CASE NOTES

RETROLENTAL FIBROPLASIA*

BY

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THE case of retrolental fibroplasia here described was diagnosed during the routine examination of premature babies carried out in Oxford. It is reported because the clinical and histological findings may be of interest to others carrying out similar examinations of premature babies.

Case Report

Clinical History.—A female infant, born October 16, 1951, birth weight 2 lb. 1 oz., first child of second marriage, healthy parents, mother aged 31 years. One sib, born 1944, healthy; a second sib, born 1948, died of pneumonia on third day; miscarriage, 1950.

Pregnancy normal until spontaneous onset of premature labour at 26 weeks resulted in a spontaneous breech delivery. Baby breathed immediately, but it was necessary to keep her in an oxygen tent. Progress was satisfactory and oxygen was stopped at 19 days.

Feeding: expressed breast milk at 48 hrs. Vitamins: A, 14,000 units; C, 30 mg.; D, 3,000 units; all daily from 7 days. Vitamin K, 10 mg. on day of birth. Ferrous sulphate, gr. 3 daily from 8 weeks.

Fundus: routine examination was begun December 3, 1951, and continued at weekly intervals. Natural greyness of the peripheral retina, and pallor of the disk was observed.

14.1.52 (3 months old). Both eyes: periphery greyer, with a few new vessels, temporally.

24.1.52 Left eye, three small areas, apparently exudates, at the edge of the grey area temporally. Right eye, grey areas at periphery increasing.

At this stage the infant was returned to the oxygen tent, with 60 per cent. O₂, until 2.2.52. 28.1.52 Appearances of the central areas of both retinæ were within normal limits. Vascular proliferation towards periphery in both. In the left eye the vessels were so finely divided that they gave the appearance of a small haemorrhage, and there were three small exudates at the edge of the grey zone. Vitreous quite clear in both eyes.

1.2.52 Inferior temporal vessels right retina very dilated and tortuous. No detachment or vitreous opacity. Same vessels left retina showed these changes to less degree.

2.2.52 (weight now 5 lb. 7 oz.). Retinal detachment temporally right eye and fine vitreous haze. Treatment with ACTH started, 25 mg. total daily in four doses, each of two injections separated by a 10-minute interval.

4.2.52 Detachment temporally in left eye also.

During the first few days of treatment the detachments seemed to increase, but the vascular engorgement disappeared. Eosinophils fell to zero, and the systolic blood pressure rose to 180 mm. Hg.

6.2.52 Febrile. Little change in condition of fundi.

At this time there was unfortunately an epidemic of gastro-enteritis in the childrens' ward. This child, the smallest and weakest, was one of several severely affected. It was the only one to die.

10.2.52 Frank gastro-enteritis. Treated with penicillin, 250,000 units twice daily, streptomycin 0.05 g. twice daily; continued for seven days. Intravenous glucose saline infusions were also given.

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- 12.2.52 General appearance of right fundus showed little change. Left eye, retinal detachment in temporal quadrant enlarged. The white areas seen earlier coalesced to form a yellowish-white line. Vitreous clear in both.
- 15.2.52 Right eye no change. Left eye detachment almost flat; little or no dilatation of vessels.
- 16.2.52 ACTH stopped after 14 days' treatment. Twelve hours after ACTH therapy ended, the child passed blood-stained mucus per rectum, and a few hours later vomited blood-stained material. Twenty-four hours later vomiting increased and the baby collapsed and died.

A *post-mortem* examination was performed approximately 36 hrs after death.

Pathological Findings

Left eye, horizontal section.—There is an area of fibrovascular proliferation at the periphery of the retina on the temporal side, the blood vessels passing from the inner surface of the retina into the vitreous (Fig. 1). The nerve fibre layer anterior to the vascular proliferation is thickened. Changes in the rod and cone layer are due to *post-mortem* autolysis.

FIG. 1. — Vascular proliferation from inner surface of retina. Thickening of nerve fibre layer. No separation between pigment and rod and cone layer. Haematoxylin and eosin. $\times 70$.

Right eye, horizontal section.—There is an area of thickening and vascular proliferation in the inner anterior part of the retina. This is less marked than in the left eye.

In neither eye is there a retinal separation in the region of the vascular proliferation, nor is there separation of the two layers of the pars ciliaris retinae. There is vacuolation at the equator of the lens, but this and the retinal folding (Fig. 2) in the left eye is regarded as artefact. There is no evidence of congenital deformity in the sections examined.

FIG. 2.—Artefact produced by folding of retina. Haematoxylin and eosin. $\times 70$.

Other organs, including the brain, were examined. No changes were found to indicate that the eye lesion was part of a generalized disease. Death was due to enteritis. Sections of lung and kidney were stained with van Gieson, orcein, and periodic acid-Schiff, for examination of the blood vessels. No abnormalities were found. Frozen sections of the suprarenals were stained with Sudan IV, and the small amounts of lipoid remaining were seen to be in the innermost cells of the cortex. Half of the left eye was embedded in gelatin, and frozen sections stained for fat. None was demonstrable in the choroid or retina.

Discussion

The case is reported, first, because, although clinically detachments appeared to be present in the region of the vascular proliferation in both eyes of this child, histological examination did not confirm this. Treatment was not started at the stage of increasing peripheral greyness and tortuosity of the vessels, because we have had the impression that this stage may regress spontaneously. Secondly, there was no clinical or histological evidence of general vascular disease, naevus formation, or cerebral malformation.

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