# Vitrectomy and high-frequency welding-assisted endoresection ?f retinal vasoproliferative tumors

Vitreoretinal Surgery

First author: Inna Dovhan (Ukraine)
Co-author(s): Mykola Umanets (Ukraine)

---

**Purpose**

To evaluate the results of treatment of large complicated retinal vasoproliferative tumors (VPTs) by pars plana vitrectomy with tumor endoresection and the use of high-frequency electric welding (HFEW) for achieving hemostasis.

**Setting/Venue**

The Department of Retina and Vitreous Pathology of SI «The Filatov Institute of Eye Diseases and Tissue Therapy of NAMS of Ukraine»

**Methods**

We reviewed the results of surgical treatment of large retinal VPTs complicated by exudative retinal detachment, macular edema, and/or epiretinal fibrosis in 5 patients (6 eyes). Patients underwent a comprehensive eye examination (visual acuity, biomicroscopy, ophthalmoscopy, tonometry, perimetry) and imaging (ultrasound examination, and optical coherence tomography). A 25Ga pars plana vitrectomy was performed. The epiretinal proliferative tissue and subretinal exudates were removed after retinotomy. Prior to retinotomy and tumor endoresection, HFEW with a modified high-frequency current generator EK-300M1 and proprietary 23Ga welding probe was used to minimize the risk of intraoperative hemorrhage. One electrode was secured to the blepharostat, and another was passed endovitreally. The welding voltage was set to 24-30 V, welding current, to 0.3A, welding current frequency, to 66.0 KHz, and welding time, to 1.0 s. A retinotomy around the tumor was performed under perfluorocarbon tamponade. Depending on the clinical situation, the procedure was concluded by the tamponade of the vitreous cavity with 20% C3F8 or 5700cSt silicone oil. Outcome measures included anatomical success (retinal reattachment), visual acuity, the presence of intraoperative and postoperative hemorrhagic complications, resorption of subretinal exudates, restoration of retinal profile, and the absence of tumor recurrence over the 6-month follow-up period.

**Results**

Total tumor removal was achieved in all cases. In addition, there was no intraoperative hemorrhage. At the 6-month follow-up examination, the best corrected visual acuity (BCVA) ranged from 0.17 to 0.3. Over the 6-month follow-up period, the retina remained reattached, BCVA improved, and partial resorption of hard exudates as well as restoration of the retinal profile was observed in all cases (6 eyes). Moreover, no tumor recurrence was noted.

**Conclusions**

Pars plana vitrectomy with retinal VPT endoresection results in positive anatomical and functional outcomes, making it a method of choice in the treatment of large complicated retinal vasoproliferative tumors resistant to other treatment modalities; the high-frequency electric welding technique proved to be an apt choice for intraoperative hemostasis.

**Financial Disclosures:** No