the orthoptic department to think that it will still occur. In one other case there is no possibility of it occurring. Single binocular vision also occurred unexpectedly in two cosmetic cases after operation.

As the conjunctiva was completely detached from the muscle before advancement or resection, and carefully replaced in its original position afterwards, it is difficult to believe it has any effect on the position of the eye in our cases.

Summary

The results of raising or lowering the external rectus insertion on twenty-six cases of concomitant squint suggest that:—

(1) There is some justification for this when the vertical error is constant, and less than 11^Δ at all horizontal angles.

(2) The eye moves in the direction in which the insertion is moved.

(3) This movement is independent of the position of the conjunctiva.

MENINGIOMA OF THE TUBERCULUM SELLAE WITH BI-TEMPORAL HEMIANOPIA*

BY

W. R. MATHEWSON

EDINBURGH

IN October, 1942, a woman, aged 61 years, complained of inability to see with the left eye, duration three months, but vision was R.E. 6/18 and L.E. 6/18 and was corrected to R.E. 6/6/pt. and L.E. 6/6/pt., in spite of early lens opacities. Later her physician, Dr. Ivor Menzies, reported the general health satisfactory and the Wassermann reaction negative. Dr. A. H. H. Sinclair kindly saw her later in consultation, confirming the fields and adding further points, whilst Dr. Malcolm Farquharson reported Ear, Nose and Throat examination negative, as likewise were X-rays, taken by Drs. King and Allen.

Mr. Norman Dott operated on January 12, 1944, after further investigations including lumbar puncture and electro-encephalogram.

In May, 1943, vision with glasses was R.E. 6/18, L.E. 6/12, and though field defects were instinctively suspected, the diminution was too largely ascribed to lens changes, and field examination deferred, though partly on account of her temperament, which it was feared would render field examination long and difficult, a

* Received for publication, May 31, 1945.

fear that was later proved to be well founded. She was directed to report immediately, however, should there be any further developments, but she did not come till November 1943, by this time complaining of hemianopia of three months' duration, and vision with glasses was R.E. 6/60, L.E. 6/18.

The importance of developing a clinical instinct, and of being led by it in planning and making one's scientific investigations of a patient's case, used to be emphasised by Foster Moore in his Clinic at Moorfields, and had this advice been followed here, there is no doubt that the diagnosis would have been made earlier, and perhaps grey fields found (see *Trans. Ophthalm. Soc. U.K.*, Vol. LXIII p. 143, 1943).

Tension.—In November, 1943, was R.E. 23, L.E. 23.

Lenses showed some early opacities but by this time, November 1943, it was obvious that the diminution in vision was greater than the lens opacities could account for.

Fundi showed, in November 1943, optic atrophy, more temporal than nasal, more marked in the left optic nerve, and the edges of the left disc appearing more clearly cut.

The tumour at operation was found to be mainly anterior to the chiasma and pressing on the medial side of the right optic nerve, which was stretched over it laterally, but also extending backwards below the chiasma, flattening it, and a portion extending upwards to the posterior aspect of the chiasma, a condition corresponding well with the field findings.

Fields, were characteristic of a pre-chiasmal tumour, bitemporal hemianopia was present, the details of form, development, and recovery, being as described below.

CHART 1.—Mrs. B., Nov. 5, 1943

CHART 2.—Mrs. B., Nov. 9, 1943

Mrs. B., Nov. 10, 1943

(1) *General depression* is present, and is associated with nerve compression, for instance, the isopter for 2/330 (white) being so reduced that its normal position is, roughly speaking, occupied by the isopter for 60/330 (white) as shown in Chart (2). Chart (3) also exhibits reduction.

Mrs. B., Nov. 9, 1943

(2) *Temporal slope* for the outer isopters, an early type of change, is shown in Chart (2) R.E., and is probably associated with pressure on the infra-medial aspect of the right optic nerve.

The inner isopters such as 6/330 (white) and 3/330 (white), show a more advanced stage, amounting to hemianopia, the progress being cum clock, but the recovery counter clock, and remarkable in degree as shown in Chart (6).

(3) *Quadrantic defects* in the left eye seen in the early stages in Charts (2) and (3 left), advance to the fixation point in Chart (4 left) and partly recover in Chart (6). These quadrantic defects are.

probably to be associated especially with pressure on those fibres from the left optic nerve which pass into the genu in the right optic nerve after crossing the chiasma in its anterior part.

