

Vitreoretinal Society of India practice pattern survey 2020: Surgical retina

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Purpose: To present the outcomes of the Vitreo-retinal Society of India (VRSI) Practice Pattern Survey 2020 in surgical retina. **Methods:** An online survey of members of VRSI was conducted in April 2020 regarding their practice patterns on varied medical and surgical retina topics concerning imaging and management approach. The results were evaluated by two independent experts in this field and compared with the evidence and other practice patterns in the world. **Results:** A total of 107 VRSI members participated in the online survey. Responses were obtained on management of wide-ranging surgical retina topics such as diabetic retinopathy, retinal detachments, Macular Hole, and Epiretinal membranes. Participants were also surveyed regarding their attitudes and perceptions about microscopes with the heads-up display system. Each of the survey question responses were then compared to contemporary literature, including evidence-based guidelines, randomized controlled trials, real-world evidence, and analogous international surveys. Comprehensive analysis related to this has been put forward in the article. **Conclusion:** This survey represents the contemporary practice patterns among vitreoretinal specialists in India. The survey results are vital for fellow practitioners to understand the “standard of care” practice in surgical retina. This will guide them to devise the best possible individualized treatment strategy for most favorable clinical outcomes.

Key words: Diabetic retinopathy, Epiretinal membranes, macular hole, practice patterns, retinal detachments, Vitreoretinal Society of India

Over the past decades, we have witnessed significant advances in understanding the pathogenesis, diagnostics, and management of vitreoretinal diseases. This has improved our ability to provide better outcomes while treating these disorders. However, there have been numerous developments which have created controversies and challenges due to insufficient evidence, or complexity in interpreting the results, in both intervention and diagnostic imaging. Innovative technologies and interventions continue to progress rapidly, while growing evidence base to support excellence in providing healthcare remains a mounting challenge.^[1] Much of what is learnt and practiced today is based on data comprehended from traditional randomized controlled trials and evidence-based guidelines.^[1,2]

Although such forms of evidence-based system provide an excellent platform to formulate disease management protocol, their widespread application is challenging because they may not truly reflect the population diversities and the delivery

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settings in real-world practice.^[2,3] To overcome this hurdle, researchers across the world are sharing their real-world evidence in varied patient population and clinical settings. Complementing this, certain retinal societies such as the American Society of Retina Specialists (ASRS) conduct their annual Preferences and Trends (PAT) Survey to evaluate the changing trends and practice pattern amongst different retina societies around the world, on a wide array of medical and surgical retina issues.^[4]

Of late there has been considerable advocacy for assessing and sharing the best practice patterns among the Indian vitreo-retina specialists. In order to generate evidence regarding real-world practice patterns in India, the Vitreo-retinal Society of India (VRSI) conducted an online survey in April 2020. The objective of this manuscript is to present the outcomes of the 2020 VRSI Preferred Practice Pattern survey pertaining to surgical retina.

Methods

An electronic survey was sent to members of the VRSI in April 2020, and recipients were asked to complete the online survey within 15 days. The survey was collected

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using the Google forms and stored google sheets, which by default are encrypted. All the participants were identified. No ethical clearance was needed for the survey. The survey assessed members' practice patterns on a diverse range of medical and surgical retina topics. In the second part of the preferred practice pattern outcomes, we present the data in relation to the surgical retina aspect. Questions were asked on important diseases on imaging, outcomes, and therapeutics. The questions were closed-ended, and participants were required to choose their response from the given options. There was no incentive or reward to complete the survey, and the survey was not sponsored by any third party. There were 17 questions and each question had four to five possible responses. Only one response was allowed to be selected in each question. The questionnaire is available as Supplemental Appendix 1.

The questions were structured and the options in the answers were given based on current literature available in that disease subject. The results of the survey were further analyzed by experts in surgical retina (CW, RS). They provided a gap analysis of practice patterns in India versus major patterns in the world, such as the American PAT survey.

The survey was delivered to 826 number of VRSI members by email. Results are presented in the form of descriptive statistics and frequency tables. The responses are reported as nominal data which was analyzed using Excel (Microsoft, Richmond, USA).

Results

One hundred and seven members (out of 826 e-mails delivered) of the VRSI participated in the practice patterns survey 2020.

Proliferative Diabetic Retinopathy (PDR)

More than half of those surveyed in the VRSI Preferred Practice survey prefer to inject intravitreal anti-vascular endothelial growth factor (anti-VEGF) for new-onset vitreous hemorrhage (VH) in a one-eyed PDR patient [Fig. 1.1]. One-third of the total respondents preferred to perform pars plana vitrectomy following the anti-VEGF therapy (36.4%), while a similar number of them chose to observe (34.6%).

For a TRD which is threatening the macula in a young diabetic patient with visual acuity of 6/12, more than half of the VRSI survey respondents (52%) preferred to perform scatter pan-retinal photocoagulation (PRP) and closely monitor the eye [Fig. 1.2].

For a planned PDR with macular tractional retinal detachment (TRD) surgery, 85% of VRSI responders would utilize preoperative anti-VEGF injection [Fig. 1.3]. Regarding the timing of preoperative anti-VEGF injection, most respondents opted to perform it 3–5 days prior to surgery (58.9%). Intraoperatively, a third of the respondents preferred to peel the internal limiting membrane (ILM) if there is thick epiretinal membrane (ERM) (38.3%) or if there has been a chronic, recurrent macular edema (34.6%) respectively [Fig. 2.5].

