DISCUSSION OF TRAUMATIC HYALOID DIAPHRAGM, March, 1941 *

BY

J. FOSTER

LEEDS

THE patient, a clerk aged 30 years, with normal eyesight, was fire-watching when a German bomb blew an interior glass office partition into his face. Embedded glass fragments produced multiple perforations of both eyes and eyelids. The more superficial of these were extruded or removed in the first few days after the incident.

When I first saw him I found the left eye was blind, and traversed axially by a splinter of glass $\frac{3}{4}$ inch long. An excision was performed. The right eye was inflamed and suffused with blood owing to the multiple surface injuries, and so many glass fragments showed in the X-ray of the lids and orbit that localisation was impossible.

The vision amounted to hand movements in the lower inner quadrant only, but the patient claimed that he could sometimes see flames in the fire of his bedroom, on looking straight ahead with the eye uncovered.

The lens was clear, but vitreous haze made it difficult to see the retina. In the nasal field there was apparently a large haemorrhage, and an area of detachment. My departmental colleague, George Black, who saw him at this time, agreed with this diagnosis.

June, 1941. The vision had now fallen to good projection in all directions, although the eye was quite white. The lens was still clear, but a central grey reflex obscured all retinal detail. A small red reflex with crenated edge was visible in the upper nasal quadrant, and a less definite reflex was detectable at "6 o'clock" (as shown in the diagram I).

I began to suspect that this loss of reflex was due to a dense fibrous membrane in the vitreous, situated in the plane shown in

DIAGRAM 2. - - - - - = plane of diaphragm.

diagram 2. Although the surgical approach was unorthodox, I was prompted by the results claimed by Akimiro Motegi to attempt

* Received for publication, August 19, 1943.

DIAGRAM 1 No retinal detail is visible through the area covered by the diaphragm. The white area in the upper right hand area is probably a choroidal scar.

removal of this (Ref. I). I had edited this paper a page at a time, while he was my guest (and subsequently) in 1936.

On re-reading the complete paper, I accepted his thesis that fibrous tissue might be removed from the vitreous under direct vision with benefit to the patient's sight, but found his description of the surgical approach less than clear. I decided in this case that a posterior scleral incision should be made, and the membrane removed by traction endoscopically. Unfortunately I could not obtain delivery of the endoscope I ordered (Ref. 2) for some months.

I therefore decided as a justifiable alternative, to attempt perforation of the membrane by discission after getting a second opinion.

October, 1941. As there was obviously a good deal of retinal damage, I had no great hopes of obtaining more than the most moderate vision.

The patient was seen by Sir John Parsons, who considered that a fibrous diaphragm was present. He felt, however, that while an operation could obviously not worsen the vision (as the man still had good projection only), it was unlikely to improve his sight. The main reason for this was that as the vitreous contains no fibrous elements, any fibrous structure arising therein must originate from fibrous tissue on the optic disc, or along the retinal vessels. Such fibrous tissue must necessarily be biplanar.

The poor prognosis was explained to the patient; he, however, who felt his position very acutely, stated that he wished any procedure that offered the slightest hope should be attempted.

October 16, operation. Under a retrobulbar anaesthesia I introduced a Ziegler's knife behind the ciliary body from the temporal side. The membrane was divided horizontally *a fronte* under direct observation through the pupil. The operation proved very simple to perform, and the membrane parted easily, with restoration of a dim red reflex, and a certain amount of central vision. No diathermy of the Ziegler puncture was performed.

October 18. At the first dressing an advanced posterior cortical cataract was evident, and progressed to maturity in less than a week.

November and December. Two lens discissions were performed, which gave him his first clear central vision on Christmas Day.

January, 1942. The patient had a small black pupil in the centre of some capsular remains. The crescentic edge of the divided vitreous diaphragm was visible on the temporal side. The rest of the diaphragm could not be detected, having presumably retracted beyond the small area of fundus visible. Choroidal scarring was visible mostly in the upper nasal quadrant, and the visual field showed limitations consistent with this. (Diagram 3).

Vision with +13.5 D.Sph. = 6/5

With the addition of +4.0 D.Sph. = J.1

DIAGRAM 3. Field to 2° white object.

March. The patient returned to work as a clerk in the Petrol Office. As he had to reverse his spectacles seventy times a day on an average, he was given Rotoid bifocals for work. He preferred the larger field of the ordinary cataract lens for reading a book at home.

November, 1942. The patient had continued at full work in the Petrol Office, the only untoward symptoms being occasional entoptic "flashes of light."

December, 1942. He was demonstrated in this month to the North of England Ophthalmological Society. No detachment was visible at this time.

August, 1943. The condition of the eye is unaltered.

Summary

The claims of Motegi that fibrous tissue in the vitreous may be removed or divided with benefit to the patient, is borne out by a case in which fibrous tissue resulting from an injury, was perforated. Restoration of vision from hand movements to 6/5 followed dissection of this membrane.

REFERENCES

1. MOTEGI, AKIMIRO.—"A Hydrostatic Approach to the Vitreous Chamber," *Brit. Jl. Ophthal.*, 1937.
2. THORPE, H. E.—"Ocular Endoscope," *Trans. Amer. Acad. of Ophthal. and Oto.*, 1934.