

25-gauge Vitrectomy Safe for Macular Surgery

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REVIEWED BY FABIO PATELLI, MD

The use of 25-gauge vitrectomy for macular surgery is safe and effective, according to a single-center, retrospective, noncomparative case series. Reporting in *Retina*,¹ Fabio Patelli, MD, and colleagues from the Department of Ophthalmology and the Department of Statistics at the "Villa Tiberia" Clinic in Rome and the Retina Research Center, Carones Ophthalmology Center in Milan, sought to report the safety and surgical outcome of 25-gauge transconjunctival sutureless vitrectomy for macular conditions.

"For several years now, 25-gauge transconjunctival sutureless vitrectomy has been used in surgical practice in selected cases, but there are few reported series beyond initial reports of feasibility and safety," Dr. Patelli wrote. "Current use has largely been restricted to uncomplicated cases of vitreous and macular surgery; however, with today's increasingly complete and efficient surgical instruments, the spectrum of conditions that might lend themselves to this miniinvasive approach is growing."

Dr. Patelli and his team evaluated the efficacy and safety of 25-gauge transconjunctival sutureless vitrectomy for different maculopathies, on the basis of the extensive experience of a single surgeon (F.P.).

Included were 160 eyes of 150 patients who underwent 25-gauge vitrectomy for different macular conditions: 108 eyes for idiopathic macular pucker, 24 for idiopathic macular hole, and 28 for tractional diabetic macular edema, the authors reported. The main outcomes measured by Dr. Patelli and colleagues included were surgical time, preoperative and 1-day intraocular pressure (IOP), preoperative and 1-month, 3-month, and 6-month visual acuity, intraoperative and postoperative complications, anatomical results, and cataract progression.

All patients were observed up for at least 6 months, and the mean follow-up was 10 months (range, 6-20 months). Mean operative time \pm SD was 21 \pm 11 minutes, Dr. Patelli wrote. Mean 1-day IOP was 14 \pm 4 mm Hg and no patients had an IOP $<$ 8 mm Hg on postoperative day 1.

In the series, the mean overall preoperative visual acuity was 20/70, and mean overall postoperative visual acuity was 20/40 ($P \leq .001$). "Sixty percent of patients gained at least two Snellen lines of visual acuity at 1 month; 74% at 3 months; and 67% at 6 months ($P \leq .001$, all times). There were no intraoperative complications."

Dr. Patelli reported that 3% of eyes had complications during follow-up; 25% of phakic eyes presented with a significant cataract at the 6-month follow-up.

"Successful sutureless vitrectomy has been reported for 15 years," the investigators wrote. "Initially, 23-gauge instruments were used, which were inserted transconjunctivally. Later, 20-gauge vitrectomies with a scleral tunnel were described, with no need for sutures at the end of the operation."

Surgeons soon described their experience with 25-gauge transconjunctival vitrectomies; using trocars to insert the instruments and no sutures. This system was found to be feasible and safe, and there have been reports of this technique being used in numerous vitreoretinal operation with significant follow-up.

"We believe, however, that the 25-gauge technique still suffers some limits. These fine, flexible instruments do not allow the surgeon the same degree of maneuverability in the eye as the 20-gauge ones; therefore, it can be difficult to remove the peripheral vitreous completely," they said.

"Further studies are obviously needed to investigate the longer-term effects of 25-gauge vitrectomy on the development of cataract," they wrote. "The benefits of 25-gauge vitrectomy for selected macular conditions appear quite substantial, and results will undoubtedly improve further as the technology and techniques become increasingly refined." ■

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1. Patelli F, Radice P, Zumbo G, et al. 25-gauge macular surgery. *Retina*. 2007;27:750-754.