For a diabetic macular-involving TRD without breaks, almost half of the VRSI survey respondents (47.7%) would place no tamponade, whereas one-fourth would use silicone oil (25.2%) and 19.6% would use gas [Fig. 2.4].

For recurrent postoperative vitreous cavity hemorrhage (POVCH) in PDR patients, a majority of the participants would perform vitreous lavage with peripheral cryotherapy of port sites and inject air/gas (38.3%) or silicone oil (22.4%) [Fig. 2.6]. At the same time, 18.7% of respondents would perform intravitreal anti-VEGF therapy and 16.8% of them would observe such patients.

Retinal detachment

Respondents were also asked their preferred management pattern in a 70 year-old phakic patient with a fresh macula off RD with 360° serous choroidal detachment (CD) [Fig. 3.7]. A majority of the participants (64.5%) preferred to start the patient on oral corticosteroids for 3–7 days and wait for the CDs to reduce or resolve before performing the surgery. Similar proportion of respondents opted for immediate choroidal drainage with pars plana vitrectomy either by 23G (17.8%) or 25G (13.1%).

For management of a macula-off inferior RD with proliferative vitreoretinopathy (PVR), 70.1% of respondents would perform belt buckling along with vitrectomy and inject regular (nonheavy) silicone oil, whereas 17.8% would perform the same procedure without placing a belt buckle [Fig. 3.8]. A vast majority of VRSI survey responders (82.2%) would leave shallow fluid at the posterior pole at the end of an uncomplicated total RD surgery [Fig. 3.9].

In a young patient with persistent subretinal fluid following a primary scleral buckle, the bulk of the respondents chose to observe [Fig. 4.10]. When the participants were asked regarding the duration of observation before considering vitrectomy, the majority selected 1 month (33.6%), followed by 2 weeks (25.2%), and 1 week (22.2%), respectively.

Following a successful retinal detachment surgery, more than half of the respondents (53.3%) would remove the silicone oil after 3 months followed by 3–6 months (36.4%) [Fig. 4.11].

Macular hole and Epiretinal membranes

For traumatic macular holes, nearly three-fourth of VRSI survey respondents (73.8%) would observe for 1–3 months, before considering surgical intervention [Fig. 5.13]. Only 9.3% would observe for a longer period of 3–6 months, while 16.8% would prefer an early surgery if it does not close within a month.

When the participants were asked regarding the size of macular hole at which they would consider modified techniques such as ILM flap, majority would do so if the hole were 700–1000 μm (37.4%), followed by 400–700 μm (34.6%), 1000–1500 μm (15%), and >1500 μm (5.6%), respectively [Fig. 5.14]. For postmacular hole surgery, almost half of the respondents (46.7%) would advise face-down positioning for 5–7 days, while 30.8% of them would advise it for >7 days [Fig. 5.15].

More than half of the respondents (53.3%) do not permit air travel until the gas is completely absorbed [Fig. 4.12]. Almost a quarter (25.2%) permit it only once the air bubble is less than 10% fill, followed by less than 20% fill (14%), and less than 30% fill (7.5%), respectively.

Regarding the role of ILM peeling during surgery for an ERM, 43.9% of participants responded that they peel ILM in all ERM surgeries, while 22.4% of them peel in 50–99% of cases and 18.7% peel it in less than 50% of cases [Fig. 5.16].

