
MANAGEMENT OF RETINOPATHY OF PREMATURITY IN A TERTIARY CARE CENTRE

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Material & Methods.:

This is a retrospective study of 23 eyes of 12 premature babies that reported to our institution between 2001 and 2002. There were 9 males and 3 females babies. The age at presentation varied from 2 months to 24 months. The mean birth weight was 985 gms. The mean gestational age was 25.5 weeks. All the babies whose complete treatment information could be retrieved from the hospital records were included. Informed consent was taken from the parents of the premature babies undergoing surgery. Surgery was done by 2 Vitreo Retinal Surgeons

(Dr. S. Natarajan & Dr. Nazimul Hussain). The follow-up examination included evaluation of the visual axis, ocular movement any nystagmus or strabismus with torch light. Anterior segment abnormalities like iris atrophy, anterior chamber depth and cataract were evaluated with the help of magnification offered by +20D lens and indirect ophthalmoscope or slit lamp examination where ever possible. This examination was further completed during examination under anaesthesia before surgery whenever possible.

Dilated posterior segment examination was done by indirect ophthalmoscopy for any posterior pole abnormalities or peripheral fundus changes. The pupils were dilated using tropicamide 0.5% - 1% with phenylephrine 2.5%. Two to Three instillation of each of these drops, five minutes apart were usually sufficient to dilate the pupils in 15-20 minutes and the effect remained for 30-45 minutes. Care was taken to wipe (with sterile cotton / tissue) any eye drops that spill onto the cheeks, as they can be absorbed from the skin of the babies and cause increased heart rate. B- Scan Ultrasonography was also done to confirm the status of retina in eyes with hazy views. Repeat evaluation was also done under anaesthesia at the time of surgery.

Results :-

Of the 12 babies 9 were males and 3 females. The birth weight of babies ranged from 800 to 2500 gms (mean 985 gms) (**Table1**) and the gestational age at birth ranged from 26 to 32 weeks (mean 25.5 weeks) (**Table 2**) 4 babies (33.33%) had oxygen

Abstract

Purpose - To report our experience with management of eyes with Retinopathy of Prematurity (ROP)

Methods - Retrospective assessment of 23 eyes of 12 patients with retinopathy of prematurity

Results - At last follow up anatomical success was achieved in 70.58% cases. Significant anterior segment finding was shallow anterior chamber and leucocoria. Only one child showed mobile vision.

Conclusion - Late identification of disease, lack of prior treatment such as laser or cryotherapy. Poor functional results reemphasize the need for prompt screening and management of infants at risk.

Retinopathy of Prematurity (ROP) was first recognized by Jerry in 1942¹ and few years later was described as one of the leading causes of infant blindness². Multiple etiologies were suspected including infection, vitamin E deficiency, anoxia and hyperoxia. However, the most prevalent and consistent causative factor of ROP is severe prematurity. The increased survival of very small premature infants in modern neonatal intensive care units has led to resurgence of ROP.

The reported incidence of ROP in the west ranges from 21 to 65.8%^{3,4}. The incidence of ROP in India varies from 38% to 47.27%⁵. The threshold disease responds to cryotherapy and laser photocoagulation and can prevent progression to retinal detachment in majority of the cases. However, Zone 1 disease (especially rush disease) can progress to retinal detachment despite treatment. Unrecognized Zone 2 disease can also lead to retinal detachment. Surgical treatment is required at this stage. We describe our experience in management of ROP eyes in a tertiary care centre.

(ii) The fact that the surgery on the second eye (bilateral case) was usually done 2 weeks after the first surgery. Significant anterior segment finding was shallow anterior chambers and leucocoria.

Discussion :-

The incidence of ROP is increasing in India due to improved neonatal facilities. Fortunately the disease course in ROP offers a unique opportunity for the ophthalmologists to identify and treat the disease. One needs to organize a network among the fellow physicians, paramedical staff and parents, for early detection and effective treatment of ROP. The initial attempts were made by Triester and Machemer in 1977 to settle the detached retina in ROP babies. The surgical approaches applicable to adult retinal detachment do not apply in stage 5 ROP surgeries. For successful surgeries it is important to understand the anatomy of an eye with ROP. The fibrovascular tissue starts at the ridge. The vascularised posterior retina gets detached and peripheral retina (vascular) remains attached. This causes formation of peripheral trough. The fibrosis slowly spread to vascularised posterior retina.

