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Retrospective Study of Analysis of Babies with Aggressive Posterior Retinopathy of Prematurity

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Abstract: ***Aim: A clinical study with retrospective analysis of 10 eyes of 5 babies with APROP of birth weight 970 to 1420 grams, Gestational age 26 to 32weeks, from a Level 3 NICU with multiple risk factors. Result: Flat neovascularisation was seen in 8 eyes in zone 1,one eye in zone 2. One eye showed a large vascular loop in zone 2. 3 babies with APROP had very low gestation age <28wks.2 babies were of birth weight >1250gms & Gestational age >32weeks. Conclusion: Higher birth weight and gestational age babies with multiple risk factors also need to be viewed with suspicion for APROP.***

Keywords: Aggressive posterior retinopathy of prematurity

1. Introduction

Aggressive posterior retinopathy of rematurity (APROP) ,an aggressive variant of retinopathy of prematurity(ROP) with unique characteristics can progress rapidly into severe disease without following the classic stages of typical ROP.[1,2,3]

Aggressive posterior retinopathy of prematurity (APROP) is characterized by severe plus disease, flat neovascularization in zone 1 or posterior zone 2, intraretinal shunting, hemorrhages, and a rapid progression to retinal detachment.[1,2]

The favorable outcome rates for APROP vary from 71% to 84% even with early photocoagulation.[2,3,4] In contrast, the favorable outcome rate for classical staged retinopathy of prematurity (ROP) is more than 90%.[5] APROP commonly occurs in extremely premature and lower birth weight infants.[1,2] However, recent studies also report APROP in heavier and more mature infants.[3,4,6,7]The present study reports the clinical features and outcome of APROP in infants ≥1250 g birth weight.

2. Materials and Methods

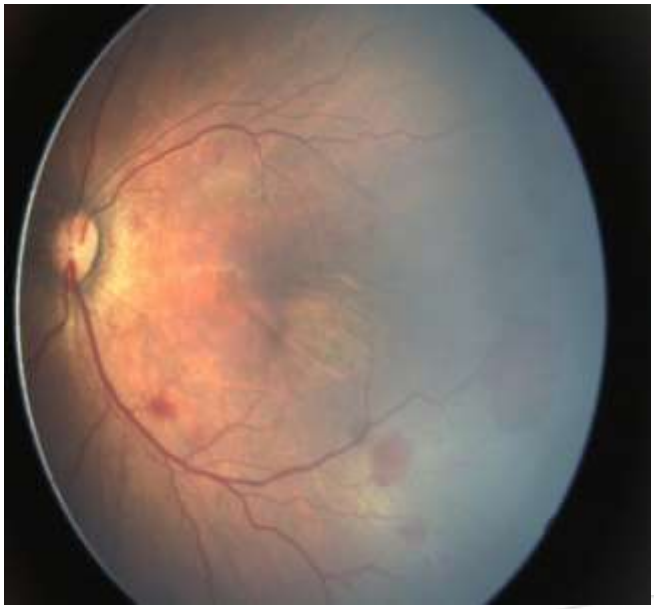
After institutional review board approval, we did a retrospective chart review of 10 eyes of 5 babies with APROP of birth weight between 970 grams to 1420 grams, Gestational age between 26 to 32weeks , at Level 3 NICU in SSIMS&RC.APROP was diagnosed in accordance with the international classification of ROP[1] using Retcam.Various parameters including birth weight, gestational age, mechanical ventilation, neonatal sepsis, and oxygenation were studied .Characteristics of ROP including the zone, pattern of neovascularization, and atypical features were noted.Babies with APROP were treated within 48-72hrs of diagnosis.