The progress in the left eye, as is typical in pituitary region tumours, is counter clock and in Chart (3 left) is shown to have

Mrs. B., Jan. 7, 1944

invaded the nasal field for 2/2000 (white), whilst Chart (6 left) demonstrates the cum clock recovery.

(4) *Bitemporal hemianopia*, incongruous and non-scotomatous, duly developed as the more complete picture of fields due to a tumour, mainly pre-chiasmal, and pressing more on one optic nerve, though also on the chiasma. The progress in the last few months was rapid as seen in Charts (2), (3), (4), (number 4 being taken in Mr. Dott's Department), with invasion of the nasal field as seen in Chart (3 left), in the isopter for 2/2000 (white) and in Chart (4 right).

(5) Comparing the right and left fields it could be easily understood that the tumour pressing on the medial side of the right optic nerve would produce a comparatively clear cut hemianopia.

But as the tumour did not press similarly on the left optic nerve the development of the left hemianopia requires explanation, which may perhaps be as follows.

CHART (4). RIGHT

Mrs. B., Jan. 7, 1944

First, the tumour pressing on the right optic nerve would produce in the right eye the temporal slope seen in Chart (2) and then, as it increased in size, it would produce the practically complete hemianopia seen in Chart (3) right).

Then, as the tumour extended towards the chiasma it would press on the fibres from the lower nasal quadrant of the left optic nerve, either as they passed across the anterior part of the chiasma or probably at an even earlier date in the sharp genu these fibres

form in the right optic nerve, before proceeding to the right optic tract. Such pressure could produce the upper quadrant defects seen in the left fields, Charts (2), (3) and (4).

Thereafter the tumour, extending still further under the chiasma and behind it, as found at operation, would press on the fibres

Mrs. B., Feb. 2, 1944

from the upper nasal quadrant of the left retina, either as they passed across the posterior part of the chiasma before proceeding to the right optic tract, or as they enter the right tract, or probably at an even later date, in the blunt genu these fibres form in the left optic tract.

Such pressure could produce the lower quadrant defects seen in Chart (3 left), 6/2000 (white) and 2/2000 (white), Chart (4 left), 5/2000 (white), and it is to be noted that it was only at the comparatively late date when this chart was made, and when the tumour was probably progressing rapidly, that hemianopia manifested

itself in some isopters and as a fusion of upper and lower quadrant defects.

(6) *Recovery* is greater in the right than in the left fields, and with this may be associated the more marked atrophy of the left optic nerve, seen ophthalmoscopically.

Mrs. B., Feb. 2, 1944

Both the lesser degree of recovery of the left fields and the greater degree of atrophy of the left optic nerve may perhaps be associated with the idea that whilst in the case of the right nerve the tumour pressed on the nerve where it could be stretched, and stretched it, producing for the most part only physiological block, the tumour pressed on the left nerve at a point where stretching was not so possible, that is, in the less elastic chiasmal region, definitely damaging the left nerve fibres. Charts (3) and (6) show that the right fields had greater hemianopia and greater recovery, and at operation the tumour was actually found to have flattened the chiasma,

CHART (6) LEFT.

Mrs. B., Oct. 23, 1944

so that again it is demonstrated, this time in the matter of recovery, that the fields and the ophthalmoscopic appearances, and the condition at operation, are all in harmony.

(7) *Field examination when one eye has lost fixation* is of interest in this connection, and may be done as follows:—

Use a perimeter illuminated by Sampson's Method, and a Bjerrum's Screen by Messrs. Clement Clarke's Method.

Let us suppose the right eye has lost fixation.

Place before the left eye a red glass and also an amber glass, and examine the fields of the right eye with Traquair's green discs as supplied by Messrs. A. H. Baird, Edinburgh, or use a green and also an amber glass before the left eye, and examine the fields of the right eye with red discs. Several isopters should, of course, be examined avoiding, as far as possible, mechanical contrivances, and if necessary a very large fixation object of white paper may be used.

Mrs. B., Oct. 23, 1944

Summary

This case of meningioma of the tuberculum sellae is one where particularly Mr. Norman Dott's notes repay reading in detail, and one in which practically all the pre-operative evidence was ophthalmological and specially shows the value of field examination and the great onus on the ophthalmologist.

In what is written above only the outlines of the ophthalmological examinations are given, but even these outlines show how the varying visual acuity, the onset, course, and recovery of the incongruous bitemporal hemianopia, the ophthalmoscopic appearances, and the appearances at operation were all in harmony to a remarkable degree.

On October 23, 1944, vision with glasses I had prescribed in 1942 was, R.E. 6/6 and J.1, L.E. 6/9 and J.6.

PROGRESS NOTE. December 30, 1945. Dr. Batkin.

Patient has remained in good health since discharge from Bangour Hospital in February, 1944. The recovery of the vision has been maintained. Manages to perform her household duties, but recently tendency to tire has been noticed.

No headaches. No diplopia.

Visual acuity—Right J.1, 6/9 (partly). Visual acuity—Left J.2, 6/6 (partly). Visual fields to confrontation full on the right side with only a very slight depression in the upper left temporal field.

External ocular movements full. Pupils moderate in size, equal; light reaction shade less brisk in the left side as compared to the right. Normal fundi; right temporal aspect of left disc, however, somewhat pale.

Blood pressure 145/90.

The satisfactory improvement has been maintained during the past year, and patient is in satisfactory general physical condition in regard to her age.

Return list one year.

DACRYO-CYSTO-RHINOSTOMY*

BY

T. KEITH LYLE, Air Commodore, R.A.F.V.R.

CONSULTANT IN OPHTHALMOLOGY, R.A.F. OVERSEAS

A. G. CROSS, Wing Commander, R.A.F.V.R.

LOCAL ADVISER IN OPHTHALMOLOGY, R.A.F., A.C.S.E.A.

J. F. SIMPSON, Wing Commander, R.A.F.V.R.

FORMER SENIOR EAR, NOSE AND THROAT SPECIALIST, R.A.F.

and

G. A. FRASER, Squadron Leader, R.A.F.V.R.

EAR, NOSE AND THROAT SPECIALIST, R.A.F.

REPORTS of the satisfactory results of the operation of dacryocysto-rhinostomy, in cases of chronic dacryocystitis associated with obstruction of the naso-lacrimal duct, have been published in recent years by Morgan,¹ Yanes,² Lethrop,³ and others, but this procedure is not universally adopted, and extirpation of the lacrimal sac has been the routine operation in most eye clinics.

* Received for publication, December 19, 1945.

access for the subsequent bone work. (5) To date I have found that the most satisfactory way of removing the oval window of bone from the lacrimal fossa is by using a motor driven dental drill carrying a 0.5 mm. rose-headed burr. A series of burr holes is made about 2 mm. apart to outline the piece of bone for removal. These holes are then enlarged by a 1 mm. rose-headed burr and then all the holes are joined together by a lateral fissure burr. The oval window of bone comes out in one piece. With careful work there is no damage done to the underlying nasal mucosa and the edges of the hole are smooth and eburnated. If there is any troublesome oozing from the nasal mucosa through the burr holes a little adrenalin may be injected through the holes. (6) At the end of operation a specially sewn pyramidal pad with its truncated apex placed against the wound is strapped in place.

The whole operation can be done by the eye surgeon. The bone work is not difficult after a little practice on a cadaver.

Yours faithfully,

H. B. STALLARD.

NOTES

Ophthalmological Society of the United Kingdom. Annual Congress, 1946 THE Annual Congress will be held at the Royal Society of Medicine on May 30, 31 and June 1, 1946. The President's address will be on Purkinje and the subject for discussion is "Ocular Disturbances Associated with Malnutrition."

The Bowman Lecture will be delivered by Dr. Arnold Knapp; his subject is "Intracapsular Extraction of Cataract."

There will be a joint clinical meeting with the Ophthalmological Section of the Royal Society of Medicine. The Annual Dinner is resumed, and will be held on Thursday evening, May 30.

* * * *

The Middle East Optical Practitioners' Group IN the Middle East a number of service opticians formed a "study group." Their Transactions for 1945 consist of published abstracts of lectures given to the group during 1945, nine by eye surgeons and six by opticians. Membership of the group includes eight eye surgeons and twelve optical practitioners.

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Corrigendum Meningioma of the Tuberculum Sellae with Bi-temporal Hemianopia. By W. R. Mathewson. February number. (1) End of para. 1 Allan *not* Allen.