

Making the Most of Micro-Incision Vitrectomy Surgery

Disposable instruments increase the efficiency and safety of MIVS and are cost effective.

By Miguel Busquets, MD



Micro-incision Vitrectomy Surgery (MIVS) is truly a revolution in vitreoretinal surgery. Smaller incisions enhance patient comfort and introduce less trauma to the eye, lending to faster postoperative recovery times. Efficiency has always been an issue in retina procedures. Posterior segment surgeries tend to proceed more slowly than anterior segment procedures, and OR turnover times can be lengthy. More retina procedures are being performed in the ambulatory surgery center (ASC) setting, where streamlining has long been second nature and considered paramount to providing a satisfying experience for the patient. MIVS fits well into the ASC philosophy: the procedures are efficient, OR turnover times are improved, and the patient experience is excellent. Instrument options for MIVS come in both reusable

and disposable technology and one must consider the benefits and liabilities of both when choosing one or the other. At Associates in Ophthalmology (AIO) in Pittsburgh, we have chosen to use disposable instrumentation, specifically, the GRIESHABER DSP (disposable instrumentation) line from Alcon Laboratories, Inc. (Fort Worth, TX; Figure 1).

EFFICIENCY WITH DISPOSABLE INSTRUMENTATION

Using single-use instrumentation has improved our practice's efficiency by providing improved OR turnover because we do not have to sterilize the instruments between cases—we pre-stage the cases with the anticipated supplies/instruments that will be needed for the pathology at hand and then only open the appropriate instruments and accessories,



Figure 1. GRIESHABER DSPs are available in the GRIESHABER REVOLUTION DSP and DSP Tips styles.

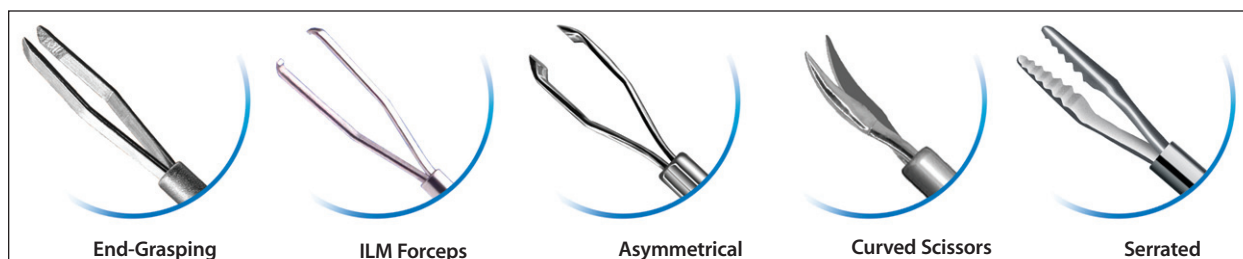


Figure 2. Various tips available for the DSP line.

as we need them. GRIESHABER DSP instruments help AIO combine efficiency with consistent instrument performance and increased quality of care.

CHOICES IN DSP INSTRUMENTATION

The ALCON DSP family of products provides a wide range of available tools and accessories, which

allows you to choose an instrument that fits the case pathology. Multiple tip styles (Figure 2) including forceps and scissors, as well as accessories such as piks and backflush are available for use in 20-, 23-, and 25-gauge surgeries. The quality of the single-use DSP instrumentation is superb, the construction is strong, and the convenience factor is high.

Associates in Ophthalmology: Practice Background

By Victoria Caumo, RN, BCN, CRNO; ASC Director of Nursing



At Associates in Ophthalmology in Pittsburgh, an ophthalmic multisubspecialty ambulatory surgery center, we perform retina surgery, anterior segment surgery (cataract, refractive, and glaucoma), and more recently, oculoplastic surgery. In our center, we have three retina surgeons plus one retina fellow, four anterior-segment surgeons, and one oculoplastic surgeon. In 2008, we performed over 4,000 eye surgeries. Seventy-eight percent of our retina cases in 2008 were performed with 23-gauge technology, 14% were 25 gauge, and 8% were performed with 20-gauge technology. 23- or 25-gauge cases account for approximately 92% of our vitrectomy case load.

