Pneumatic Displacement of Submacular Hemorrhage Combined with Intravitreal Bevacizumab Injection – An Effective Combination

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Introduction

Sub macular hemorrhage is an important cause for acute visual loss. The visual outcome in patients with submacular hemorrhage is especially poor if the hemorrhage is thick, involves the fovea, covers a large area of the macula and is associated with an underlying CNVM especially in age related macular degeneration. Here we present a case of submacular hemorrhage in a 53 year old lady which responded dramatically to pneumatic displacement with intravitreal perfluoropropane gas in combination with intravitreal Bevacizumab (Avastin) injection.

Case Report

A 53 year old lady presented with history of sudden loss of vision in the left eye of 3 days duration. On examination vision in the right eye was 6/6, N 6 and that of the left eye was 2/60. Anterior segment was within normal limits. Dilated fundus evaluation (Fig.1a) showed a large subretinal hemorrhage over the macula in the left eye. Right eye was normal. She underwent a digital fluorescein angiogram (Fig.1b) which revealed multiple retinal pigment epithelial window defects in both eyes and blocked fluorescence in the area of hemorrhage in the left eye. An optical coherence tomography (Fig.1c) was carried out which showed a central retinal thickness of 271μm in the right eye and 528μm in the left eye. OCT scan in the left eye revealed a large hemorrhagic pigment epithelial detachment.

The patient underwent intravitreal injection of 0.3ml of perfluoropropane and 0.05 ml of 1.25 mg Bevacizumab (Avastin). Postoperatively, the patient maintained prone positioning for 5 days.
On review 1 month later, her vision had improved to 6/18, N 36 in the left eye. Fundus evaluation (Fig. 2a) showed adequate clearing of the submacular hemorrhage in the left eye. A repeat digital fluorescein angiogram (Fig. 2b) and OCT scan (Fig. 2c) was performed which revealed satisfactory reduction in the size of pigment epithelial detachment with a reduction in the central retinal thickness to 259 μm.

Discussion

Submacular hemorrhage can occur due to various aetiologies which include choroidal neovascular membrane due to age related macular degeneration, idiopathic choroidal neovascular membrane, polypoidal choroidal vasculopathy, myopic choroidal neovascular membrane and ruptured macro aneurysms.

The evolution of surgical techniques for the management of submacular hemorrhage has passed through the following stages:

2. 1987: Mechanical removal of clot along with removal of the CNVM.
3. 1991: Subretinal t-PA with removal of liquified blood and without removal of CNVM.
5. 1998: Intravitreal gas only.
6. 2001: Subretinal t-PA and pneumatic displacement.
7. 2007: Pneumatic displacement and Intravitreal Bevacizumab.
8. 2008: Intravitreal t-PA, expansile gas and Intravitreal bevacizumab.

The Herriots technique of intravitreal t-PA and gas injection can be performed in the out-patient clinic being a fast and safe procedure. Some studies have not reported good visual outcomes and it is also unclear whether intravitreal t-PA can penetrate into the retina. However animal studies on rabbits by Motohiro Kamel et al have demonstrated the ability of t-PA to diffuse into the subretinal space after intravitreal injection.

Ohiji and colleagues reported a series of 5 patients treated with pure perfluoropropane gas and face down positioning in the management of submacular haemorrhage. Displacement occurred completely or partially in all 5 eyes. The visual outcome following displacement depends on the macular status and hence it is important to treat the macular pathology at the earliest. Excellent results of regression of choroidal neovascular membranes associated with AMD following intravitreal Bevacizumab has been reported by various authors.

Various complications have been reported in association with the procedure which includes mild vitreous haemorrhage, retinal pigment epithelial tears and non resolving vitreous hemorrhage.

Conclusion

Combining pneumatic displacement with intravitreal Bevacizumab resulted in dual actions of displacing the sub macular blood as well as providing intravitreal Anti VEGF monotherapy to the underlying pathology which resulted in good displacement of sub macular hemorrhagic as well as regression and resolution of the hemorrhage pigment epithelial detachment in this case.
References:


