perhaps the single most important step that dictates the success of the surgery.
- One must understand that more than one break is present in as many as 50% of eyes.
- One must realize that all retinal breaks are not obvious. In addition to the visualization difficulties caused by lens opacities, capsular remnants, intraocular lens deposits, non-dilating pupil, etc., one has to contend with the fact that some breaks may not be obvious despite good visualization of retina. The important causes include very tiny breaks, breaks located within areas of chorioretinal atrophy, breaks within a staphyloma, breaks covered by flimsy membranes or vitreous condensation and breaks in pars plana epithelium, seen especially in cases of post-traumatic retinal detachments.
- In the evaluation, one needs to stress the importance of good binocular indirect ophthalmoscopy with scleral depression. Slit-lamp biomicroscopy can help clear the doubt in case of suspicious lesions.
- Vitrectomy can be indicated in certain cases of failure to detect retinal breaks. If the retinal detachment is restricted posterior to the buckle and if even scleral depression fails to show any fluid on the buckle, it is most likely that there is a break posterior to the buckle only. Such a ‘difficult-to-see break’ is best identified during vitrectomy. A prospective examination can direct our suspicion to some areas, but definitive identification may not be possible. The high magnification of the operating microscope coupled with improved visualization caused by removal of opacities and membrane helps locate the break with ease and the phenomenon of ‘Schleiren’ can confirm the same.
- If primary vitreous surgery is being planned, there could be complacency in identifying preoperatively all retinal breaks in the belief that the breaks can be identified during vitrectomy. It is important to realize that treatment of all the retinal breaks is a must for the success of the surgery irrespective of whether it is a primary buckling or primary vitreous surgery is performed. Additional breaks can form due to traction on the vitreous base and ora serrata. Locating the breaks in the periphery can still be difficult intraoperatively. Very often, intraoperatively indirect ophthalmoscopy helps identify peripheral breaks, better even than a wide-angle viewing system, especially in the presence of crystalline lens. It is obvious that a diligent preoperative examination and identification of these breaks will make the job easier during surgery.
- It is of course a different matter if extensive proliferative VR is present. In these circumstances, the surgery would involve thorough cleaning of the entire retina. Peripheral iatrogenic breaks (accidental and deliberate) are fairly common during vitreous base excision.
- Hence, it may not be vital to identify all the breaks preoperatively. Having said that, one should still eschew cursory preoperative evaluation, which is akin to a ‘General going to a war without adequate knowledge of the enemy’.

E. Massive submacular haemorrhage during scleral buckle
We reported a case who underwent scleral buckle for partial rhegmatogenous retinal detachment with a small dialysis at 3.30 meridian. While
passing the mattress suture, accidental globe perforation occurred. Fundus evaluation revealed a large amount of subretinal haemorrhage in the macular area. Pars plana three-port vitrectomy was done, a retinotomy was done to remove the subretinal blood and retina was attached using tamponade. At 6 months after oil removal, patient had a good functional recovery and attached retina.

**Take home messages:**
- Massive submacular haemorrhage as a complication of simple scleral buckling can be an indication of immediate vitrectomy and internal drainage of subretinal blood at the same sitting.
- This procedure greatly improves the post-operative visual recovery.

**E. Clinical profile of patients undergoing scleral buckle removal surgery**

We reported the clinical and microbiological profile of 101 patients undergoing scleral buckle removal (SBR) surgery.

**Take home messages:**
- Buckle exposure with clinical infection (79.41%) was the most common indication.
- Of the eyes which underwent surgery, 88.2% eyes were positive culture, 83.3% revealed single and 16.6% revealed multiple microorganisms.
- **Staphylococcus epidermidis** (41.2%) was the most common isolate. Fungus was isolated in 2.94% eyes.
- Globe perforation (13.7%) and recurrent retinal detachment (6.9%) were the commonest complications. Time gap between SBR and recurrent retinal detachment ranged from 15 days to 50 months (mean 12.2 ± 18.3 months).
- Most of the exposed scleral buckles developed clinical infection few months to years after surgery, ultimately requiring SBR. Recurrent retinal detachment after SBR may appear from few days to years later warranting a long-term follow-up.

**Evidences regarding pneumatic retinopexy**

**A. Recurrent retinal detachment treated with pneumatic retinopexy**

We reported 36 eyes with recurrent retinal detachment after failed scleral buckle who underwent pneumatic retinopexy.