PEAK EFFICIENCY FOR HIGH VOLUME

As our surgical numbers can attest, we are a busy surgery center. The large volume of anterior segment surgery done in our center, makes it crucial that our retina surgeons operate at peak efficiency. Our operating rooms are in constant demand and we have four retina surgeons operating in them. This usually means that each retina surgeon has only one day per week to do their cases (of course we always allow time for add on cases as needed). The advantages of disposable instruments is a key to operating at peak efficiency. Using disposables allows our busiest surgeons to perform 8-10 cases in our normal OR day, drastically decreasing our turnover time when compared with reusable instrumentation. In the course of a typical turnover of reusable instruments, three to four different personnel come into contact with the retina instruments. This occurs as the instruments are taken from the surgeon, passed from the scrub tech, removed from the operating room at the end of the case, cleaned and sterilized, and then returned to the operating room to be opened by the surgical tech and then once again placed in the surgeon's hands. At every step of this "loop" there is a very real chance that

the fine tips of these 23- and 25-gauge instruments can be damaged or bumped. Even a small jolt to these delicate instruments can cause a tip to be blunted or a scissor to become misaligned. That leads

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to problems with sending out instruments for repair. It is my job to make sure the surgeon can trust the quality of the instruments placed in his hand. The only way to ensure this on a case-by-case basis is to use reproducible high-quality disposable instrumentation.

INFECTION CONTROL

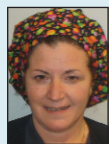
Another area of concern for OR Directors is infection control; in any situation where reusable instruments are used, there could be a risk of infection due to improper cleaning and sterilization techniques. The disposable instruments are sterile and individually packaged, therefore decreasing the chance of cross-contamination and sterilization issues that may occur with reusable instrumentation. The disposable instrumentation ensures that quality care is given to the patient every time.

Overall, I feel that disposable instrumentation has made an impact on our surgery center by ensuring safe, sterile instrumentation for every case, increasing our OR efficiency, and eliminating the concern for misaligned or damaged tips from processing.

Victoria Caumo, RN, BSN, CRNO, is the ASC Director of Nursing at Associates in Ophthalmology/Associates Surgery Centers in Pittsburgh.

The Case for Disposable Vitreoretinal Surgical Tools

By Saralee Sable, CST



At AIO, we use disposable instrumentation. At first glance, it may seem that when considering disposables vs reusables, reusables would make more sense for practical and economic reasons. Our decision to use DSPs was based on the fact that they offer additional value in efficiency over some of the more intangible costs of reusables.

COST CONSIDERATIONS

After doing some research, I found that at AIO, our damage ratio for reusables has been approximately 10% to 15% with a significantly higher damage rate for 25-gauge reusable instrumentation.

The initial cost of reusable instruments is also significant: the cost of a pair of reusable scissors, for example, is between \$1,900 and \$2,000 and multiple trays are required to keep up with our case volumes as well as providing additional back up instrumentation. 23- and 25-gauge reusable instruments are more easily damaged due to their fragility during everyday handling and wear and tear. When adding in the cost of sterilization to damage that can occur during the sterilization process, the costs continue to mount.

REPAIR ISSUES

The downtime that results from sending an instrument out for repair can have a significant impact on the efficiency of a practice, adding steps to the surgical routine that are time-consuming and hinder a smooth process and proper management of instrumentation. Additionally, instrument damage is obviously a problem that affects safety. Some of the most common damage that we see with microsurgical instrumentation is misalignment—we do not even have any 25-gauge reusable microsurgical instruments in our supply because in our experience the lives of reusable instruments in 25-gauge surgery are short. Other common damage to reusable microsurgical instruments include bent or burred tips. Also, if the instrument is serrated, it is difficult to clean and can become easily misaligned.

With disposable instrumentation, we do not have these issues—we know that every time we use an instrument, it will perform with consistent quality.

THE CLEANING AND STERILIZATION PROCESS

Another important issue related to safety is cleaning and sterilization. Our cleaning process is rather detailed and is performed in several steps. First, we rinse all of the instruments in sterile distilled water on the sterile field. Afterward, the instruments are taken to the soiled workroom and cleaned with a fine brush in soapy distilled water, rinsed and brushed again with distilled water, and then “swished” in another basin of distilled water. We then place the instruments in an ultrasonic cleaner, again using distilled water.

We reduce the risk of cross contamination by using disposables and ensure a high standard of care to every patient.

After this cleaning process is completed, the trays are taken to a clean workroom where they are placed in the autoclave for sterilization. If we are wrapping the instruments, we are careful to make sure that the trays and instruments are dry by using an air gun.

Carefully using this detailed and lengthy process, microinstruments can be cleaned properly and effectively, but the process is time-consuming and we have found it more efficient for our OR turnover times to use DSPs. In my opinion, the less autoclaving and sterilization that is required, the better.

SUMMARY

We reduce the risk of cross contamination by using disposables and ensure a high standard of care to every patient, while eliminating lengthy instrument reprocessing cycles.

At AIO, it is our opinion that the costs of reusables are actually higher than disposables because of damage rates, repair costs, and sterilization factors, as well as other, more intangible costs like OR waiting time while a damaged reusable instrument is being replaced or when reusable instrument tips do not meet the surgeon's expectations for safely and efficiently performing a case.

