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Photodynamic therapy for choroidal hemangioma

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Circumscribed choroidal hemangioma (CCH) is a benign vascular tumor that is well known to ophthalmologists [1]. The management of CCH has been somewhat controversial and the literature on this subject has been recently reviewed [2].

Depending on the clinical circumstances, the management of CCH has included observation, laser photocoagulation, transpupillary thermotherapy (TTT), external beam irradiation, and plaque brachytherapy and, more recently, photodynamic therapy (PDT). In determining which therapeutic method to employ, it is important to understand the natural course of CCH and to determine the mechanism of visual loss in each case. Although there are occasional reports of CCH that showed apparent enlargement, total retinal detachment, and neovascular glaucoma, the natural course is generally one of stability or, rarely, very minimal enlargement. The mechanism of visual loss depends on the location of the tumor and its effects on adjacent structures.

In the case of CCH that extends beneath the fovea, without retinal detachment, early visual loss is due to induced hyperopia and management should be correction of refractive error. Such a lesion can sometimes remain stable for many months or years and require no aggressive treatment. If a subfoveal CCH causes additional visual loss due to overlying subretinal fluid (SRF), management options have been limited, because attempts to reattach the retina by laser or irradiation generally result in further retinal damage. If a subfoveal CCH causes overlying cystoid retinal edema, retinoschisis, and photoreceptor degeneration, any form of treatment is unlikely to restore vision.

The natural course and management of extrafoveal CCH is somewhat different. Such lesions are also relatively dormant for months or years and become symptomatic when a localized, shallow secondary retinal detachment extends beneath the fovea. In such cases, laser photocoagulation has been used as a barrier between the margin of the lesion and the fovea, to bring about resolution of the subretinal fluid. A more widely used method is discrete or confluent laser treatment on the tumor surface, which can bring about resolution of SRF and some visual improvement. TTT has also been effective in achieving resolution of SRF. If there is more extensive bullous SRF, then laser or TTT has been less effective and external beam, charged particle irradiation, or plaque radiotherapy have been employed. Irradiation by either method is reported to bring about resolution of SRF and to reduce the thickness of the tumor in almost 100% of cases [2].

The aforementioned methods have generally been fairly effective in controlling secondary SRF, preventing neovascular glaucoma, and maintaining some visual function in selected patients with CCH and they are still very acceptable approaches to management. In the last few years,

however, there has been enthusiasm for using PDT to treat selected cases of macular degeneration. Because of the recent availability of PDT, its use has been expanded to treat a number of other ocular conditions, including CCH. Early reports of PDT for CHH have been encouraging. The indications, technique, and results of PDT are discussed and referenced in detail in the recent review [2]. Most authors have observed rather dramatic disappearance of SRF, remarkable flattening of previously elevated tumors, and visual improvement in selected cases. In most instances, no visible effect on the tumor is noticed at the time of treatment, but decreased tumor thickness and resolution of subretinal fluid is generally observed within 2 weeks.

Our group has had experience with PDT in treating more than 25 patients with visual loss due to CCH and our results have also been encouraging. We have employed ocular coherence tomography (OCT) to monitor the response to treatment. Using OCT, we have been able to demonstrate the resolution of subretinal fluid and cystoid retinal edema with restoration of normal retinal anatomy following successful treatment with PDT. Other authors have recently made similar observations.

In a prior study, Dr. Verbraak and associates reported favorable results using a slight modification of the technique reported by others, in which they employed limited single spot PDT to treat longstanding symptomatic choroidal hemangioma [3]. In this issue, the same authors have expanded their indications to include patients with slight visual disturbance but with good vision [4]. This is a controversial issue, since some authorities have traditionally believed that this benign vascular tumor should not be treated until it causes visual loss.

There are many patients with asymptomatic CCH in whom the lesion has remained stationary and asymptomatic for many years. In addition, CCHs have been diagnosed in asymptomatic elderly patients in whom the tumor had presumably been present for many years. There are probably hundreds of individuals with CCH who remain asymptomatic and the lesion is never diagnosed. Hence, there remains an argument for observing periodically small asymptomatic CCHs. When symptoms begin to develop and SRF starts to accumulate, there is still sufficient time to treat the patient without altering the expected outcome. It is still uncertain whether the use of PDT will modify this current thinking about early management of CCH.

In summary, it seems that PDT has emerged as the most widely used method to treat CCH. The modifications of PDT as proposed by Verbraak and associates is noteworthy and warrants further investigation. In spite of the good results reported by the authors, it is possible that most authorities will continue to withhold treatment until there is early visual impairment. With regard to malignant neoplasms, early recognition and prompt treatment of the primary tumor is vital. The treatment of asymptomatic benign tumors is more controversial. However, the authors' suggestion to treat patients with tumor-induced metamorphopsia but near-normal vision may be valid. It is still not determined whether the more focal PDT proposed by the authors is equal or superior to the slightly wider PDT used by other authors and whether treatment of asymptomatic patients is justified.

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