**Take home messages:**
- Retinal reattachment was obtained in 69.4% after pneumatic retinopexy
- We identified two factors for failure: location of retinal break on the posterior slope or posterior to buckle and the extent of retinal detachment—more than two quadrants.
- Pneumatic retinopexy is an effective alternative to revision buckle or vitreous surgery, especially if the leaking breaks are located on the buckle.

**B. Reporting a posterior extension of retinal break after pneumatic retinopexy**

**Take home messages:**
- A patient underwent pneumatic retinopexy for partial rhegmatogenous retinal detachment sparing the macula.
- After reattachment of the retina, a radial, posterior extension of the retinal break developed, causing recurrent retinal detachment.
- Later, the patient underwent pars plana vitrectomy twice and attained reattachment of the retina. At the last follow-up, his visual acuity was 20/30.
- This report highlights the importance of pre-operative assessment of the VR relationship in eyes undergoing pneumatic retinopexy.

**Evidences regarding vitrectomy in managing rhegmatogenous retinal detachment**

**A. Pars plana vitrectomy and buckling in management of complex rhegmatogenous retinal detachment.**

We reported the importance of vitreous surgery in 65 cases of complex rhegmatogenous retinal detachment.

**Take home messages:**
- In cases with massive peri-retinal retraction, successful retinal reattachment was achieved in a third of cases. The location and type of the breaks and subsequent problems that occur are directly related to the type of perforation. About 60% of them had prior surgery for RD.
- Cases with vitreous haemorrhage and RD had better visual prognosis.

**B. Histopathological study in silicone filled eyes**

We reported the histopathological review of eight silicone oil filled enucleated eyes using light microscopy.

**Take home messages:**
- In all cases, silicone oil vacuoles, both free and incorporated within macrophages, were seen in all the retinal layers.
- Silicone oil vacuoles were seen in the optic nerve, choroid, retinal pigment epithelium, corneal stroma, iris and ciliary body stroma,
preretinal and subretinal membranes and retro-
corneal membranes.

- Silicone oil migration could be seen in intrao-
cular tissues as early as 2 months post-surgery.

- There was no definite histopathological correl-
lation between the duration of tamponade and
the distribution of silicone oil vacuoles.

- Silicone oil vacuoles were seen in the optic
nerve in eyes with neovascular glaucoma. Chronic inflammatory reaction was observed
in the retinal tissue in the vicinity of silicone
oil vacuoles.

C. Reporting a rare occurrence of suprachoroidal
collection of internal tamponade agents through a
choroidal hole

- We reported two cases of significantly large
choroidal holes following penetrating trauma
that led to suprachoroidal migration of internal
tamponading agents during repair of retinal
detachments with proliferative vitreoretinopa-
thy secondary to penetrating trauma.

- In the first case, choroidal hole was a direct
result of the injury and was identified immedi-
ately after VR surgery which was done for
traumatic retinal detachment with haemor-
rhagic choroidal detachment.

- In the second case, the hole occurred over a
period of several months after the repair of
traumatic retinal detachment with silicone oil
tamponade. This was attributed to progressive
fibrosis exerting traction on the bare choroid/
retinal pigment epithelium.

- Choroidal hole significant enough to cause
suprachoroidal migration of internal tampon-
ading agents is a very rare complication seen
in eyes with post-traumatic retinal detachment
with proliferative vitreoretinopathy.

D. Retinal detachment secondary to ocular perforation
during retrobulbar anaesthesia

We reported clinical characteristics and retinal
breaks associated with rhegmatogenous retinal
detachment secondary to accidental globe perfor-
ation during local infiltration anaesthesia in five
highly myopic eyes.

Take home messages

- The location and type of the breaks and subse-
quent problems that occur are directly related
to the type of perforation and whether or not
the intraocular injection was given.

- In most cases, the accidental perforation would
have occurred in large myopic eyes with or
without equatorial staphyloma.

- Although the general direction of the path of
the needle was considered correct. In such
cases, the needle is likely to be parallel to the
lobe wall and cause multiple sewing machine
type of breaks that are close to each other.

- These breaks are relatively large and oblong in
shape In contrast needle that has been intro-
duced in a wrong direction is likely to strike at
a more acute angle and exit posteriorly causing
two widely separated breaks of oval
shape.