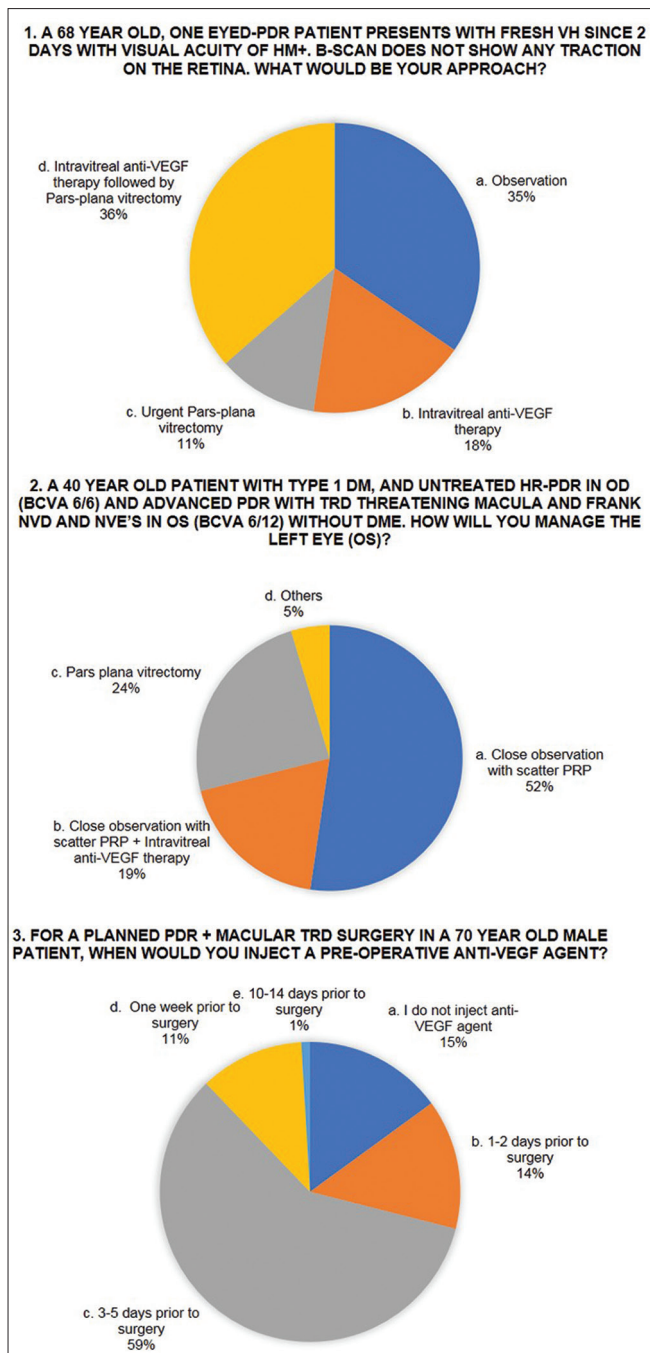


Figure 1: Practice pattern survey data pertaining to preoperative considerations for proliferative diabetic retinopathy (PDR)

Heads-up vitreoretinal surgery

In the VRSI survey, when the participants were asked for an opinion regarding their experience with a microscope with the heads-up display system, one-quarter felt that it made their surgical encounter better (25.2%), while 21.5% felt that it was only somewhat better [Fig. 6.17]. Only 11.2% felt that their experience was no better, and 42.1% were not sure.

Discussion

For the treatment of proliferative DR with the presence of VH, there are multiple options including observation, and

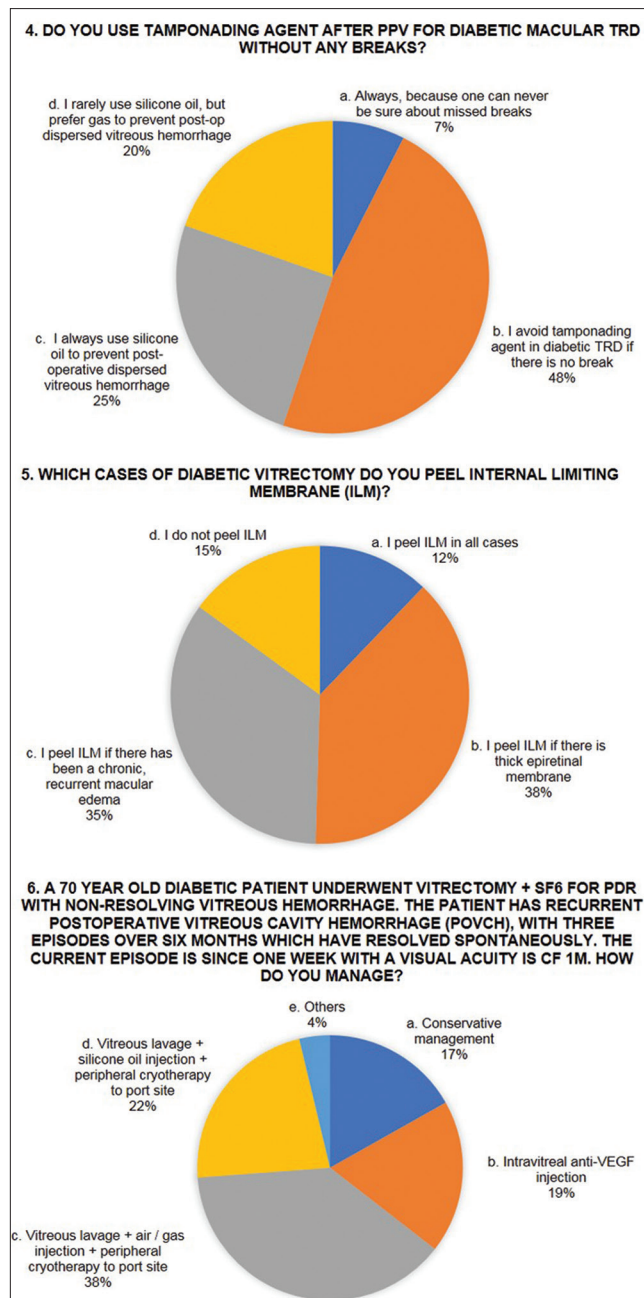


Figure 2: Practice pattern survey data pertaining to intraoperative and postoperative considerations for proliferative diabetic retinopathy (PDR)

consideration for pars plana vitrectomy and/or anti-VEGF. One-third of the VRSI survey respondents preferred to perform immediate pars plana vitrectomy following anti-VEGF therapy in a monocular patient with fresh VH. The DRCR. net study's Protocol S^[5] showed a cumulative probability of vitrectomy of 12% at 16 weeks with ranibizumab versus 17% with saline. However, in that study monocular patients were not enrolled, and hence vitrectomy may be a reasonable option in monocular patients. The 2018 American Society of Retina Specialists (ASRS) Preferences and Trends (PAT) survey showed that 71.3% of United States responders routinely use bevacizumab for patients with PDR and nonclearing vitreous hemorrhage.^[6] While this is a slightly greater percentage

