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LETTER TO THE EDITOR

Argon laser photocoagulation in polypoidal choroidal vasculopathy

Polypoidal choroidal vasculopathy (PCV) is either considered to be a variation of age-related macular degeneration (AMD) or a distinct clinical entity. It is characterised by aneurysmal type 1 neovascularisations ('polypoidal lesions') and may be accompanied by a branching vascular network (BVN),[1] which are best identified on indocyanine green angiography (ICGA). Like in neovascular AMD, PCV often presents with sub- or intraretinal fluid. Soft drusen (characteristic of AMD) are not always present, and submacular haemorrhages occur more often. PCV may not always respond to treatment with anti-vascular endothelial growth factor (VEGF) agents. Therefore, this may be combined with photodynamic therapy (PDT), which can also reduce the number of anti-VEGF injections required.[2] However, the required laser devices for PDT are not available throughout the world, and the recent shortage of verteporfin has further decreased the availability of this treatment option.[3] Argon laser treatment has shown promising results in treating extrafoveal polyps, with either stabilisation or vision improvement in up to 90% of patients.[4] However, it can also lead to scarring and recurrences of polyps. Altogether, not much has been published on argon laser treatment in PCV, and therefore, we wanted to expand the evidence on the long-term outcome of this treatment, using a historical cohort from a time when anti-VEGF and PDT were not yet widely available.

We retrospectively reviewed the clinical charts of patients who had been diagnosed with PCV using ICGA, at a tertiary referral centre in Leiden, the Netherlands. When one or more extrafoveal polypoidal lesions were observed, argon laser therapy was performed by a senior retinal specialist (G.D.) with an Omni multicolour laser (Novus Omni™; Coherent Inc., Palo Alto, CA, United States). Patients who had received anti-VEGF treatment within 6 weeks prior to argon laser treatment were excluded. The laser settings used were determined by the treating physician, based on clinical examination prior to and during laser treatment. On average, the following settings were used: red (659 nm) laser light for 0.2 s per shot at a low intensity setting (average: 425 mW), with a diameter of 200 μm, and an average of 50 laser shots per treatment. Best-corrected visual acuity (BCVA), presence of fluid, hard exudates, retinal pigment epithelial detachments, and

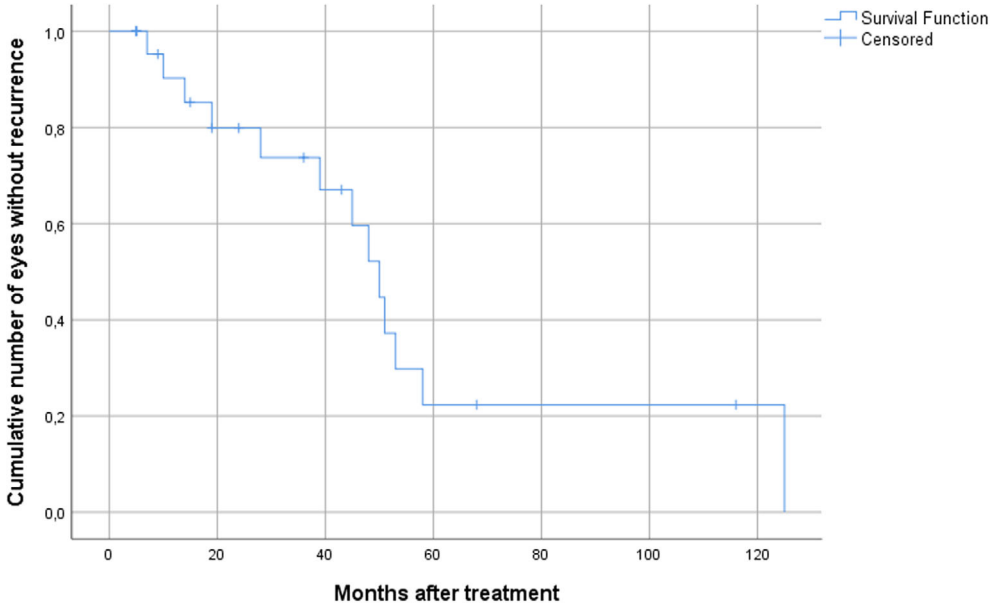

FIGURE 1 Survival graph for the recurrence of polypoidal lesions after argon laser photocoagulation

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Characteristic	Before laser	After laser	*p* Value
Presence of subretinal fluid on optical coherence tomography scan	7/13 (54%)	2/11 (18%)	0.030
Presence of hard exudates	21/24 (88%)	3/24 (13%)	<0.001
Presence of retinal pigment epithelial detachment	14/24 (58%)	1/24 (4%)	<0.001
Presence of subretinal haemorrhage	11/24 (46%)	1/24 (4%)	0.002

Note: *p*-Values were calculated using McNemar's test.

TABLE 1 Clinical characteristics of patients with polypoidal choroidal vasculopathy before and after argon laser photocoagulation

subretinal haemorrhage were scored before and after treatment. Recurrences were also monitored. This study adhered to the tenets of the Declaration of Helsinki, and approval for this study was obtained from the Medical Ethical Committee of Leiden University Medical Centre.

A total of 24 eyes in 22 patients were included in this study. The majority was female (82%), with a mean age at presentation of 72 years (range 59–87 years). Twenty of these patients were Caucasian and 2 patients were Asian. The number of argon laser treatments was 1 in 10 eyes (42%), 2 in 7 eyes (29%), 3 in 4 eyes (17%), 4 in 2 eyes (8%), and 8 in 1 eye (4%). In 6 eyes, argon laser photocoagulation was repeated within 2 months after initial treatment because there was no regression of polyps. Treated eyes had a median follow-up of 38 months (interquartile range, 14–69 months). Recurrences of polyps after more than 2 months following initial laser treatment occurred in 13 out of 24 eyes (54%), 10 of which occurred at the location of the initial laser treatment. In 3 eyes, polypoidal lesions arose elsewhere in the same eye. In the survival graph in Figure 1, it can be seen that at 24 months after treatment, 80% of eyes remained free from recurrences in the same eye. The presence of clinical characteristics before and after treatment is displayed in Table 1. A choroidal haemorrhage occurred in 1 eye after treatment, but resolved spontaneously after 1 month. The mean BCVA before laser treatment was 20/32, and this remained stable until the final follow-up visit (BCVA 20/32, $p = 0.876$, Wilcoxon signed-rank test).

In the current study, we found a marked decrease of exudates, retinal pigment epithelial detachments, and subretinal haemorrhages after argon laser treatment in cases with PCV. In addition to this, BCVA remained stable or improved in 91% of eyes. When considering the subtypes of PCV as previously described by van Dijk et al.,[5] it could be hypothesised that recurrences after argon laser treatment can occur more frequently when there is a BVN present (type B PCV) that may cause polypoidal lesions to arise elsewhere in the eye. In idiopathic PCV (type C PCV) without a BVN, treatment of the entire lesion with argon laser may be enough. This study has several limitations, including small sample size, retrospective nature, and the fact that optical coherence tomography scans were not available for all cases. Still, we conclude that argon laser may be a viable treatment option for extrafoveal polypoidal lesions. This is especially relevant when PDT is not available or desirable.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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