- Depending on the direction, the posterior break
can be present anywhere around the posterior
pole or upper nasal quadrant.

- In accidental perforation during local anaes-
thesia, the scleral perforation is likely to be of
a larger size compared with accidental perfora-
tions caused during subconjunctival or subt-
ennon injection wherein 26-gauge or smaller
needles are used.

- Hence, most of these cases are recognized
immediately because of the sudden softening
of the eye. If recognized the surgeon should
abort the intended surgery and seek the help
of a VR surgeon for management.

- With rest, the vitreous haemorrhage may settle
down permitting laser photocoagulation of the
breaks. In the event of non-resolution of vitre-
ous haemorrhage within 7–10 days, vitrectomy
combined with intraoperative treatment of
breaks is advocated. This approach is quite
effective in the prevention of retinal
detachment.

E. Anterior chamber collapse after VR surgery with
gas tamponade in aphakic eyes

We reported the risk factors associated with the
occurrence of anterior chamber collapse in
aphakic eyes that underwent vitrectomy with gas
tamponade. A total of 314 eyes of 314 patients
who underwent vitrectomy with gas tamponade
and who were aphakic or were made aphakic
intraoperatively were studied prospectively

Take home messages

- Anterior chamber collapse occurred in 3.14%
eyes.

- The presence of preoperative shallow anterior
chamber, removal of intraocular lens as a part
of the procedure, occurrence of intraoperative
anterior chamber collapse and use of sulfur
hexafluoride (SF6) were associated with a
higher risk of anterior chamber collapse
postoperatively.

- The identification of potential risk factors in a
given eye can alert the surgeon to the
possibility of the development of anterior chamber collapse postoperatively.

F. Primary vitrectomy for rhegmatogenous retinal detachment associated with choroidal detachment

We reported the success rate of primary vitrectomy, scleral buckling and oral steroids in eyes with combined rhegmatogenous retinal detachment (RRD) and choroidal detachment (CD) and compared these results with those reported in the literature for similar cases managed by scleral buckling alone.

**Take home messages**

- At mean follow-up of 11.4 months, retinal reattachment was attained in 90.5% eyes compared with less than 53% reported in the literature for scleral buckling alone.
- With preoperative oral steroids, choroidal detachment regressed completely in 61.9% eyes. In the remaining eyes with persistent choroidal detachment, suprachoroidal fluid was drained during vitrectomy.
- Aggressive treatment with oral steroids followed by pars plana vitrectomy and scleral buckling or encircling is recommended instead of scleral buckling alone in the management of combined primary rhegmatogenous retinal detachment and choroidal detachment.

G. Primary vitrectomy for combined rhegmatogenous retinal detachment with choroidal detachment with or without oral corticosteroids

The occurrence of CD in eyes with primary RRD is relatively uncommon (2–4.5%). Reports suggest that primary vitrectomy yields better anatomical success than scleral buckling. However, for these inflamed eyes with low intraocular pressure, the influence of preoperative oral steroids on reattachment rates had not been elucidated. We did a prospective study was undertaken to elucidate the exact role of preoperative oral steroids in anatomical and functional outcomes for eyes with combined CD and RRD.

**Take home messages**

- Preoperative clinical data such as mean age, lens status, Snellen visual acuity, duration of macular detachment, CD (size and extent) and retinal detachment characteristics (e.g., extent, number of retinal breaks, atrophic or tractional retinal break, size of retinal break and location of retinal break) were similarly distributed in both groups.
- Single-operation anatomical success rate was 81.8% among those patients who received preoperative oral steroids and was 66.7% among those who did not receive preoperative oral steroids.
- After reoperation, anatomical success rate was 100% in both groups. The mean follow-up was 20.1 months.

H. Sympathetic ophthalmitis following vitrectomy

We reported the differences in the presentation and outcomes of sympathetic ophthalmitis (SO) in eyes with or without a history of antecedent penetrating trauma; SO being diagnosed after VR surgery. All Group I patients had received systemic steroids prior to presentation.

**Take home messages**

- Differences were observed between Group I and Group II mainly with regard to time interval between VR surgery and diagnosis of SO (1.5 vs. 8 months), the presence of neurosensory detachments (100 vs. 30%) and the inciting eye vision at presentation (nil light perception in 28.5 vs. 80%).
- Other differences observed though not statistically significant were optic disc and retinal vessel involvement (42 vs. 70%), Dalen–Fuchs nodules (localized vs. diffuse) and leaks on fundus fluorescein angiography (pin–head vs. pin–point leak).
- SO in patients with antecedent penetrating ocular trauma present early with the central serous chorioretinopathy-like picture. Prior use of systemic steroids might have a bearing on the differences in presentation and the visual acuities between the two groups.

