

Management of retinal detachment with severe proliferative vitreoretinopathy in Terson syndrome — case report

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ABSTRACT

We present a case of aneurysmal subarachnoid hemorrhage accompanied by a dense vitreous hemorrhage and subsequent retinal detachment with strong proliferative retinopathy (PVR) in a young woman. The surgical treatment included vitrectomy with PVR removal, ILM peeling and silicone oil as a tamponade. In our case, the treatment resulted in recovery of vision and improved activities of daily living, although unusually vitreous hemorrhage was complicated with retinal detachment and strong PVR.

KEY WORDS: Terson syndrome, retinal detachment, vitrectomy

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INTRODUCTION

Terson syndrome is defined as association of vitreous, subhyaloid (preretinal) or retinal haemorrhage with aneurysmal subarachnoid haemorrhage (SAH) or head trauma [1] in patients without other ocular pathology. The pathogenesis of Terson syndrome remains unclear [2]. Patients with subarachnoid hemorrhage or subdural hemorrhage often present cognitive impairment which hinders accurate diagnosis. Blood may enter into the vitreous cavity around the retinal vessels near the optic disc, inside the eye. The blood may spread intraretinally, sub-ILM, or along the retinal vessels [3]. Terson syndrome is named by a French ophthalmologist Albert Terson who published an article in 1900 [4]. Intraocular haemorrhages of different types have been documented in 8–20% of individuals with SAH [5, 6]. Terson syndrome represents 5.5% of all non-diabetic and non-traumatic vitreous haemorrhages [7].

In cases of minor bleeding spontaneous resorption may occur and vision is restored. In long-stand-

ing vitreous hemorrhage complications such as epiretinal membrane [8] and retinal detachment may occur and can lead to loss of vision or serious visual impairment [9].

The surgical procedure of choice in Terson syndrome is 20 or 23 gauge pars plana vitrectomy (PPV) [1]. We describe a case of retinal detachment with severe proliferative vitreoretinopathy (PVR) treated with vitrectomy and internal limiting membrane (ILM) peeling.

CASE DESCRIPTION

Thirty-nine year old female presented with the haemorrhage into the vitreous cavity of the right eye as a result of cerebral aneurysm rupture of the right pericallosal artery. She underwent a cerebral aneurysm clipping. Visual acuity was light perception in her right eye and 1.0 in the left eye. Fundus examination and ultrasonography revealed vitreous hemorrhage in the right eye. One month later 23 gauge vitrectomy was performed in the right eye

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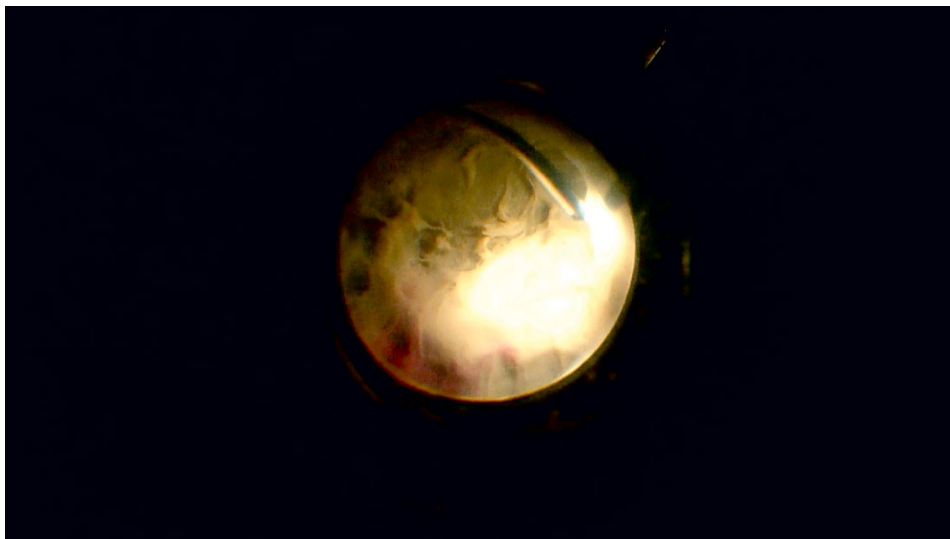