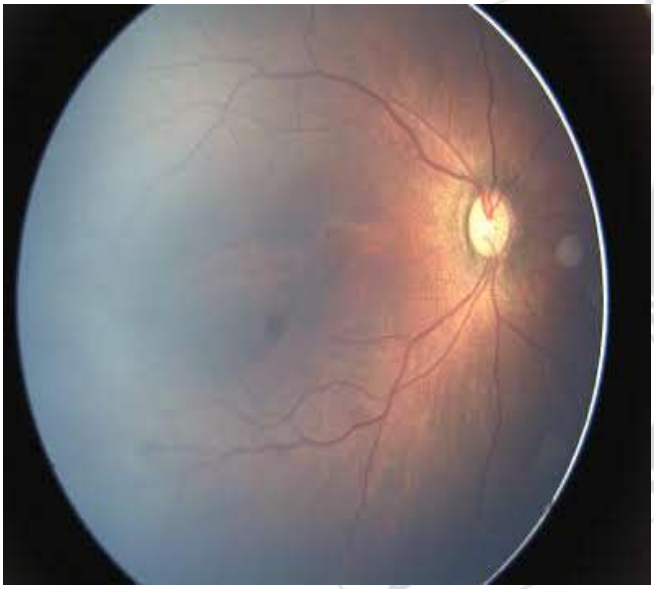
3. Results

The birth weight and gestational age of 5 babies were between 970-1420 gms and 26-32 weeks respectively. All infants received supplemental unmonitored oxygen. Systemic co-morbidities were common .Among 10 eyes 8 were given laser treatment.One baby could not be treated as lost follow up. A baby was followed up after each session for skip areas and was addressed8 babies with laser treatment showed signs of regression.

S.l No.	*Birth weight (gms)*	*Gestational age (weeks)*	*Risk factors*	*Zone*	*Vascular pattern*
1	1400	31	LBW,PT,Sepsis, O2,Jaundice,Blood transfusion	I	Flat
2	1100	29	LBW,PT,Jaundice,Apnoea HMD,O2	I	Flat
3	1000	32	PT,TwinI,RDS ,O2	II,Posterior	Raised
4	1300	32	Pt,TwinII,RDS,O2	I	Flat
5	970	26	VLBW,PT,RDS,O2,Sepsis,Blood transfusion	I	Flat

LBW-Low Birth Weight, VLBW-Very low Birth Weight,RDS-Respiratory Distress Syndrome,O2-OxygenPT-PreTrem .





Fundus images showing APROP in a twin 1 baby with gestational age 32weeks and birth weight 1000gm.

4. Conclusion

Higher birth weight and gestational age babies with multiple risk factors also need to be viewed with suspicion for APROP.

5. Discussion

International committee for classification of ROP ,in 2005 termed rush type-ROP as APROP. It is with special characteristics like 1)more posterior location,2)rapid progression,3)poor prognosis despite early treatment .[1,2,3]

The junction of vascular and avascular retina can be subtle and more easily overlooked during examination .Neovascularisation of APROP is less obvious due to its growth along retinal surface, rather than into vitreous cavity. Special attention needed by ROP screener, early and at consequtive laser photocoagulation session.[2,3]

APROP is commonly reported to occur in extreme premature and lower birth weight babies. In this study we report cases of APROP occurring in higher gestational and heavier babies. Recent studies from India have reported APROP occurring in higher gestational and heavier babies. A recent North Indian study has shown 15.91% infants, with birth weight more than 1500gm, developing APROP.[1,2,3,4]

Extreme prematurity, disruption of vasculogenesis, and a low platelet count are the reported risk factors for zone 1 APROP .[1,7,10] These factors do not explain APROP in older and heavier infants. A recent study has observed the use of supplemental unblended oxygen in heavier infants developing APROP.[6] Most of the infants in the present study had multiple co-morbidities and received unmonitored supplemental oxygen It is plausible that early and excessive exposure to unmonitored oxygen therapy may lead to APROP-like morphology in these infants. The present study is too small to prove causal association of any risk factor with APROP in heavier infants.

APROP in heavier infants differs in certain aspects from disease seen in extremely low birth weight premature infants. There is a preponderance of posterior zone 2 APROP with more mature central vasculature as compared with poorly developed vasculature in zone 1 APROP. Vessels extend for a considerable distance into the nasal retina forming large loops and enclosing an underlying avascular retina. Lack of relentless fibrovascular proliferation after laser treatment, which might limit outcomes in typical APROP.[1,3,5,7,10]

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