Evidences regarding managing complex RRD

A. Clinical characteristics of retinal detachments in patients with Marfan syndrome and the surgical outcome of VR surgery

We described the clinical characteristics of retinal detachments in patients with Marfan syndrome and reported the surgical outcome of VR surgery.

**Take home messages**

- Characteristic findings included total retinal detachment in 75.5% eyes, atrophic holes in 45.3% eyes, more than four retinal breaks in 39.6%, pre-equatorial and post-equatorial breaks in 37.7% eyes, giant retinal tears in 11.3% eyes and proliferative vitreoretinopathy (posterior, anterior or both) in 17% eyes.
- In 56.6% eyes, retinal breaks were located only in the temporal half of the retina. Of the eyes with myopia, 54.2% had a myopic correction greater than 7 diopters.
- At the median follow-up of 10.7 months, complete retinal reattachment was obtained in 87.6% and 86.2% of patients undergoing scleral buckling (including additional procedures
such as vitrectomy) and vitrectomy surgery, respectively.

- In eyes with reattached retinas, a final visual acuity of 20/200 or better was obtained in 81% of the patients after scleral buckling and in 56% of the patients after vitrectomy surgery.

- Retinal detachment in Marfan syndrome is complete in 75% of the eyes. More than half (56%) the eyes had a retinal break only in the temporal half of the retina, and 83% had at least a break in the temporal half of the retina. Currently available VR surgical techniques result in successful reattachment of the retina in approximately 86% of the eyes.

B. Use of silicone oil in the management of complex retinal detachment—an Indian experience

This study reported the results and complications of temporary silicone oil tamponade that was used to treat complicated RD in 4488 eyes associated with multiple aetiologies. An eye was considered an anatomical success if there was a complete retinal reattachment or macular attachment. Functional success was defined as attainment of visual acuity of 5/200 or better.

**Take home messages**

- Overall, anatomical success was achieved in 73% of the eyes, and functional success, in 47%. After removal of silicone oil, recurrence of retinal detachment was observed in 9% of the eyes; a high percentage (70%) of eyes attained functional success. Postoperative cataract was observed in 65.3%, abnormal corneas in 21.3%, hypotony in 16.9% and glaucoma in 16.4% of the eyes.

- The overall anatomical success rate in eyes with primary or recurrent retinal detachment with PVR was 72 and 70%, respectively.

- In traumatic RD with or without PVR, anatomical success rate was achieved in 73–75% of eyes and functional success, in 43–50%.

- In GRT with or without PVR, after silicone oil tamponade, the retina was reattached in 75–79% of eyes and functional success was attained in 65–69% of eyes.

- In choroidal coloboma with RD, the overall, anatomical success rate was 82% and functional success, 66%.

- Despite the onset of complications related to silicone oil usage, a high rate of reattachment of the retina was observed following vitrectomy and silicone oil tamponade in the management of complex RD associated with multiple aetiologies.

C. Management options and outcomes after reoperations for recurrent retinal detachment in silicone oil-filled eyes

One hundred eighteen silicone oil-filled eyes with recurrent retinal detachment were managed with revision of vitrectomy with membrane surgery with or without silicone oil removal, just scleral buckling or both. Anatomical success rate was defined as complete reattachment of the retina, and functional success was defined as recovery of ambulatory visual acuity of 5/200 at the last follow-up (mean follow-up, 29.7 months).

**Take home messages**

- In 82.2% of the cases, proliferative vitreoretinopathy was responsible for recurrent retinal detachment in silicone oil-filled eyes.

- Reoperations without removal of the silicone oil were performed in 65.3% of the cases. Anatomical success occurred in 62.7% of the eyes, and functional success occurred in 52.5%.

- Silicone oil was removed in 59.5% of the eyes with retinal reattachment; the retina remained attached in 90.9% of the eyes.

- Predictors of poor anatomical success were the presence of posterior diffuse proliferative vitreoretinopathy and combined posterior and anterior proliferative vitreoretinopathy.