Saralee Sable is a certified surgical technician (CST) at Associates in Ophthalmology/Associates Surgery Centers in Pittsburgh.

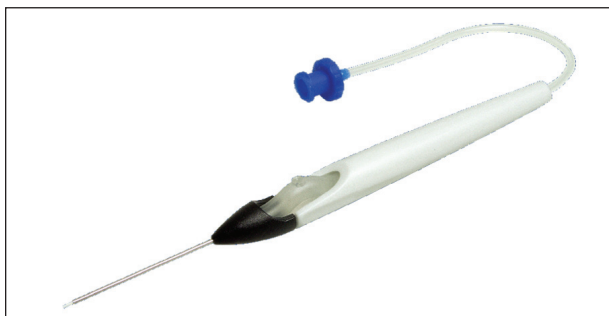


Figure 3. Backflush with soft-tip tubing.

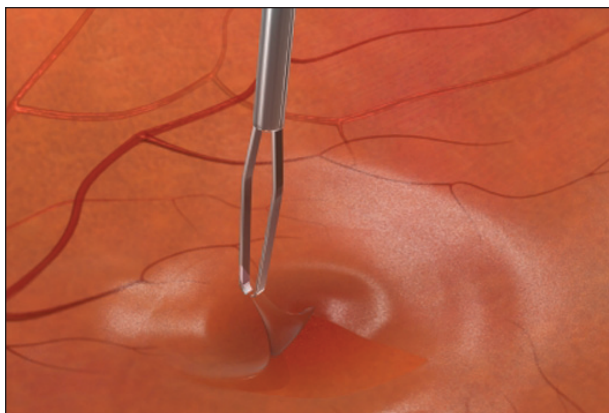


Figure 4. The jaws of disposable forceps are designed to meet exactly every time, providing the precision required for handling even the most delicate tissue.

PEARLS FOR TRANSITIONING TO MIVS AND CASE SELECTION

When transitioning from 20-gauge surgery to MIVS, the most important consideration is case selection. I recommend starting with macular cases, as we did. In my experience, the GRIESHABER REVOLUTION DSP forceps and scissors in 23 and 25 gauge have had a significant impact on my MIVS transition. The ILM forceps were critical in making me comfortable with MIVS. The DSP forceps provide stability, rigidity, and maneuverability for removing fine membranes. We choose to use them for all 23- and 25-gauge cases.

We then began to expand our caseload to include cases outside of the macula. The DSP soft-tip backflush has been useful because we can perform subretinal draining procedures (Figure 3).

For MIVS cases, we use a Superview BIOM lens (Insight Instruments, Stuart, FL); for the macular portion of the case, we use a disposable ocular vitrectomy magnifying (ODVM) lens to visualize the macula. We often use adjuvant staining with either preservative-free triamcinolone (TRIESENCE, Alcon Laboratories, Inc.) or diluted indocyanine green (ICG).

TRANSITIONING MORE DIFFICULT CASES TO MIVS

As a surgeon gains experience, more complex cases such as rhegmatogenous retinal detachments (RRD), tractional retinal detachments (TRD), and even some proliferative vitreoretinopathy (PVR) can be transitioned to 23- or 25-gauge surgery. The DSP scissors and serrated forceps have been especially helpful in our transition. The curved scissors are sharp and can be used for multipurpose cutting needs. Due to their grasping force, the serrated forceps work well for heavier, more adherent, tougher membranes. Using the Grieshaber Revolution DSP MIVS line, we have been able to peel tractional membranes, diabetic membranes, and PVR membranes with as much ease as we did with 20-gauge reusable instruments. For these more complex cases, a wide-angle lens is critical because it increases the comfort level for the surgeon as he adapts to the different feel of the MIVS case.

I would not, however, recommend MIVS for silicone oil removal, or any anterior-segment complication where a fragmatome is required because this technology is not yet available in small gauge. For these cases, such as retained nuclear fragments, or subluxed lenses, I still prefer to use 20-gauge technology. In the case of silicone oil removal, there are small-gauge cannulas available, but the process is slower. Ultimately, our ability to move more cases to MIVS will continue to improve our facility's efficiency.

SUMMARY

In summary, the GRIESHABER DSP instruments are reliable, precise, convenient to use, and compliant with sterilization and cross-contamination issues. I use 23-gauge, and in some instances, 25-gauge technology for a wide variety of retinal cases, including epiretinal membranes (Figure 4), macular holes, straight vitreous hemorrhages, TRDs, RRDs (with or without scleral buckle), proliferative diabetic retinopathy cases, and simple PVRs (grade C2 or less)—and have benefited from the use of this DSP instrumentation. Additionally, DSPs add value to the AIO practice by combining efficiency with consistent instrument performance and increased quality of care for our patients.

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