CASE NOTES

SEVERE VITREOUS HAEMORRHAGE IN A PREMATURE INFANT*

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SMALL intra-ocular haemorrhages have frequently been described in newborn infants. The following case of severe vitreous haemorrhage presents several unusual features. It was observed during the routine examination of the eyes of premature infants.

Case Report

A male infant was born on May 8, 1954, after a gestation period of 36 weeks. His mother, a primigravida aged 25, had a mild degree of pre-eclamptic toxæmia. The onset of labour was spontaneous: the presentation was a vertex. The first stage lasted $6\frac{3}{4}$ hours and the second stage 15 minutes. There was some delay in delivery of the head, and while an episiotomy was being done, the mother had an eclamptic fit which lasted for about 2 minutes. The head was delivered but it was impossible to deliver the shoulders until the tonic spasm relaxed, and during this period there was intense constriction of the infant's neck. After the fit had ceased, delivery was completed normally. The infant appeared in good condition and respiration was established without difficulty.

Oxygen was not given and the neonatal period was uneventful. There were no subconjunctival haemorrhages, nor was there any other evidence of the intense venous congestion that had occurred.

Ophthalmic examination was first carried out on the 9th day of life. The pupils did not dilate well with 1 per cent. homatropine and $2\frac{1}{2}$ per cent. phenylephrine, and the following observations were made after a very limited examination:

The right fundus appeared normal; the left fundus showed a hazy vitreous with congested retinal vessels.

In view of the possibility of retinopathy of prematurity the examination was repeated on the 12th day. Dilatation was now more satisfactory and the findings were as follows:

The right fundus was completely obscured by vitreous opacity; in the left fundus the temporal half of the retina was obscured by what appeared to be a vitreous haemorrhage; the vessels were normal in the nasal half, but the whole fundus appeared dark.

On repeating the examination on the 18th day, there was no significant change.

On the 30th day the findings were as follows:

The right fundus remained completely obscured, but the density of the opacity appeared to be less, and gave a red reflex. The left fundus was now obscured in the major part by vitreous haemorrhage. (Only in the lower temporal area was it possible to see the retina, which appeared normal).

From then onwards there was steady absorption; at 6 months the right vitreous appeared clear, and the left showed only hazy remnants of vitreous haemorrhage. When the patient was 7 months old, Mr. P. L. Blaxter reported:

This patient was examined under general anaesthesia on December 6, 1954. He has an alter-

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nating convergent squint. There is no abnormality in the anterior chamber in either eye and both lenses are clear. The right eye is myopic. There are a few opacities in the anterior vitreous but it was possible to obtain a clear view of the fundus. Apart from a slight myopic crescent round the optic disc no abnormality was seen. The left eye is hypermetropic, but apart from one large opacity in the anterior vitreous just behind the lens, the ocular media were perfectly clear and I was unable to detect any abnormality in the fundus.

The infant was slightly retarded in neuromuscular development but at the age of 10 months he could sit unsupported and used his hands well. His vision was steadily improving: he could follow lights and bright objects (well to the left—not so well to the right), and reached out to touch objects in a manner quite normal for his age.

Comment

There are wide variations in the estimated incidence of intra-ocular haemorrhage in the newborn, ranging from 42 per cent. (McKeown, 1941) to 2.6 per cent. (Chase and others, 1950). It is generally agreed, however, that the incidence is higher in premature infants and after difficult deliveries. With two minor exceptions, the reports refer to retinal haemorrhages only. Von Hippel (1898) remarked on the occurrence of vitreous haemorrhage in the newborn, but had not seen a case himself. Stumpf and Sicherer (1909) recorded a case with vitreous haemorrhage and hyphaema: this had occurred in an infant who had been severely asphyxiated at birth. It is interesting to note that Ehrenfest (1931), in a major review of intra-ocular haemorrhage in the newborn, did not find any record of vitreous involvement.

According to Duke-Elder (1954), vitreous haemorrhages are, in general, due to the extension of pre-retinal or intra-retinal haemorrhages which burst through the internal limiting membrane. He accepts the idea that they are most likely to be mechanical in origin, pressure on the head leading to congestion of the cerebral sinuses and through them to the retinal veins. This concept would fit the circumstances very well in the case now reported, for it will be recalled that the maternal convulsion occurred when the head was already delivered. There can be no doubt that the neck was severely compressed and the head subjected to intense venous congestion.

The comparative frequency with which infants are delivered with the cord tightly round the neck suggests, at first sight, that cases of vitreous haemorrhage might be expected to occur more frequently. Ehrenfest (1931) however, points out that intra-ocular haemorrhage is not common in such circumstances. It seems clear that in these cases the cyanosis of the infant is due to a cutting off of the placental blood flow by constriction of the umbilical vessels, and there is not necessarily that intense constriction of the neck which occurred in the case now reported.

Satisfactory resolution is what might have been expected: vitreous haemorrhages in later life tend to resolve. This case was unusual, however, as the blood remained in a compact and concentrated form in the vitreous, whereas in the adult the tendency is for it to disperse into a uniform vitreous haze. General haziness never occurred in this case, the various parts of the fundus being either obscured or completely clear. At one stage of resolution, a

thin black streak across the centre of the left vitreous separated a hazy area from the remainder which was perfectly clear.

Despite the striking history of venous obstruction, the development of the haemorrhage in this case is not completely explained because the condition worsened to a marked degree between examinations on the 9th and 12th day, and deteriorated further up to 30 days. The prognosis at that time was regarded as poor, but in fact resolution continued from then onwards, and at the age of 7 months there appeared to be grounds for giving quite a good prognosis for vision. Whether there were intracranial haemorrhages as well must remain undecided, but on present evidence the infant appears to be making normal progress.

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