- Reoperations for recurrent retinal detachment in silicone oil-filled eyes were successful in nearly two-thirds of the cases, and over one half of the eyes recovered an ambulatory vision.

D. Surgical outcomes of patients of HIV on HAART who underwent surgery for CMV retinitis-related retinal detachment

We reported surgical outcomes in 40 eyes of 35 consecutive HIV-positive patients who underwent surgical repair for CMV retinitis-associated rhegmatogenous retinal detachment.

Retinal detachment surgery was performed once active retinitis subsided (average of 4–6 weeks). Total retinal detachment was observed in 45%, while 55% had subtotal retinal detachment. Macular detachment was seen in 87.5% eyes. Proliferative vitreoretinopathy was present in 37.5% eyes and epiretinal membrane was seen in 2.5% eyes. None of the eyes had received preoperative laser prophylaxis. All 40 eyes underwent vitrectomy with silicone oil injection (1500 mL).

**Take home messages**

- Redetachments on follow-up were seen in 30% eyes that were surgically managed, with 10% eyes having a persistent retinal detachment at final follow-up.
Favourable anatomical outcome was achieved in 80% eyes with attached retina, clear media and controlled intraocular pressure.

Of these, 37.5% eyes had silicone oil removal with no detachments on follow-up. The rest of the 42.5% eyes had silicone oil in situ.

Favourable functional outcome (vision >3/60) was achieved in 57.5% eyes. The causes for poor vision in the rest were pale disc in 22.5% eyes, phthisis in 12.5% eyes and persisting retinal detachments in 10% eyes.

Though anatomical outcomes have not changed from the pre-HAART era, but there has been an increase in favourable functional outcomes possibly due to effects of antiretroviral therapy.

E. Patterns of breaks and detachments in eyes with choroidal coloboma

We described the type of breaks in the diaphanous tissue that can lead to coloboma-related retinal detachments.

Take home messages

- In an eye with coloboma with RD, the coloboma may or may not be causative of detachment. On examination of fundus, with special attention to the margin of the coloboma, one can definitely segregate a group of eyes wherein the detachment does not extend at all inside the margin. The management does not differ from RDs in eyes without coloboma.

- Retinal detachments that extend into the colobomatous area always are associated with breaks in the diaphanous tissue.

- Three distinct types of breaks were identified within the coloboma. A. Breaks at the edge of the detachment inside the coloboma. B. Oval atrophic breaks and C. breaks in anatomical macula that was involved in the coloboma.

- Multiple breaks were common.

F. Management of retinal detachment with choroidal coloboma

Study 1: 17 eyes with retinal detachment secondary to retinal breaks in the colobomatous area were managed by vitrectomy procedures. Endodrainage was done through the break in the colobomatous area, with simultaneous fluid-air exchange. Endolaser photocoagulation was performed along the colobomatous margin posteriorly, while the anterior portion was treated by transscleral cryopexy. Silicone oil was then exchanged with air.

Take home messages

- In nine cases, the silicone oil had to be removed for complications such as emulsification, glaucoma and keratopathy; in three of these eyes, oil removal resulted in recurrent retinal detachment.

- At the 2-month follow-up visit, there was 100% anatomical success, and 12 eyes (70.6%) recovered visual acuity of 10/200 or better.

- Of the 11 eyes with follow-up of more than 6 months, in 9 (81.8%), the retina remained reattached at last-follow up, and in 6 eyes (54.5%), a visual acuity of 10/200 or better was obtained.

Study 2: 85 eyes of 81 patients with retinal detachments related to coloboma of the choroid underwent pars plana vitrectomy with internal tamponade using silicone oil (80 eyes) or perfluoropropane gas (5 eyes). Behaviour of the retina on fluid-air exchange was used to guide the further steps of surgery. Endolaser was performed along the coloboma border. Silicone oil was removed in 80% of eyes.

Take home messages

- When there was no identifiable break in the intercalary membrane, fluid-air exchange was used as a guide to further management.

- If a communication existed between the subretinal space and the subintercalary membrane space and onward into the vitreous cavity (by way of breaks in the intercalary membrane), then injection of air into the vitreous cavity, aided by mere suction of fluid from the ectatic colobomatous area, flattened the retina.

- If no such communication existed, the retina was seen to balloon around the coloboma. If the ballooned retina stopped short of the colobomatous border, it was inferred that the retinal detachment was not related to the coloboma and its management was directed accordingly to the peripheral break alone.

