

Gauge Preference and Case Selection for PPV Among Latin American Surgeons

A PACORES Survey found that most Latin American surgeons prefer 23-gauge instrumentation for pars plana vitrectomy.

BY MARÍA H. BERROCAL, MD

Microincisional vitreous surgery (MIVS) has slowly become the preferred technology among retinal surgeons for performing pars plana vitrectomy (PPV). Since the initial description of 25-gauge vitreous surgery in 2002 by Fujii et al,¹ vast technological advances have improved and perfected the instrumentation for this modality. Optimized vitrectomy machines specifically developed for small-gauge vitrectomy and a wide array of 25- and 23-gauge instruments have expanded the armamentarium of microincisional instruments available to vitreous surgeons. These developments have made the transition from traditional three-port sutured 20-gauge vitrectomy significantly simpler and have reduced the learning curve.

IMPEDIMENTS TO ADOPTION

Vitreous surgeons readily discover the benefits of MIVS once they become comfortable with the technology. The more experience a surgeon acquires with small-gauge techniques, the wider the array of indications for which he or she uses MIVS. Hurdles, such as resistance to change, stepping out of one's comfort zone, or fear of a tedious learning curve, can dissuade surgeons from adopting MIVS. The most significant hurdle—particularly outside of the United States—is lack of availability of the technologies because of cost or government regulation issues. Unfortunately, superb technological advances often carry significant cost, which can impede adoption in regions with limited economic resources.

PACORES SURVEY

The 2010 American Society of Retina Specialists Annual Preferences and Trends Survey found that 12.26% of respondents reported that they do not perform small-gauge vitrectomy, 27.57% said that they do not perform 23-gauge vitrectomy, and 39.93% said that they do not use 25-gauge systems.²

The Pan-American Collaborative Retina Study Group (PACORES) surveyed Latin American vitreous surgeons to determine how readily they have adopted MIVS. The survey asked surgeons about their preferred gauges, case selections, use of combined phacoemulsification and vitrectomy, and the obstacles they faced in adopting MIVS.

The PACORES survey was sent to surgeons in seven countries in South America and five countries in Central America and the Caribbean. The surveyed countries, which vary significantly in size, population, and economic resources, included Argentina, Brazil, Chile, Colombia, Costa Rica, El Salvador, Guatemala, Mexico, Peru, Puerto Rico, Uruguay, and Venezuela.

MIVS PREFERENCES

MIVS is currently the preferred method for vitrectomy in all of the countries surveyed, with the exception of one respondent who reported using only 20 gauge due to cost concerns associated with transitioning to the technology. The preferred gauge was 23 gauge in 75% of surgeons responding.

Regarding the frequency of use, 78% of respondents reported using 23-gauge MIVS in more than 50% of vitrec-



Figure 1. 25-gauge transscleral vitrectomy with concomitant scleral buckling.

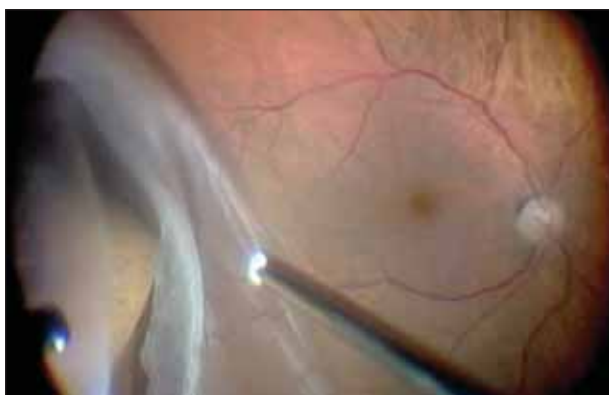


Figure 3. 25-gauge chandelier illumination.

tomies. Only 5% of respondents reported performing 23-gauge MIVS in less than 5% of cases.

Asked to list the reasons for their choices, the participants said that they prefer 23-gauge instrumentation because of its availability, short learning curve, compatibility and ease of use with many vitrectomy machines, and familiarity and ease of transition from traditional 20 gauge.