FIGURE 1. Dense vitreous hemorrhage at the beginning of the vitrectomy

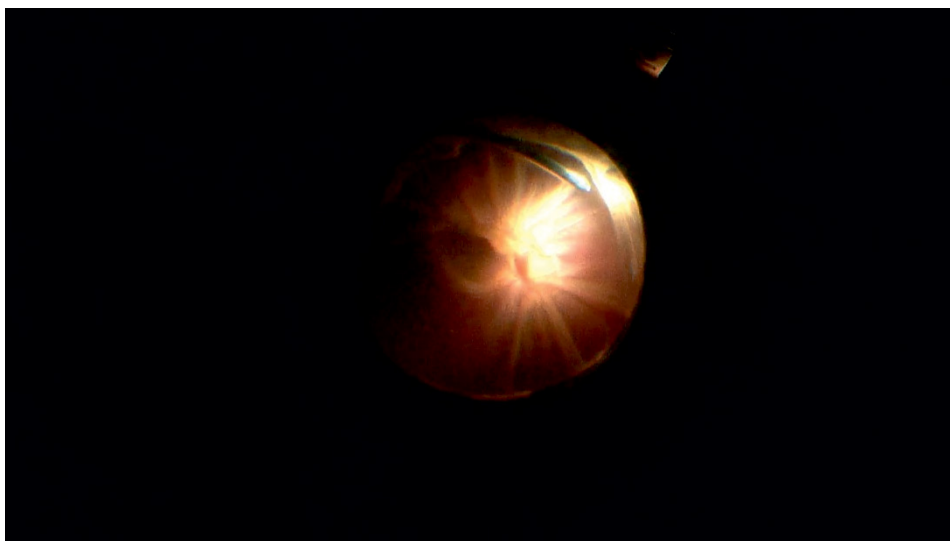


FIGURE 2. Retina at the posterior pole shrunken with advanced proliferative vitreoretinopathy

with lens sparing. After removing dense vitreous hemorrhage (Fig. 1) shrinkage in the posterior pole was observed (PVR D1) (Fig. 2). Epiretinal PVR was removed with Eckart forceps and the retina was flattened with perfluorodecalin (Fig. 3). Internal limiting membrane peeling under perfluorodecalin was done after staining with indocyanine green (Fig. 4). After fluid-air exchange and removing of perfluorodecalin, 5000 cSt silicone oil was given as a tamponade. The visual acuity was 0.1 with +3D lens. Recovery of vision improved activities of daily living of the patient. Six months later phacoemulsification with intraocular lens implantation (Fig. 5) and silicon oil removal (Fig. 6). The visual acuity is still 0.1, but without correction.

DISCUSSION

In this paper we present a rare case of vitreous hemorrhage in Terson syndrome complicated by retinal detachment.

In general, the results of surgical treatment of Terson syndrome with PPV are very good and this surgical procedure provides generally good visual recovery (more than 0.5) [10, 3, 5]. Some authors state that PPV leads to rapid recovery irrespectively of the timing of vitrectomy or of preoperative visual acuity (nararayan). There is a success rate of 90% in a single surgery (garweg). In our case two vitrectomies were performed to achieve the final outcome.

The most common complication of the vitreous hemorrhage in Terson syndrome is formation of



FIGURE 3. Flattening of the retina with perfluorodecalin after removing epiretinal proliferative vitreoretinopathy