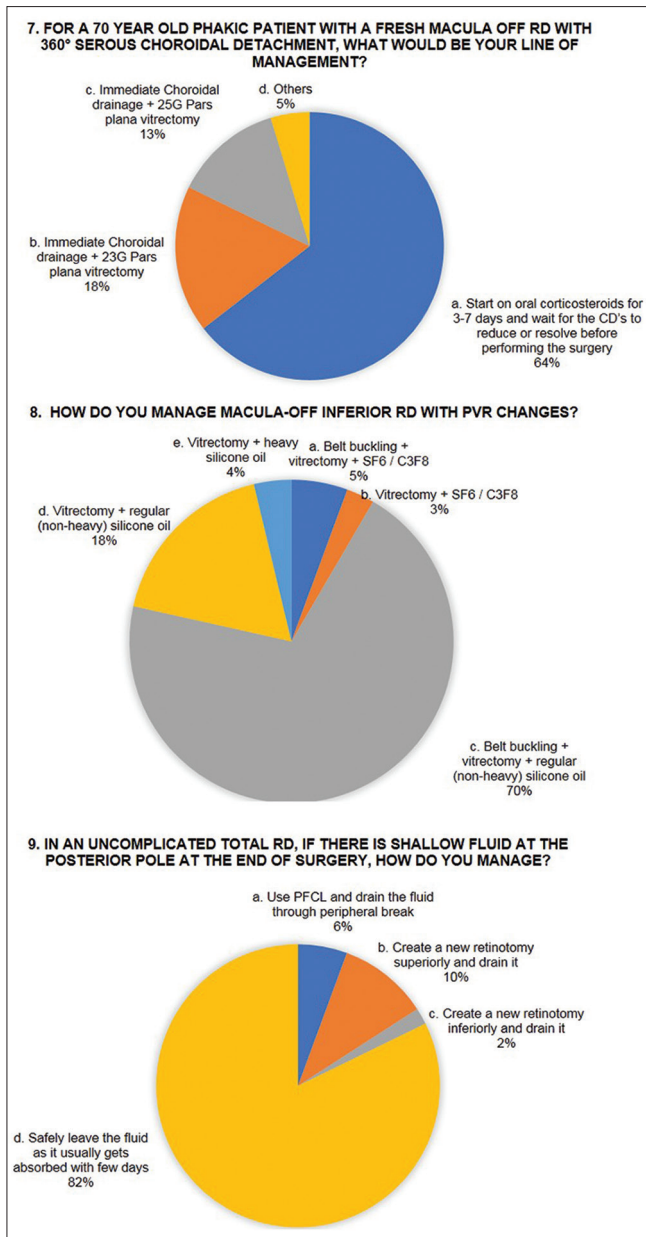


Figure 3: Practice pattern survey data pertaining to preoperative and intraoperative considerations for retinal detachment (RD)

than what was observed in the VRSI survey, the hypothetical scenarios and questions being asked were not identical and may explain the difference in responses.

The results of the VRSI survey showed that most retina surgeons inject anti-VEGF preoperatively for TRD, similar to the 2019 ASRS PAT survey.^[7] Eighty-five percent of VRSI responders would inject preoperative anti-VEGF, while over 90% of United States responders would do so in a similar situation. While there are limited studies evaluating outcomes of TRD repair with and without preoperative anti-VEGF,^[8] there is a general consensus among surgeons that membrane dissection and intraoperative hemostasis are significantly facilitated by treating with anti-VEGF prior to surgery.^[9] The timing of injection of preoperative anti-VEGF is crucial. The “crunch” phenomenon is a feared vitreoretinal traction

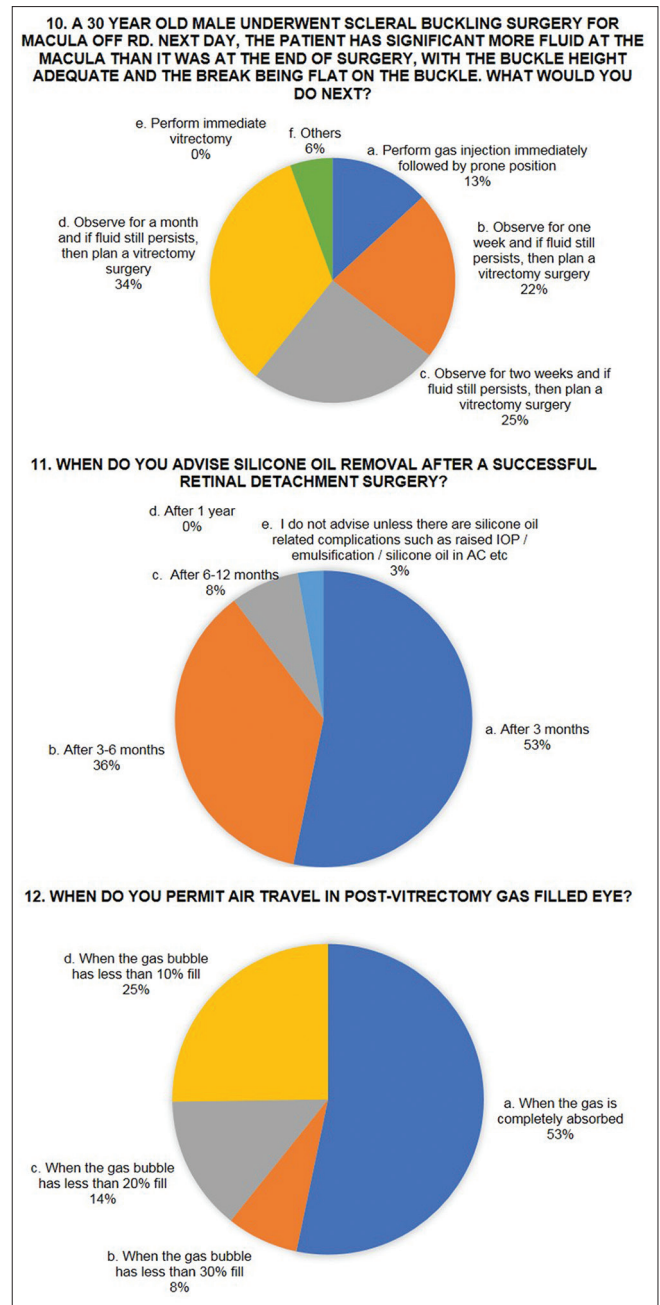


Figure 4: Practice pattern survey data pertaining to postoperative considerations for retinal detachment (RD)

complication that can result after anti-VEGF injection when vascular membranes are already present.^[9] However, it is important to note that this phenomenon is quite rare, occurring only in about 5% of patients in one series.^[10] The recent Protocol S study found little progression to tractional detachment with anti-VEGF in the setting of PDR.^[11] Regardless, most surgeons in our survey inject anti-VEGF within a 7-day window prior to operating.

