

## SHORT COMMUNICATION

**Case report**

# Nanophthalmic uveal effusion syndrome after prophylactic laser treatment

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**ABSTRACT:** Purpose. We report a case of nanophthalmic uveal effusion syndrome (NUES) with total exudative retinal detachment (RD) after prophylactic argon laser (AL) treatment. The RD subsided and eventually resolved with i.v. steroid therapy.

Methods. A 45-year-old woman was referred to us with NUES and total exudative RD after prophylactic AL treatment for retinoschisis performed elsewhere. The patient had been scheduled for surgical intervention and was given i.v. prednisolone.

Results. Two days after starting i.v. prednisolone, the subretinal fluid partially resolved. Intervention had therefore been postponed. After 15 days the RD almost disappeared and vision improved to 20/400. Ten days later the macula was flat and vision was 20/200. At the six-month follow-up visit vision was 20/40.

Conclusions. To our knowledge this is the first report of NUES and total exudative RD following AL treatment that resolved with i.v. steroid therapy alone. Since the AL treatment clearly seemed to play a role in the pathogenesis of the NUES and associated RD we strongly advise careful assessment of the risk/benefit ratio of prophylactic laser treatment in nanophthalmic patients. Although sclerectomy and vortex vein decompression are well-established techniques, we believe steroid therapy might be tried before proceeding to surgery. (*Eur J Ophthalmol* 1999; 9: 315-8)

**KEY WORDS:** Nanophthalmos, Laser treatment, Retinoschisis, Steroid therapy, Uveal effusion

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## INTRODUCTION

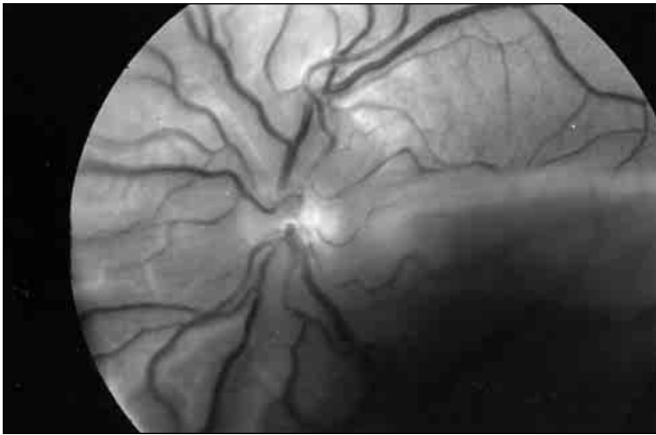
Nanophthalmos is a rare bilateral condition characterized by short axial length, diffuse choroidal thickening, severe hyperopia and a tendency towards angle-closure glaucoma and uveal effusion (1-3). The association of nanophthalmos and spontaneous or post-operative uveal effusion syndrome has been extensively studied in the past and effective therapy proposed (4).

The present paper reports a case of nanophthalmic uveal effusion syndrome (NUES) and total retinal detachment (RD) following argon laser (AL) prophylactic retinal treatment. Although several reports already

described NUES occurring either spontaneously (5) or after cataract extraction (4), argon laser trabeculoplasty (ALT) (6) and glaucoma filtering surgery, this is, to our knowledge, the first report of a NUES following prophylactic laser treatment that resolved with medical therapy.

## Case Report

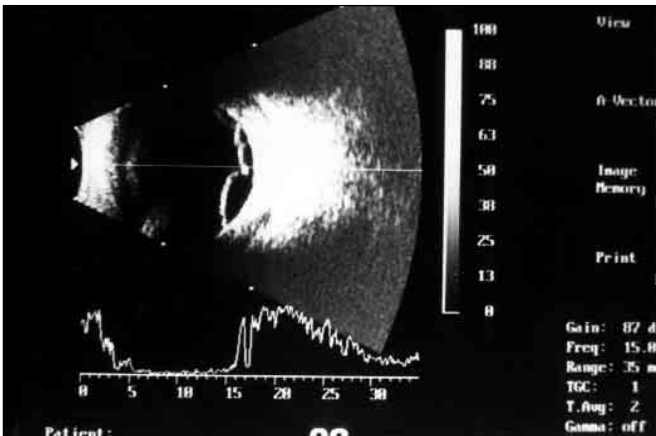
A 45-year-old white female was referred to the Retina Service at our hospital for marked decline in visual acuity (VA) a few hours after prophylactic retinal AL treatment in OS.



**Fig. 1** - Total exudative RD with shifting subretinal fluid on presentation. Note that the RD is more prominent inferiorly and a huge macular retinal fold is present.



**Fig. 2** - Triple row prophylactic AL treatment, delivered to the temporal peripheral retina on presentation. Note that the shifting subretinal fluid does not respect the laser line inferiorly.



