

Retinopathy of Prematurity—
A Preliminary Report

S. Rekha
R.R. Batti
M.K. Chandrasekhar

Retinopathy of prematurity (ROP) is a specific problem of the sick preterm neonate. With the advent of neonatal intensive care units and increasing survival of very low birth weight infants, there has been an increase in the incidence of ROP(1). Over the last decade, there has been an increased awareness of neonates and their problems in our country and a number of neonatal intensive care units have come up. With this and an increased survival of very low birth weight infants ROP must be occurring amongst this group of babies, but to date there is no literature on incidence of ROP in India. During the course of one year we screened 6 high risk babies for ROP of whom 5 had varying stages of ROP. These cases are presented in brief as a preliminary report.

Material and Methods

Six babies who weighed less than 1500 g and required intensive care and oxygen therapy were screened for ROP. None of these babies were on ventilatory support, all had hood oxygen therapy at a rate of 2-5 litres per minute and none of them had blood gas analysis or oxygen saturation monitoring. Oxygen therapy was started because of cyanosis, apnic episodes or because the baby looked sick. These infants were first examined at 3-4 weeks of age before discharge and a repeat examination was done at 6 weeks of age in the follow up clinic. Subsequent checkups were done at 2-3 weeks intervals and the frequency of examination was reduced to 1-2 months if there was no progression.

Mydriasis was achieved by using 1% phenylephrine and 1% tropimide in neonates less than 6 weeks and with 2.5% phenylephrine in babies more than 6 weeks. Atropine was not used for mydriasis because one of the our babies had developed atropine toxicity after using 1% atropine ointment(2). Examination was done under topical anesthesia using a binocular indirect ophthalmoscope. Staging (Table I) was done following the International Classification of ROP(3-5).

Results

Of the 6 babies screened 5 had ROP and in one infant the fundus was normal. One baby had stage I, 3 had Stage II and 1 had Stage III ROP. (Fig.). The babies with
TABLE I—International Classification of ROP

<table>
<thead>
<tr>
<th>Stage</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Demarcation line—a line seen between vascular and avascular retina</td>
</tr>
<tr>
<td>II</td>
<td>Ridge—(elevated demarcation line)</td>
</tr>
<tr>
<td>III</td>
<td>Ridge with extra retinal fibrovascular proliferation</td>
</tr>
<tr>
<td>IV</td>
<td>Sub total retinal detachment</td>
</tr>
<tr>
<td>A</td>
<td>Not involving fovea</td>
</tr>
<tr>
<td>B</td>
<td>Involving fovea</td>
</tr>
<tr>
<td>V</td>
<td>Total retinal detachment</td>
</tr>
</tbody>
</table>

PLUS disease refers to any stage of retinopathy which in addition had dilated and tortuous arteries and veins in the posterior pole.

Discussion

Retinopathy of prematurity is a vasoproliferative retinopathy principally occurring in preterm infants. There are two phases: (i) an acuter phase in which normal vasculogenesis is interrupted because of vasoconstriction and obliteration, this is followed by neovascularization; and (ii) a late or chronic phase of proliferation of membranes into the vitreous resulting in scarring and retinal detachment and significant visual loss. Almost 90% of acute ROP may have spontaneous regression and less than 10% go on to significant cicatrization(3,6).

The pathophysiology of ROP is unclear, though oxygen therapy and high arterial oxygen pressures are chiefly implicated. Other contributing factors include extreme prematurity, sepsis, hypercapnia, acidosis, hypoxia and bright light(3,6).

The incidence of ROP varies according to the birth weight and gestational age—more immature the baby, higher the incidence. There has been a changing pattern in the incidence of ROP over the last 30-40 years and now it seems to be a major problem chiefly in babies weighing less than 1000 g because of an increase in survival of these babies(1). The incidence of ROP induced blindness is 0.29% in babies weighing 1000-1500 g and increases to 2.7% in babies weighing less than 1000 g(7).

The exact incidence cannot be commented upon in the present study, as all infants less than 1500 g were not screened. In this study the maximum number of cases had Stage II ROP (3/5). The etiology in these cases might have been multifactorial: prematurity, oxygen therapy, sepsis, hypoxia, etc. The recommended treatment is conservative treatment and monitoring.
TABLE II—Clinical Features of the Cases

<table>
<thead>
<tr>
<th>Case</th>
<th>Weight (g)</th>
<th>Gestation (wks)</th>
<th>Neonatal problems therapy</th>
<th>Oxygen (h)</th>
<th>Stage of ROP</th>
<th>Follow up</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>1000</td>
<td>30</td>
<td>Preterm, sepsis, jaundice, apnea, necrotizing</td>
<td>96</td>
<td>Stage II at 8 wks.</td>
<td>1 yr no progression.</td>
</tr>
<tr>
<td>II</td>
<td>1000</td>
<td>32</td>
<td>Preterm, jaundice, necrotizing enterocolitis anemia</td>
<td>&lt;24</td>
<td>No ROP</td>
<td>7 months normal</td>
</tr>
<tr>
<td>III</td>
<td>1490</td>
<td>32</td>
<td>Preterm, pneumonia, jaundice</td>
<td>96</td>
<td>Stage II ROP at 8 wks</td>
<td>No follow up</td>
</tr>
<tr>
<td>IV</td>
<td>900</td>
<td>30</td>
<td>Preterm, necrotizing enterocolitis, apnea jaundice</td>
<td>72</td>
<td>Stage III</td>
<td>5 months cryotherapy (at 10 &amp; 12 wks) Subsequently gradual regression</td>
</tr>
<tr>
<td>V</td>
<td>1250</td>
<td>32</td>
<td>Preterm, pneumothorax, jaundice</td>
<td>72</td>
<td>Stage II at 8 wks</td>
<td>4 months, no progression</td>
</tr>
<tr>
<td>VI</td>
<td>1500</td>
<td>34</td>
<td>Preterm, jaundice, pneumothorax, sepsis, thrombocytopenia</td>
<td>72</td>
<td>Stage I at 8 wks</td>
<td>No follow up</td>
</tr>
</tbody>
</table>

in Stages I and II and cryotherapy in Stage III(3,8). In this study one child with Stage III ROP had cryotherapy for both the eyes based on the treatment protocol suggested by the cryotherapy for ROP co-operative group(9). The recommended follow up is ophthalmological examination of all oxygen exposed preterm babies less than 34 weeks gestation, at 6-8 weeks and follow up 2-3 weekly till no progression.

This was a pilot study to determine if ROP occurred in high risk neonates requiring intensive care treatment in our setting. Five out of six babies examined had ROP and this is highly significant. A prospective study of all high risk neonates would be essential to determine the exact incidence. Oxygen monitoring equipment should be present in all neonatal units and more stringent measures should be adopted for use of oxygen particularly in the absence of monitoring facilities.

REFERENCES


5. Committee on Classification of ROP—An


Anorectal Anomaly (Low) with Imperforate Hymen in a Newborn

A.N. Gangopadhyay
S.K. Pandit
S.C. Gopal

Simple imperforate hymen and other such anomalies present usually around menarche(1). Imperforate hymen present-

From the Division of Pediatric Surgery, Institute of Medical Sciences, Banaras Hindu University, Varanasi 221 005.
Reprint requests: Dr. A.N. Gangopadhyay, Lecturer of Pediatric Surgery, Department of Surgery, Institute of Medical Sciences, Banaras Hindu University, Varanasi 221005.
Received for publication June 19, 1991; Accepted October 17, 1991

Fig. Clinical photograph of the patient showing ballooning out of imperforate hymen through vestibule and absence of normal anal orifice.