The pathologies commonly addressed with 23-gauge MIVS include macular pathologies such as macular holes, vitreomacular traction syndrome, diabetic macular edema, epiretinal membrane, vitreous hemorrhage, tractional retinal detachments, and simple rhegmatogenous retinal detachments.

Eleven percent of respondents stated they prefer 25-gauge vitrectomy, 33% said that they do not use 25 gauge, and 50% said they use it less than 5% of the time. Comfort and familiarity with 23 gauge, resistance to change, lack of efficient machines suitable for 25-gauge MIVS, and lack of availability of 25-gauge-plus optimized technology are the main reasons surgeons said they do not use 25-gauge.

Among the surgeons who prefer 25 gauge, only 5% use it for complex cases, with the majority of surgeons reserving it for vitreous opacities, epiretinal membranes, vitreomacular traction syndrome, macular holes, endophthalmitis management, vitreous biopsies,

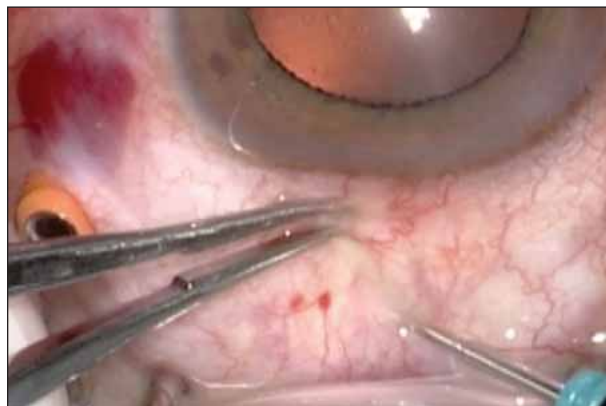


Figure 2. Combined 23- and 25-gauge vitrectomy.

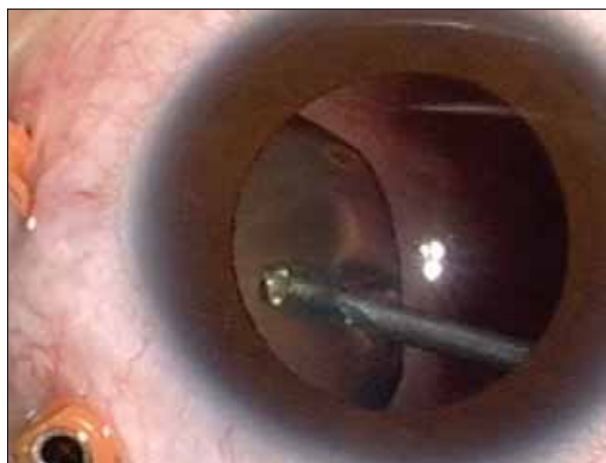


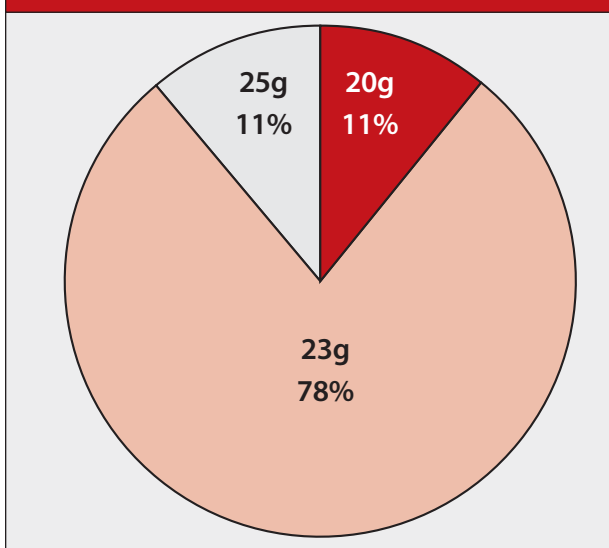
Figure 4. 23-gauge lensectomy with vitreous cutter.

recurrent vitreous hemorrhages, and simple diabetic vitrectomies.