Surgical management of diabetic TRD is challenging and necessitates timely intervention and optimization of technique based on the individual case scenario.^[9] For a TRD that is threatening macula, the choice of intervention is debatable. Researchers have shown that the rate of progression of

extramacular TRDs to macular involvement to be around 15% at 1 year and 21–23% at 2 years, respectively.^[12,13] More than half of the participants in the survey preferred to perform a scatter PRP with careful observation in a young diabetic with macula threatening TRD with a good visual acuity of 6/12. However, a quarter of the respondents would go ahead with a vitrectomy in such a clinical scenario. The threshold for undertaking surgery could be lower for some surgeons because of multiple factors such as advances in surgical instrumentations and techniques, lesser chances of intraoperative complications and hence potentially better anatomical and functional outcomes.^[14] However, the risk of significant vision loss after vitrectomy for diabetic TRD is substantial, and this may be a reason for surgeons to not perform early surgery in eyes with good vision. The issues faced with diabetic TRD surgeries include intraoperative bleed, iatrogenic holes, postoperative fibrous proliferation, and ERM development.^[9,14–16] To reduce the risk of ERM formations or in the presence of chronic macular edema, a few surgeons prefer to peel the ILM during diabetic vitrectomies.^[17] Some studies have shown better visual outcomes with ILM peeling in patients with DME, while some have shown no benefit of peeling in ILM, although the anatomical outcomes are better after peeling the ILM.^[18–20] The VRSI survey showed that almost a third of the surgeons preferred to peel the ILM if there was presence of chronic macular edema or presence of an ERM.

In diabetic macular-involving TRD without breaks, a quarter of the respondents of this survey preferred to use silicone oil. This is significantly higher compared to those from United States respondents in the 2018 ASRS PAT survey where only a mere 1.4% preferred silicone oil.^[6] There is little data to support what the best response is in these cases. The possibility of occult breaks or “micro-breaks” always exists as does the potential development of postoperative vitreous hemorrhage. While hemostasis with silicone oil may be better in the short-term, the long-term outcomes with or without silicone oil may not be different. Another reason for this regional difference of preference of silicone oil could be related to more advanced cases of PDR and TRD seen in developing countries. Silicone oil is usually a preferred tamponade in complex diabetic vitrectomies.^[21]

POVCH in PDR patients is a common, yet very frustrating, occurrence for both patient and surgeon. Unfortunately, we have yet to uncover how to best manage this adverse event or prevent it. The wide range of management approaches is reflected in this VRSI survey, where 17% preferred to observe, 19% would inject anti-VEGF, 38% would perform vitreous lavage and place air/gas, and 22% would perform vitreous lavage and place silicone oil. Of the United States respondents in the 2019 ASRS PAT survey which had a similar question, 59.6% would observe, 28.9% would inject anti-VEGF, 3.4% would perform an in-office air–fluid exchange, and only 0.3% would return to the operating room.^[7,22] The question in these surveys slightly differ as the hypothetical patient in the VRSI survey already had experienced multiple POVCHs in the past 6 months, but it is still interesting to note the more conservative approach of United States retina specialists in this situation. To address the issue of recurrent POVCH, almost 60% of VRSI respondents would additionally perform peripheral cryotherapy of port sites to ablate any areas of anterior hyaloid proliferation.

Surgical management of RD in the presence of CD is a challenging task. Use of oral steroids preoperatively has been postulated to reduce CD and PVR, thereby greatly facilitating the surgical procedure and visual outcomes.^[23] A few studies have shown it to improve the final reattachment rates, while some studies reported no improvement in retinal reattachment rates or visual outcomes.^[23–25] Nonetheless, almost two-third of the VRSI survey respondents preferred to start the patient on oral corticosteroids for at least 3–7 days before the surgery.

For a macula-off inferior retinal detachment with PVR, over three-quarters of VRSI survey responders preferred to place a scleral buckle. This is similar to the ASRS respondents who would do the same (~80%) based on the 2019 PAT survey.^[7]

Studies have shown that complete drainage of subretinal fluid is not mandatory during primary retinal detachment surgeries and may even reduce the perioperative complications by reducing the surgical maneuvers.^[26,27] This explains the VRSI survey results where more than 80% of surgeons preferred to leave minimal subretinal fluid at the posterior pole in an uncomplicated detachment surgery. Similarly, in a young patient with persistent subretinal fluid following primary scleral buckle, observation was preferred instead of performing immediate vitrectomy.^[28,29] So long as the break is supported by the buckle, the retinal pigment epithelium of a younger patient should be able to resorb that fluid over time. In such a clinical scenario, more than 80% of VRSI respondents chose to observe the patient from 1 to 4 weeks before considering any additional intervention.