In the series of Tese et al ⁶ the mean birth weight, gestational age, and average age at surgery was 784 gms, 25.5 weeks and 4.5 months respectively. Comparatively in our series the mean birth weight was 985 gms and average age at surgery was 7.5 months. The gestational age was

same i.e. 25.5 weeks. 2 of the 12 babies (16.6%) who presented to us had no prior treatment in the form of laser photocoagulation in 1 case and lensectomy with vitrectomy in the other case.

Lack of screening programmes in India have lead to larger number of babies and eyes developing retinal detachment. The visual results have been unsatisfactory, despite surgical reattachment of the retina in ROP⁷. This is because the retina in ROP eyes does not seem to grow with the growing eyeball. It gives way at vulnerable point because it is stretched thin causing recurrent retinal detachment.

Myopia, strabismus, anisometropia and Amblyopia are related acute ROP condition. The presence of these finding leads to an increased risk of retinal detachment. They must be followed up regularly throughout both childhood and adulthood. Thus in the Indian scenario,

supplementation but the duration of the same was not available, 4 babies (33.33%) had received phototherapy and 5 babies (41.67%) had received blood transfusion.

Only 1 of the 23 eyes (4.34%) had threshold disease and had treatment with photocoagulation. 2 eyes (8.69%) had undergone scleral buckling for stage 4A ROP else where. 5 of the 20 eyes (25%) had scleral buckling for stage 4A disease. The rest 15 eyes (75%) presented to us with stage 5 ROP. All 5 eyes (25%) with stage 4A disease underwent scleral buckling. The rest 15 (75%) of the 20 eyes were advised to undergo pars plana vitrectomy with lensectomy of which only 12 eyes underwent surgery. Most surgeons consider posterior polar reattachment as anatomical success in cases of surgery for stage 5 ROP ⁸.

The mean age at surgery was 7.5 months (Table 3). The retinal status at 6 months follow up is given in **(Table 4)**. Anatomical success at 6 months was achieved in 12 of the 17 eyes (70.58%) which underwent surgery (either lensectomy and vitrectomy or scleral buckling). Total reattachment was seen in 8 of the 12 eyes (66.66%) and the rest 4 (33.3%) eyes had only posterior polar attachment. Anatomical failure was seen in 5 of the 17 eyes (29.4%). Open funnel retinal detachment and closed funnel retinal detachment was observed in 1(20%) and 2 (40%) of the 5 eyes respectively. Shallow retinal detachment with peripheral traction was seen in the rest 2 eyes (40%). 2 of the 17 eyes (11.76%) which underwent surgical intervention finally ended up with occlusio pupillae.

Follow up after surgery ranged from 2 to 16 months (mean 7.5 months). 9 of the 12 babies (75%) had a follow-up of 6 months but less than 12 months. 1baby (8.3%) and 2 babies (16.6%) followed up with us till 12 months and 24 months respectively. The visual acuity in these infants was difficult to assess. Fix and follow behaviour was not observed in all the eyes with attached retina consistently. Of the 20 eyes which underwent surgery 10 eyes (50%) were following and

fixing light at the end of follow up. 1 infant with shallow retinal detachment had fixed and follow behaviour and 1 child showed mobile vision.

The apparent delay between presentation of the patient to us and the time of surgery was due to, (i) The time taken by the parents to decide on surgery

References:

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it is mandatory to screen premature infants at risk by a trained ophthalmologists at Neonatal intensive care unit.

Table 1:**Birth weight of patients in this series (n=12)**

Birth Weight (gms)	No of patients
750-1000	5 (41.6%)
1000-1250	3 (25%)
1250-1500	1 (8.3%)
1500-1750	nil
1750-2000	1 (8.3%)
Unknown	2 (16.6%)
Total	12

Table 2:**Gestational Age of the patients in this series (n=12)**

Gestational Age (weeks)	No of patients
24-28	10 (83.3%)
29-32	1 (8.3%)
> 32	nil
Unknown	1 (8.3%)
Total	12

Table 3.:**Age at surgery of patient in this series (n=12)**

Age (months)	No. of patients
3-4	6 (50%)
4-8	3 (25%)
8-12	2 (16.6%)
More than 12	1 (8.3%)
Total	12

Table 4.:**Post Operative retinal status of patients in the series (n= 17)**

Retinal Status	At 6 months
Anatomical success	70.58%
Total reattachment	66.66%
Posterior Pole reattachment	33.33%
Anatomical Failure	29.41%
Retinal Detachment with periphery traction	40%
Open Funnel	20%
Closed Funnel	40%