Role of complete laser photocoagulation and wide-field imaging in aggressive posterior retinopathy of prematurity

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DESCRIPTION

A premature baby born at 28 weeks of gestation, post menstrual age (PMA) of 35 weeks, and birth weight of 1000 g presented to us with the diagnosis of aggressive posterior retinopathy of prematurity (APROP). The baby had a history of undergoing laser photocoagulation for the same at PMA of 33 weeks. On examination, retinae of both eyes showed dilation and tortuosity of vessels in zone 1 with haemorrhages and looping with avascular zones beyond. Both the retinae also showed evidence of previously treated sparse laser marks and skip areas in the anterior retinae with unlasered avascular areas in zone 2 (figure 1A,B). The wide-field digital imaging helped us in identification all the avascular and skip areas (figure 1A,B). It also played an important role as an educational tool for instructing our training ophthalmologists and fellows, and clearly delineate to them the areas which needed additional laser. Subsequently, the baby was treated with complete and aggressive photocoagulation for all the avascular and skip areas. One month post laser (39 weeks PMA), the retinae in both eyes showed reduced tortuosity and dilation of the vessels, resolved haemorrhages and regressed loops (figure 1C,D). The regression of the APROP picture was well seen and documented by wide-field digital imaging.

Retinopathy of prematurity is one of the major causes of childhood blindness.¹ APROP is characterised by severe plus disease, flat neovascularisation in zone 1 or posterior zone 2, intraretinal shunting, haemorrhages and a rapid progression to retinal detachment.² Rigid pupil and neovascularisation of iris are not uncommon which preclude good visualisation. APROP needs immediate and aggressive treatment for its regression.¹ Skip areas post incomplete laser lead to recurrence of the disease complicating into tractional retinal detachment. The challenge to perform a complete laser is further complicated by improper and difficult visualisation of paediatric eyes. The visualisation of the retina and proper identification is made easy by newer wide-field imaging of paediatric eyes. The Optos widefield imaging system (Optos camera; Optos, Dunfermline, UK) uses confocal scanning laser ophthalmoscopes with ellipsoid mirrors to create images of up to 200° of the retinal periphery and can be used through even in a non-mydratic pupil. These images can be of great value in paediatric patients, in whom fundus view is challenging. Digital imaging can assist ophthalmologists in visualising all regions of the retina and quick identification of lasered and unlasered skip areas.^{3,4} Moreover, digital imaging is an important educational tool for training ophthalmologists and

Figure 1 Ultra-wide-field colour fundus photographs. (A, right eye) and (B, left eye) Dilation and tortuosity of vessels in zone 1 with haemorrhages and looping with avascular zones beyond, previously treated sparse laser marks and skip areas in the anterior retina, with unlasered avascular areas in zone 2. (C, right eye) and (D, left eye) Post complete laser showing reduced tortuosity and dilation of the vessels, resolved haemorrhages and regressed loops.

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fellows who face the maximum challenge in paediatric retinal examination and its photocoagulation.

Learning points

- ▶ Wide-field imaging is an important education tool for training ophthalmologists and fellows. It removes the barrier of difficult learning curves.
- ▶ Wide-field digital imaging is an excellent tool in viewing the paediatric retina.
- ▶ APROP needs an early, complete and aggressive laser treatment to all the avascular areas for complete regression.

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