Management of traumatic macular holes often depends on specific patient characteristics. One long-term series reported a 50% spontaneous closure rate in children and a 28.6% spontaneous closure rate in adults, with a median time of 5.6 weeks for hole closure.^[30] Smaller holes with absent intraretinal cysts also seem to have a higher probability of closing without surgical intervention.^[31,32] In a recent multicenter comparative study conducted in China, 25 patients underwent an immediate vitrectomy, and 15 patients were observed for 6 months; the closure rates were 66.7% in the latter and 100% in the former group.^[33] Because 80% of the holes in this study closed within 3 months, the authors conclude that a 3-month observation period is reasonable. This recommendation is in line with the VRSI survey results with nearly 75% waiting 1–3 months. Nevertheless, appropriate discussion and counseling with the patient is critical in decision making.

Modified techniques, such as an ILM flap, are increasingly being used in the surgical repair of full-thickness macular holes. A recent meta-analysis evaluated 16 published studies that enrolled a total of 1,403 eyes of which 733 were treated with ILM peeling, while 670 were treated with an inverted ILM flap.^[34] The authors found that MH closure rate was superior with the ILM flap (risk ratio 1.25) compared to conventional ILM peeling. Interpretation of these results should be done with caution, however, because many of the included studies were retrospective series rather than controlled trials. The VRSI survey showed that the majority of respondents would not consider an inverted ILM flap unless the hole was 700 microns or larger. The 2019 ASRS PAT survey showed that for holes >400 microns that failed initial surgery, 43.5% of respondents would approach the case by confirming sufficient removal of the ILM and placing a longer-acting gas, while 30% would use an ILM

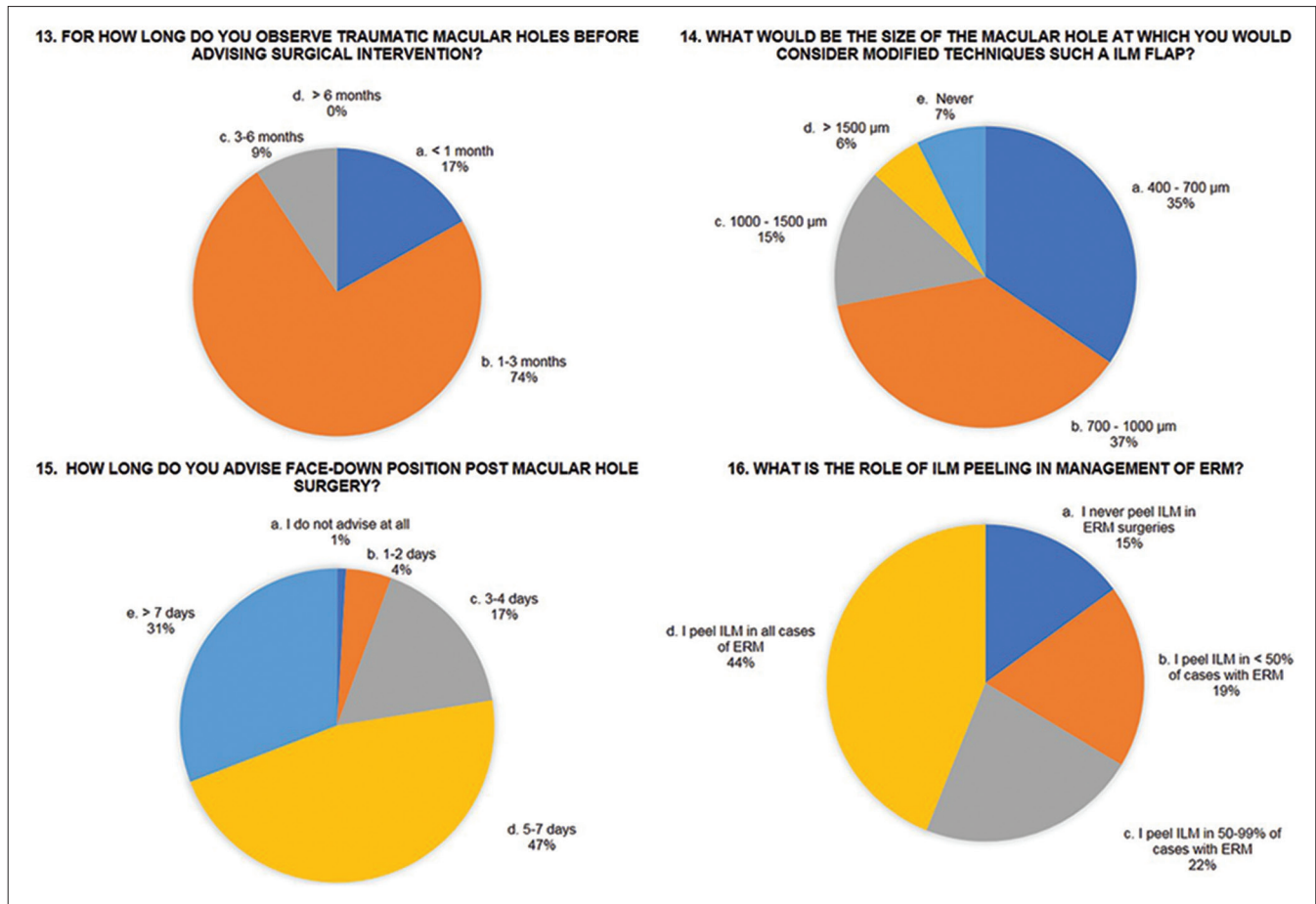


Figure 5: Practice pattern survey data pertaining to Macular Hole and Epi-retinal membranes and its management

