27-G Vitrectomy

• The 27-G sx was first introduced in 2007, when Oshima et al. introduced a 27-G chandelier light.¹
• Later Sakaguchi et al published their experience performing 27-G nonvitrectomy for epiretinal membranes.

Advantages of 27 gauge Nonvitrectomized surgery
• To do as less invasive as possible
• Less conjunctival trauma
• Less scleral trauma
• Less astigmatism
• Less inflammation
• Less postoperative discomfort
• Early visual recovery
• Smaller wounds are more likely to self-seal and prevent hypotony. They are less prone to vitreous prolapse, which may act as a wick and promote endophthalmitis.²
• These benefits, on the other hand, must be weighed against the drawbacks of increased instrument flexibility and limited aspiration capacity — drawbacks that may make some tasks difficult or impossible to perform, like removal of Foreign body, etc.¹

Recent advances
• Stiffer instruments
• Wide angle viewing systems
• Wide-angle illuminating light pipe, using xenon/mercury vapour light
• Chandelier endoilluminating optic fibres
• One step vertical insertion – trocar cannula, instead of 2 step / angled sclerotomies
• Self sealing sclerotomies
• 27G cutter easily passes between the membrane and the retina.
• Wide-angle fundus viewing – makes it easy to carry out bimanual dissection with a 27G system.

Indications
• Macular holes
• Macular pucker
• Vitreomacular traction
• Vitreous hemorrhage and focal tractional retinal detachment
• Macular edema associated with diabetic retinopathy, retinal vein occlusion, uveitis
• Persistent pseudophakic cystoid macular edema 3
• Subintimal limiting membrane hemorrhage
• Simple vitreous hemorrhage
• Vitreous biopsy
• Primary rhegmatogenous retinal detachment
• Moderate PDR w/ or w/o focal tractional retinal detachment

Subretinal hemorrhage

The 27-gauge Instruments
Chandelier endoilluminator
• The tip is introduced about 3 mm into the vitreous cavity, so the reflected glare from the tip is mostly blocked by the iris during surgery.
• The tip of the light fiber is shaped-like a cone for wide-angle illumination.
• A polyamide sleeve (arrow) covers the microfiber to prevent thermal burn-induced scleral damage.
• Panoramic fundus view under 27-gauge chandelier endoillumination.
• Sufficient illumination and wide-angle view of the fundus are obtained without reflecting glare into the surgeon’s eyes.
• Intraoperative view of the mercury vapor illuminator combined with a 27/29-gauge light fiber in a variety of vitreoretinal disorders.

Instruments for epiretinal membrane removal
Shaft of the microforceps - 0.40 mm in diameter, is rigid and thin enough for intraocular manipulation.
• The shape of the grasping end is asymmetric.
• The distance between the two tips is 750 microns when opened-grasp tough and thick proliferative epiretinal tissue.

VITRECTOR
• Recent advances of new vitrectomy systems have allowed for increased rates from 1,500 cuts per minute (cpm) to 5,000 cpm.
• Faster cut rates allow for safer peripheral vitreous dissection with less likelihood of creating a peripheral tear.¹

References

Address for Correspondence: Aditya Jyot Eye Hospital Pvt Ltd., Plot No. 153, Road No. 9, Major Parameswaran Road Opp. SIWS College Gate No.3, Wadala, Mumbai - 400 031. Email: ajehpatient@gmail.com