

Lamellar macular hole in retinopathy of prematurity

Rajvardhan Azad, MD, FRCS, Parijat Chandra, MD, DNB, Yog Raj Sharma, MD, Nikhil Pal, MD
Dr Rajendra Prasad Centre for Ophthalmic Sciences, All India Institute of Medical Sciences, New Delhi, India.

Correspondence and reprint requests:

Rajvardhan Azad, Dr Rajendra Prasad Centre for Ophthalmic Sciences, All India Institute of Medical Sciences, Ansari Nagar, New Delhi 110029, India. E-mail: rajvardhanazad@hotmail.com

Abstract

Laser photocoagulation is the preferred method for treating retinopathy of prematurity. However, common sequelae after regression of retinopathy of prematurity include pigmentary changes, distortion and ectopia of the macula, stretching and folding of the retina involving the macula, vitreoretinal interface changes, vitreous membranes, and dragging of the retina over the disc. This report is of a boy born prematurely who underwent laser treatment for retinopathy of prematurity and developed lamellar macular hole.

Key words: Retinal perforations, Retinopathy of prematurity

Laser photocoagulation is the preferred method for treating retinopathy of prematurity (ROP).¹ Common sequelae noted after regression of ROP are pigmentary changes, distortion and ectopia of the macula, stretching and folding of the retina involving the macula, vitreoretinal interface changes, vitreous membranes, and dragging of the retina over the disc.²

Case report

This report is of a 4-week-old boy who was born prematurely at 28 weeks of gestation in 2006, with a birth weight of 1200 g. He had been in hospital for 3 weeks for treatment of sepsis and respiratory distress. The first ROP screening was at the post-conceptual age (PCA) of 32 weeks, when he was diagnosed with stage 1 ROP in zone II, with mild plus disease in both eyes. Subsequently, the patient failed to have regular weekly follow-up. The next screening took place at 36 weeks PCA and revealed stage 3 ROP in zone II, involving 8 continuous clock hours with plus disease in both eyes and significant traction on the ridge.

After informed consent from the parents, he underwent uneventful laser photocoagulation in both eyes using an indirect diode laser delivery system. At regular follow-up, the ROP started regressing in the left eye, with decrease in plus disease, but there was development of an inferonasal retinal fold with dragging of the disc and inferotemporal circumferential traction along the ridge. Three weeks after laser treatment, an increase in vitreoretinal traction on the ridge was noted, as well as the development of a possible lamellar macular hole with inferior displacement in the left eye (**Figure 1**).

Absence of drusen-like yellow deposits at the base of the hole, no subretinal fluid cuff, and lack of sharp distinct margins, with no visible epiretinal membranes, led to a diagnosis of lamellar macular hole. The left eye later progressed to stage 4B and scleral buckling surgery was advised. At the last

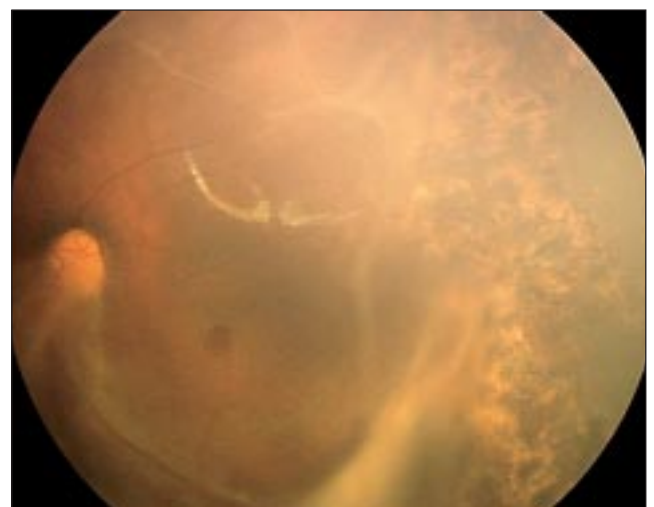


Figure 1. Fundus photograph of the left eye after laser treatment showing an inferonasal retinal fold with dragging of the disc, inferotemporal circumferential traction along the ridge, and lamellar macular hole.

follow-up at 2 months, the left eye fundus was unchanged, although the retinal detachment had receded. The right eye underwent regression of ROP, with persistent peripheral temporal traction and mild dragging of the disc.

Comments

To the authors' knowledge, this is the first report in the literature of the development of a lamellar macular hole in ROP. Tangential vitreoretinal traction is a known mechanism for formation of macular holes.³ Earlier reports have demonstrated macular coloboma-like lesions and macular pigment abnormalities related to severity of ROP and the amount of cryotherapy for ROP treatment.^{4,5}

These authors believe that the significant vitreoretinal traction on the ridge caused the retinal fold, dragging of the disc, presumed lamellar macular hole, and later progression of ROP in the left eye. Optical coherence tomography or high-resolution ultrasonography would have helped to make the diagnosis by accurately distinguishing true macular holes from lamellar/pseudoholes caused by epiretinal membranes or vitreomacular traction. However, the Dr Rajendra Prasad Centre for Ophthalmic Sciences, All India Institute of Medical Sciences, New Delhi, India, lacks the facilities for performing these investigations in children. ROP presents with varied sequelae that are difficult to predict, but macular hole adversely affects the long-term visual prognosis. Macular hole can be a rare sequela of treated ROP.

References

1. Cryotherapy for Retinopathy of Prematurity Cooperative Group. Multicenter Trial of Cryotherapy for Retinopathy of Prematurity: ophthalmological outcomes at 10 years. *Arch Ophthalmol*. 2001;119:1110-8.
2. Palmer EA, Patz A, Phelps DL, Spencer R. Retinopathy of prematurity. In: Ryan SJ, Schachar AP, editors. *Retina*. St Louis: Mosby; 2001. p. 1484.
3. Ho AC, Guyer DR, Fine SL. Macular hole. *Surv Ophthalmol*. 1998;42:393-416.
4. Saito Y, Hatsukawa Y, Lewis JM, Koike H, Omoto T, Tano Y. Macular coloboma-like lesions and pigment abnormalities as complications of cryotherapy for retinopathy of prematurity in very low birth-weight infants. *Am J Ophthalmol*. 1996;122:299-308.
5. Gilbert WS, Dobson V, Quinn GE, Reynolds J, Tung B, Flynn JT. The correlation of visual function with posterior retinal structure in severe retinopathy of prematurity. Cryotherapy for Retinopathy of Prematurity Cooperative Group. *Arch Ophthalmol*. 1992;110:625-31.



**The Members of the Editorial Board of the
Hong Kong Journal of Ophthalmology wish to express their gratitude
to the following individuals for their invaluable input as
reviewers of articles contributed to the Journal in the year 2007.**

Nathan Gongdon

Seng Kheon Fang

Timothy Lai

Vincent Lee

Kenneth Li

K Myint

Anita Ng

Winifred Nolan

H Terasaki

Nancy Yuen