- If, however, the ballooned retina extended into the coloboma, then the coloboma could be contributing to the occurrence of the retinal detachment in addition to the peripheral break.

- Recurrent retinal detachment occurred in 16.3% of silicone oil-filled eyes and 60% of gas-filled eyes.

- After silicone oil removal, 15.6% of eyes had recurrent retinal detachment. After a mean follow-up of 13.4 months, 81.2% of eyes had attached retina and 69.4% recovered equal to or better than 10/200 visual acuity.
Retinal detachment secondary to coloboma of choroid is treated best by pars plana vitrectomy along with silicone oil tamponade. Gas tamponade has limited indications. Clinical evaluation of the extent of retinal detachment within the colobomatous area and the behaviour of the retina on fluid-air exchange helps to understand the pathogenesis of the retinal detachment and plan a rational therapy.

G. A clinical and optical coherence tomography study of the margins of choroidal colobomas
Take home messages
We described the features at the margin of the choroidal colobomas as evaluated clinically and by optical coherence tomography (OCT).

- Histologically, there is no normal choroid, retinal pigment epithelium or retina overlying choroidal colobomas; rather, the overlying tissue is an extension of the retina called the intercalary membrane (ICM).
- In these patients, OCT showed that transition from normal retina to the ICM could be categorized as abrupt or gradual and also showed that the inner neurosensory retinal layers continued as the ICM, whereas the outer layers could not be traced beyond a point.
- In some cases with apparently attached retina, subclinical retinal detachments were identified along the margin of the coloboma.
- In cases with retinal detachment, OCT allowed for identification of the precise site of communication between the sub-ICM space and subretinal space at the locus minoris resistentiae.
- The margin of the choroidal coloboma, in some cases, showed the appearance of a hump owing to inward turning of the retinochoroidal layers with thickening of the layers at the margin.
- In small colobomas, OCT revealed the ICM thickness comparable to normal retina but showed structural alterations.
- Fundus lesions that were clinically labelled forme fruste of choroidal coloboma seemed to have normal retinal thickness and layering on OCT. In one patient, a temporal optic pit was associated with the forme fruste choroidal coloboma in one eye; the fellow eye had a typical choroidal coloboma.
- Optical coherence tomographic evaluation of the margins of choroidal colobomas helps in understanding the transition from retina to ICM, detects subclinical retinal detachments and aids in identifying the site of communication between the sub-ICM space and the subretinal space in eyes with retinal detachment.

H. Pneumatic retinopexy in a case of shallow detachment with choroidal coloboma
We reported the surgical outcome of pneumatic retinopexy in a patient with retinal detachment from a single break in the intercalary membrane of an eye with macula-sparing retinocchoroidal coloboma. Pneumatic retinopexy with laser barrage to coloboma margin can achieve and maintain retinal reattachment in eyes with macula-sparing retinocchoroidal coloboma with shallow SRF.

I. Rhegmatogenous retinal detachment following treatment for retinoblastoma
We reported the characteristics of rhegmatogenous retinal detachment that developed in nine children who underwent treatment for retinoblastoma and analyzed the outcome following VR surgery in such clinical settings.
Take home messages
- At the time of diagnosis of rhegmatogenous retinal detachment, retinoblastoma was regressed in 67% eyes. The retinal detachment involved less than two quadrants in 78% eyes and was caused by an atrophic break in seven eyes.
- Seven eyes underwent a non-drainage scleral buckling procedure. Three eyes underwent vitreous surgery; in two of these eyes, tumour excision along with retinectomy using melphalan infusion was performed and eventually silicone oil tamponade was used.
- Retinal reattachment was achieved in all eyes with eventual tumour control in seven eyes.
- Rhegmatogenous retinal detachment in treated eyes with retinoblastoma is usually caused by an atrophic retinal break. Retinal detachment can be repaired successfully in most eyes.

Conclusion
Vitreoretina is a unique specialty in which a mixture of both medical and surgical interventions are routinely performed. It is well known that randomized controlled trials (RCTs) are generally harder to conduct for surgical treatments and previous studies have shown that the proportion of evidence from RCTs was lower in surgical studies compared with studies in internal medicine. The India-centric evidences from the large dataset from South-India has provided evidence for managing rhegmatogenous retinal detachment.

References