**Fig. 3** - On presentation ultrasound shows a decreased antero-posterior diameter (16.1 mm A-scan, not shown), total exudative RD, and increased choroidal thickness.



**Fig. 4** - After 25 days the macula is almost flat, the huge bubbles of subretinal fluid have subsided and vision has improved to 20/200. A moderate macular fold with diffuse edema and yellowish discoloration can still be detected, just superior to the fovea.

On presentation OS VA was hand motion. The lids were normal the conjunctiva showed abnormally dilated vessels, the cornea was clear, non-staining, the horizontal corneal diameter measured 11.5 mm, the anterior chamber (AC) was shallow with no detectable Tyndall flare, and the vitreous chamber showed a few cells, 1+ Tyndall. Indirect ophthalmoscopy showed a total exudative RD with shifting fluid and the macula was detached (Fig. 1).

Peripheral retina examination showed a pre-equatorial triple row laser treatment extending temporally from 12 o'clock to 7 o'clock over the detached retina (Fig. 2). Areas of typical senile schisis (7) with no inner or outer layer holes and microcystic degeneration were clearly visible peripherally to the AL treat-



**Fig. 5** - After six months the retina is totally flat, the yellowish discoloration has almost completely disappeared and vision is 20/40.

ment. Ultrasound examination (Fig. 3) showed a reduced axial length (16.1 mm), a total RD and a markedly thickened choroid.

OD examination was unremarkable except for hyperopia (16.8 mm axial length), a shallow AC and a pre-equatorial limited area of senile schisis extending from 7 o'clock to 9 o'clock. No AL treatment had been delivered to OD and VA was 20/30.

The patient was treated with 40 mg i.v. prednisone and scheduled for sclerotomy (4, 8, 9). Two days later the subretinal fluid had decreased and the RD partially resolved. Surgery was therefore postponed and steroid therapy continued for 25 days and then tapered.

After 15 days the RD had almost disappeared, the superior quadrants were attached, the macula appeared slightly elevated and vision had improved to 20/400. After ten more days the macula was flat and vision was 20/200 (Fig. 4). Inferiorly two tiny choroidal bubbles still persisted but these finally disappeared at the six-month follow-up visit, when vision had improved to 20/40 (Fig. 5).

## DISCUSSION

Nanophthalmos is a rare disorder characterized by short axial length, shallow AC, thickened choroid and a tendency towards uveal effusion either spontaneously (5) or associated with ocular surgery (4), YAG laser iridotomy (10) or ALT (6). An altered sclera is currently thought to play a central role in the pathogenesis of the NUES and associated exudative RD (11, 12). Several ultrastructural and tissue culture studies have unraveled the anomalous structure of nanophthalmic collagen fibrils and proteoglycan (13) resulting in increased thickness and, possibly, impaired permeability.

According to most authors (11), uveal outflow through the vortex veins and trans-scleral flow of protein from the eye are compromised in nanophthalmic eyes, because of their reduced surface and permeability. This would prevent the normal trans-scleral choroidal absorption of fluids and proteins physiologically leaving the choroidal circulation (14). Nanophthalmos, therefore, leads to the accumulation of choroidal fluid, a condition made even worse in cases of ocular inflammation, such as after ocular surgery, laser treatment, traumas, etc (7).

Our patient showed a marked decrease in VA a few hours after prophylactic retinal AL treatment, with no tendency to improve in the first two days, and presented 48 hours after treatment with a total bullous exudative RD. It is therefore reasonable to believe the laser treatment had played a role in the genesis of the detachment, since the patient was asymptomatic before treatment. On the other hand, transient, localized cilio-choroidal detachment or even exudative RD can be seen in normal eyes undergoing extensive laser treatment. We are of the opinion that AL treatment in patients with senile schisis with no associated outer layer holes and/or schisis-detachment and/or documented progression towards the macula is highly questionable and normally totally unjustified (7).

The patient was scheduled for intervention (8) and steroid therapy was started, with a view to reducing the ocular inflammation underlying the exudation while awaiting surgical resolution. Two days later, however, the subretinal fluid had markedly decreased and this prompted us to continue medical therapy, postponing intervention. After 15 days of continuing improvement the retina had almost flattened and VA improved, so that surgical intervention was deemed unnecessary.

The beneficial effect of steroids is reasonably connected to its reduction of inflammation and therefore of the production of subretinal exudate; no effects on fluid trans-scleral flow have been documented. Although steroid therapy may take longer to resolve exudative RD and it may only be effective in a limited percentage of NUES with a less severe form of the disease, it might be a viable option, and this approach should be tried before proceeding to surgery.

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