Only 11% of respondents named 20 gauge as their preferred modality for more than 50% of vitrectomies (Figure 5). Twenty-eight percent said that they do not utilize 20-gauge vitrectomy for any of their cases, and 50% of respondents said they perform fewer than 5% of cases with 20 gauge.

Respondents said that they use traditional 20-gauge vitrectomy due to a lack of available machines for small-gauge MIVS, lack of available ancillary instruments for complex maneuvers with MIVS, the high cost of MIVS technology, limited availability of MIVS in institutions, and the cost of the vitrectomy machines and their associated instruments.

Cases generally performed with 20 gauge include trauma cases, cases with concomitant scleral buckling (Figure 1), complicated diabetic vitrectomies, retinal detachments with proliferative vitreoretinopathy (PVR), and posteriorly dislocated cataracts or fragments that require lensectomy. Some surgeons (5%) prefer a combination of 25 and 20 gauge in order to use their existing 20-gauge ancillary

FIGURE 5. GAUGE PREFERENCES IN PACORES STUDY

instruments such as scissors and forceps, which are either not available to them in smaller gauges or are too costly.

COMBINED SURGERY

Many vitreous surgeons perform simultaneous phacoemulsification and PPV in the same surgical session. The rationale for combined surgery is cost-effectiveness and to reduce the time involved performing two separate procedures, particularly when a significant cataract is present or is likely to develop after vitrectomy.

Of the surgeons responding, 21% said they never perform simultaneous phaco-vitreotomy, 26% perform combined phaco-vitreotomy in 100% of cases in which the patient is over 55 years of age, and 58% perform concomitant combined surgery in more than 50% of vitrectomies in which either there is some lens opacity or the patient is older than 55 years of age.

Reasons given for not performing simultaneous procedures include lack of expertise with anterior segment surgeries, referral issues, custom, and the belief that separate procedures are preferable.

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DISCUSSION

As the results of this survey suggest, MIVS surgery is currently the procedure of choice for vitreous surgery in Latin America. The preference for 23 gauge is largely due to the availability of this technology from many companies, and the familiarity associated with its use is due to its similarities with traditional 20-gauge vitreous surgery. The use of 20 gauge is related either to cost, lack of resources available for MIVS technology adoption, or the lack of availability of MIVS instrumentation required for particular indications. For example, no small-gauge fragmatome is available to date. Many surgeons also prefer 20 gauge for complex cases and for trauma cases that require multiple instruments.

The reluctance to use 25 gauge reflects the only recent availability of optimized technology in this particular gauge and the limitations of the older technologies and vitreous machines in that gauge. With the increased distribution of more modern vitrectomy machines particularly suited for 25 gauge and the availability in many countries of optimized 25-gauge vitreous cutters, this modality should increase in popularity in the future.

The combined use of phacoemulsification, IOL implantation, and PPV is a common trend throughout the world and may increase in frequency as cost issues continue to affect our surgical choices.

CONCLUSION

MIVS offers distinct advantages in all types of vitreous surgeries. It has been refined thanks to significant technological developments that have made it optimal for most cases. Recently, small-gauge vitrectomy has come of age, providing a vast array of surgical options (Figures 2-4).

My prediction is that we will see a quick transition toward the smaller gauges at a worldwide level. While increased costs may hinder the adoption of MIVS, the associated reduced operating times and complications, ease of use and optimized postoperative experiences for patients offer significant compensatory effects. The evolution and adoption of small-gauge vitrectomy can be succinctly summarized: With any novel concept, just dream of it and the technology will follow, because superb technology will be readily adopted. ■

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1. Fujii GY, de Juan E Jr, Humayun MS, et al. Initial experience using the transconjunctival sutureless vitrectomy system for vitreoretinal surgery. *Ophthalmology*. 2002; 109(10):1814-1820.
2. American Society of Retina Specialists Annual Preferences and Trends Survey, 2010. <http://www.asrs.org>; access for members only.