INDIRECT INJURY OF THE OPTIC CHIASMA—A CASE REPORT.

BY

E. B. C. HUGHES

REPORTS of indirect injury to the optic chiasma are not common in the literature, and cases in which operative or pathological inspection of the damaged chiasma have been made are rarer still. The following case in which a careful inspection of the damaged chiasma was made at operation, seems, therefore, worthy of record.

William U., aged 45 years, sustained a severe cranio-cerebral injury as the result of a road accident. While driving a lorry, he ran into the back of a stationary vehicle, and in all probability struck the front of his head against the windscreen. One month after this injury he was admitted to an E.M.S. Head Injury Centre under the care of Mr. Harvey Jackson. There was no scalp wound, but severe bruising of both orbits and frontal regions suggested the site of injury. X-Rays of the skull showed a horizontal fissured fracture running above the frontal sinuses. On the right side this extended just over the midline, and then ran vertically downwards into the right frontal sinus, on the left side it ran as far laterally as the outer margin of the orbit and then extended vertically downwards on to the roof of the orbit (Fig. 1). In the frontal region there was a small collection of air, evidently in the frontal pole of the brain, with a narrow track leading down to the right frontal sinus. A post-traumatic amnesia of twenty-four hours and a lumbar puncture shortly after injury showing a small admixture of blood and some sixty cells per cu. mm. in the C.S.F. indicated the severity of his generalised cerebral injury. The neurological signs on admission consisted of complete bilateral anosmia, complete facial paralysis on the right with loss of taste, and a mild left hemiparesis with increase of tone and of the deep reflexes. Both optic fundi showed similar appearances; the optic discs were abnormally pale, but the retinal vascular tree was normal. It seemed certain that he had moderate primary optic atrophy in both eyes. The visual acuity was 6/9 in each eye. The visual fields showed complete loss of the temporal field in each eye. Sparing in the macular region was thought to be present at first, but subsequent careful testing failed to demonstrate this. The nasal fields were quite normal, even to 1/2000 white there was no "greying" and no quadrant sign for colours (Fig. 2).

Exploration was carried out seven weeks after injury by Mr. Harvey Jackson through a right frontal bone flap. The primary

FIG. 2.

Visual fields four weeks after injury, showing complete loss of both temporal fields, normal nasal fields. Visual angles $\frac{1'2}{2000}$ and $\frac{1'20}{330}$

object of this operation was to repair the dural defect in relation to the right frontal sinus, and this tear was identified through an intradural approach and repaired. Retraction of the right frontal pole allowed an excellent view of the optic nerves and chiasma. The right optic nerve was examined closely from its exit from the optic canal to its junction with the chiasma and appeared to be quite normal. The left side of the chiasma and the left optic nerve were partly obscured by recent greyish-yellow filmy adhesions; these were easily brushed away. The left optic nerve also appeared to be normal. No gross injury of the chiasma could be seen, and there was not the slightest suggestion of an antero-posterior tear (Fig. 3). His recovery from this operation was quite uneventful.

No change has been noted in the fields and the fundi up to the present date four months after injury. There seemed to be little doubt from questioning the patient, and from his previous hospital records, that a bitemporal field loss had been present from the time of injury, which had not altered appreciably since.

Discussion

The pathogenesis of this type of injury still remains in doubt. Several hypotheses have been suggested in the past, including simple antero-posterior tear (Coppez, 1929), and intrasellar

FIG. 1.

Lateral X-ray of skull showing fissured fracture extending down on the left side into the roof of the orbit.

FIG. 3.

Operative drawing showing right and left optic nerves and the chiasma without any evidence of gross injury. The left optic nerve and left side of chiasma are covered by filmy adhesions.

haematoma (Campbell and White, 1938), both of whom have produced operative or pathological confirmation of their hypotheses. The number of cases in which no gross lesion of the chiasma has been found is growing, and Traquair, Dott, and Russell (1935), after a review of the literature and of their own cases, put forward the theory that the lesion was due to damage of the small vessels of the chiasma resulting most probably from a stretch injury. This has seemed to the author to be the most probable explanation of the majority of indirect optic nerve and

chiasmal injuries, and was suggested as the causal lesion in an optico-chiasmal injury reported previously (Hughes, 1943). The negative findings in this case seem to support this view. The reported results following operation for intrasellar haematomas are not encouraging, and it seems possible that the haematomata were coincidental findings, associated with trauma in the sellar region, and not the actual cause of the chiasmal injury. It seems quite possible that the stretching injury postulated above, if present in extreme degree, might result in antero-posterior tear of the chiasma as described in the literature.

My thanks are due to Mr. Harvey Jackson for permission to report this case, and to Dr. S. Schwarzwald for the operative drawing.

REFERENCES

- CAMPBELL, E. H., WHITE, E. (1938).—*N.Y. St. J. Med.*, pp. 380, 841.
 COPPEZ, H. (1929).—*Arch. d'Ophthal.*, Vol. XLVI, p. 705.
 HUGHES, E. B. C. (1943).—*Brit. J. Ophthalm.*, Vol. XXVII, p. 367.
 TRAQUAIR, H. M., DOTT, N. M., RUSSELL, W. R. (1935).—*Brain*, Vol. LVIII, p. 398.

RETINAL HAEMORRHAGES IN APLASTIC ANAEMIA*

BY

R. J. BUXTON, Major, R.A.M.C.

THE following is an account of a severe and fatal case of aplastic anaemia. According to Duke-Elder, retinal lesions in this disease have rarely been described in detail. It seems therefore worthy of record.

Case history.—The patient was a Basuto, aged 28 years, with $3\frac{1}{2}$ years Army service. On January 15, 1945, he was admitted to 65th (Br.) General Hospital with a history of two day's illness, aching all over, fever and bleeding gums. He had had syphilis, and had completed two full courses of arsenic and bismuth. He had received the first injection of the third course on January 12.

He was found to have a slightly raised temperature and pulse, a cardiac systolic murmur, and a very abnormal blood picture. Haemoglobin was 16 per cent., red blood cells 750,000; colour index 1.06; white blood cells 3,100; polymorphs 19 per cent.; lymphocytes 78 per cent.; mononuclears 3 per cent.; very few platelets. Bleeding time was very prolonged. Clotting time was

* Received for publication, April 20, 1945.