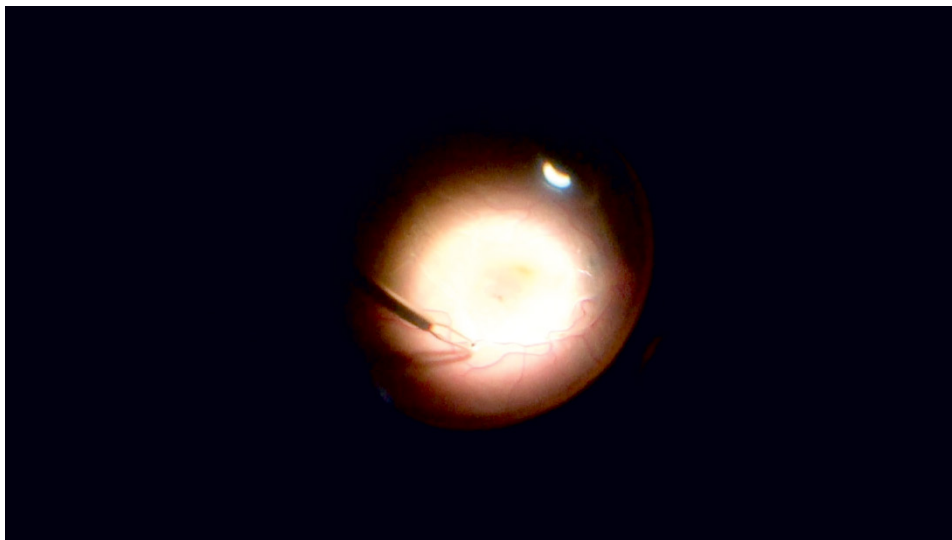


FIGURE 4. Internal limiting membrane peeling under perfluorodecalin after staining with indocyanine green

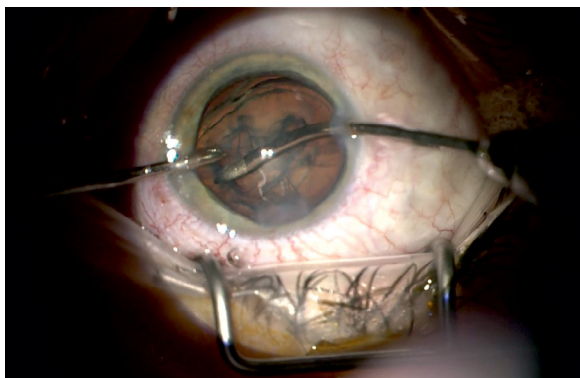


FIGURE 5. Lens removal during the second vitrectomy

epiretinal membranes, observed in approximately 16–59% of cases [11]. Strong PVR as a complication is quite rare in Terson syndrome. In the study of Narayanan there were 3 retinal detachments in a group of 28 eyes with Terson syndrome following brain injury [1]. Retinal detachment as a complication of Terson syndrome was described for the first time in 1994 by Velikay and co-authors [12]. The authors report five eyes from four patients with Terson syndrome due to spontaneous aneurysm rupture, in whom retinal detachment with PVR developed. The retina in all eyes could be reattached.

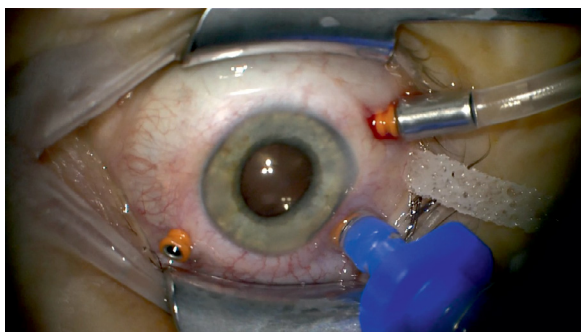


FIGURE 6. Silicone oil removal during the second vitrectomy

Other complications of a long-lasting vitreous hemorrhage include: decline of retinal pigment epithelium, atrophy the optic nerve, macular hole, retinal folds, cysts of the retina, cataract [13]. The incidence of intraocular pathologies has been found to be significantly higher in patients who lost consciousness at the onset of SAH [14]. Another finding that can be seen intraoperatively is perimacular ring [11]. It is a consequence of a preretinal or retrohyaloideal haemorrhage.

PVR is a cellular reaction representing a vitreo-retinal wound healing response characterized by formation of periretinal non-vascular fibrocellular membranes [15]. PVR develops as a relatively rare complication in about 8–10% of patients with primary retinal detachment. Evolving of PVR in long-existing haemorrhage may be caused by toxic effects of iron from red blood cells [16]. Intraocular bleeding can lead to proliferation of fibroblasts or glial cells. Posttraumatic vitreous hemorrhage is also strongly linked to less favorable outcomes and PVR development [17]. Close follow-up with regular B-scan ultrasonography examinations is recommended to detect PVR early preoperatively [13].

The surgical management of strong PVR is the same as in long-lasting rheumatogenous retinal detachment. If needed retinotomy is performed but it was not necessary in our case. The Silicone Study concluded that C3F8 gas or silicone oil is more effective than SF6 gas in the treatment of PVR cases [18].

In summary, our study provides additional knowledge to the clinical picture of the Terson syndrome. Retinal detachment with PVR can be observed in the course of Terson syndrome and it requires removal of fibrocellular membranes, ILM peeling and silicone oil as a tamponade.

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