

Surgery with subfoveal neovascular membrane removal

In 1988, Juan and Machemer⁽³¹⁾ published the first results regarding removal of blood or fibrous submacular complications in four AMD patients.

Countless publications of retrospective studies in small numbers of patients ensued, with no control group, describing the benefits of this technique in stabilizing the disease, albeit displaying reduced functional benefits⁽³²⁻³⁴⁾.

The need to establish the actual benefits of submacular surgery in the treatment of choroidal neovascularization led to the Submacular Surgery Trials (SSTs).

One of the objectives of this study was to determine whether surgery not only stabilizes vision for the various types of AMD lesions but also increases vision with actual repercussion in the quality of life of these patients⁽³⁵⁾.

In the pilot trial used as a test to decide the best method to be used in this multicentre, randomized, controlled study no reason was found to prefer submacular surgery instead of laser photocoagulation in AMD patients with similar lesions to those displayed by study patients⁽³⁶⁾.

Several surgical techniques are described in the literature. In summary, these techniques include standard pars plana vitrectomy, with or without posterior hyaloid membrane removal; posterior retinotomy followed by infusion of subretinal saline solution or r-TPA into lesions with a large haemorrhagic component, membrane mobilization and its removal with surgical forceps, followed by eventual aspiration of blood or clot aspiration, depending on the situation.

Possible intraocular haemorrhages may be controlled by increasing the intraocular pressure, either by raising the irrigation bottle or using heavy perfluorocarbon liquids.

The procedure is finished with a fluid-air exchange, followed by gas buffering, maintaining the patient in the prone position until gas reabsorption⁽³⁷⁻⁴⁰⁾.

Due to the physiopathology of this disease, it was observed in histopathological studies that inadvertent and undesired removal of the pigment epithelium often occurs during membrane removal, especially for type 1 membranes.

The absence of the pigment epithelium leads to loss or atrophy of photoreceptors and choriocapillaries, which unfavorable visual recovery⁽⁴¹⁾.

The percentage of removed epithelium is variable but may reach significantly high values, as observed in the SSTs, where the pigment epithelium was involved in 84% of removed membranes⁽⁴²⁾.

Therefore, both the functional results and the impact on the quality of life observed for the various subgroups considered in the SSTs, compared to natural disease progression, led the authors not to recommend submacular surgery as a treatment option⁽⁴³⁻⁴⁶⁾.

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