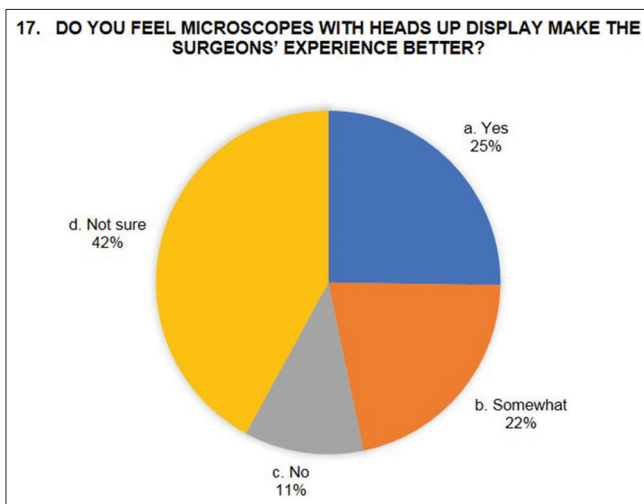


Figure 6: Practice pattern survey data pertaining to heads-up vitreoretinal surgery

flap or another modified technique.^[7] Creation of an ILM flap can be technically challenging, especially with friable ILM or limited experience, and this may influence choice of technique.

The duration of postoperative face down position after macular hole surgery is controversial. In the VRSI survey, nearly 80% of retina specialists who responded would advise

5 or more days of face-down positioning while less than 1% advise no positioning. In contrast, 13.1% of United States retina surgeons in the 2018 ASRS PAT survey reported that they do not position their patients face-down following macular hole surgery.^[6] In a recent prospective multicenter study, Lindtjorn, et al.^[35] reported a 99.5% MH closure rate with 3–5 days of postoperative nonsupine (but not face-down) positioning. The authors suggest that their results corroborate those of others who have found strict face-down positioning to be unnecessary in achieving successful outcomes.^[36,37] More surgeons may adopt non-face-down positioning practices in the future. For large or refractory macular holes, we suspect that the tendency to recommend face-down positioning will be stronger.

Air travel is often a frequent consideration while injecting gas in the eye. More than half of VRSI survey responders do not allow air travel in a postvitrectomy gas-filled eye until the gas has completely absorbed. There are several reported cases of adverse event after flying with even a small residual gas bubble. One report describes a patient who suffered significant visual field loss following air travel with a 10% fill of intravitreal perfluoropropane gas.^[38] While it has been shown that the presence of a scleral buckle may dampen intraocular pressure elevations during ascent when there is residual intraocular gas,^[39] there is no doubt that it is safer to wait until the gas has completely resorbed. The discussion of limitations on air travel should always be approached with the patient before taking them for vitrectomy, regardless of indication.

It is interesting to note that nearly three-quarters of VRSI survey respondents concurrently peel ILM in the majority of their ERM surgeries. Because ILM is hypothesized to act as a potential scaffold for cellular proliferation, some surgeons always remove both ILM and ERM together in order to decrease ERM recurrence.^[40] In a prospective interventional case series by Shimada and colleagues, they found the ERM recurrence rate to be 16.3% in eyes that underwent single ERM peeling compared to none in the eyes that underwent double ERM/ILM peeling.^[41] However, ILM peeling can cause mechanical injury to the underlying retina and cause “DONFL” (dissociated optic nerve fiber layer) or iatrogenic injury.^[42]

The use of heads up display for surgery is gaining popularity. The benefits offered by a heads-up display include improved ergonomics, easier teaching of trainees, staff, and observers, and potentially improved visualization.^[43] However, the technology is quite costly and does not offer direct reimbursement benefits, which is one factor that limits its penetration into the surgical market. One study also found slower operating times, although this may be related to the learning curve.^[44] In the VRSI survey, one-quarter of respondents felt that it did make the surgical experience better, while 21.5% felt that it was only somewhat better, 11.2% felt that it was no better, and 42.1% were not sure; those in the latter category may not have yet had the opportunity to try this type of platform. In the 2019 ASRS PAT survey, over two-thirds of respondents had not yet used a heads-up visualization system.^[7] Typically, 18.4% stated that they had used it and did not think it was helpful, while 12.6% stated that they had used it and did feel that it was helpful. The proportion of surgeons who use this technology in the future is likely to increase.

This study represents the only national survey data on physicians' perceptions concerning medical and surgical retina topics in India. The limitation of the study is that this is not based on patient level data but based on recall and perception of surgeons. However, this survey provides a broad nation-wide practice pattern among surgeons in India for various retinal pathologies. Unfortunately, the participation rate among Indian vitreoretinal specialists was small and data was obtained from only a minority of the VRSI's membership. This low participation rate limits the interpretation of results to $\pm 8\%$. Also, the lack of information regarding the demographic details such as training, experience, type of practice setup, and access to all treatment options of the participants is a drawback of our survey. For our future surveys, we would be formulating the questionnaire to incorporate these additional data. Moreover, we are trying to increase the response rate for future surveys.

Conclusion

In conclusion, this VRSI practice pattern survey gives us important information regarding the surgical preferences among Indian vitreoretinal specialists. This real-world information could be very important for surgeons in decision making, as well as modification of their treatment patterns.

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Conflicts of interest

There are no conflicts of interest.

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Supplemental Appendix 1

Vitreoretinal Society of India Practice Pattern Survey 2020: Surgical Retina Questionnaire

1. A 68-year-old, one-eyed PDR patient presents with fresh VH since 2 days with visual acuity of HM+. B-scan does not show any traction on the retina. What would be your approach?
 - a. Observation
 - b. Intravitreal anti-VEGF therapy
 - c. Urgent Pars-plana vitrectomy
 - d. Intravitreal anti-VEGF therapy followed by Pars-plana vitrectomy
2. A 40-year-old patient with type 1 DM, and untreated HR-PDR in OD (BCVA 6/6) and advanced PDR with TRD threatening macula and frank NVD and NVE's in OS (BCVA 6/12) without DME. How will you manage the left eye (OS)?
 - a. Close observation with scatter PRP
 - b. Close observation with scatter PRP + Intravitreal anti-VEGF therapy
 - c. Pars plana vitrectomy
 - d. Others
3. For a planned PDR + Macular TRD surgery in a 70-year-old male patient, when would you inject a preoperative anti-VEGF agent?
 - a. I do not inject anti-VEGF agent
 - b. 1–2 days prior to surgery
 - c. 3–5 days prior to surgery
 - d. One week prior to surgery
 - e. 10–14 days prior to surgery
4. Do you use tamponading agent after PPV for diabetic macular TRD without any breaks?
 - a. Always, because one can never be sure about missed breaks
 - b. I avoid tamponading agent in diabetic TRD if there is no break
 - c. I always use silicone oil to prevent postoperative dispersed vitreous hemorrhage
 - d. I rarely use silicone oil, but prefer gas to prevent post-op dispersed vitreous hemorrhage
5. Which cases of diabetic vitrectomy do you peel the internal limiting membrane (ILM)?
 - a. I peel ILM in all cases
 - b. I peel ILM if there is thick epiretinal membrane
 - c. I peel ILM if there has been a chronic, recurrent macular edema
 - d. I do not peel ILM
6. A 70-year-old diabetic patient underwent vitrectomy + SF6 for PDR with nonresolving vitreous hemorrhage. The patient has recurrent postoperative vitreous cavity hemorrhage (POVCH), with three episodes over 6 months which have resolved spontaneously. The current episode is since 1 week with a visual acuity is CF 1m. How do you manage?
 - a. Conservative management
 - b. Intravitreal anti-VEGF injection
 - c. Vitreous lavage + air/gas injection + peripheral cryotherapy to port site
 - d. Vitreous lavage + silicone oil injection + peripheral cryotherapy to port site
 - e. Others
7. For a 70-year-old phakic patient with a fresh macula off RD with 360° serous choroidal detachment, what would be your line of management?
 - a. Start on oral corticosteroids for 3–7 days and wait for the CDs to reduce or resolve before performing the surgery
 - b. Immediate Choroidal drainage + 23G Pars plana vitrectomy
 - c. Immediate Choroidal drainage + 25G Pars plana vitrectomy
 - d. Others
8. How do you manage macula-off inferior RD with PVR changes?
 - a. Belt buckling + vitrectomy + SF6/C3F8
 - b. Vitrectomy + SF6/C3F8
 - c. Belt buckling + vitrectomy + regular (nonheavy) silicone oil
 - d. Vitrectomy + regular (nonheavy) silicone oil
 - e. Vitrectomy + heavy silicone oil
9. In an uncomplicated total RD, if there is shallow fluid at the posterior pole at the end of surgery, how do you manage?
 - a. Use PFCL and drain the fluid through peripheral break
 - b. Create a new retinotomy superiorly and drain it
 - c. Create a new retinotomy inferiorly and drain it
 - d. Safely leave the fluid as it usually gets absorbed with few days

10. A 30-year-old male underwent scleral buckling surgery for macula off RD. Next day, the patient has significant more fluid at the macula than it was at the end of surgery, with the buckle height adequate and the break being flat on the buckle. What would you do next?
- Perform gas injection immediately followed by prone position
 - Observe for 1 week and if fluid still persists, then plan a vitrectomy surgery
 - Observe for 2 weeks and if fluid still persists, then plan a vitrectomy surgery
 - Observe for a month and if fluid still persists, then plan a vitrectomy surgery
 - Perform immediate vitrectomy
 - Others
11. When do you advise silicone oil removal after a successful retinal detachment surgery?
- After 3 months
 - After 3–6 months
 - After 6–12 months
 - After 1 year
 - I do not advise unless there are silicone oil-related complications such as raised IOP/emulsification/silicone oil in AC, etc.
12. When do you permit air travel in postvitrectomy gas filled eye?
- When the gas is completely absorbed
 - When the gas bubble has less than 30% fill
 - When the gas bubble has less than 20% fill
 - When the gas bubble has less than 10% fill
13. For how long do you observe traumatic macular holes before advising surgical intervention?
- < 1 month
 - 1–3 months
 - 3–6 months
 - > 6 months
14. What would be the size of the macular hole at which you would consider modified techniques such a ILM flap?
- 400–700 μm
 - 700–1000 μm
 - 1000–1500 μm
 - > 1500 μm
 - Never
15. How long do you advise face-down position postmacular hole surgery?
- I do not advise at all
 - 1–2 days
 - 3–4 days
 - 5–7 days
 - > 7 days
16. What is the role of ILM peeling in management of ERM?
- I never peel ILM in ERM surgeries
 - I peel ILM in < 50% of cases with ERM
 - I peel ILM in 50–99% of cases with ERM
 - I peel ILM in all cases of ERM
17. Do you feel microscopes with heads up display make the surgeons' experience better?
- Yes
 - Somewhat
 - No
 - Not sure