CLINICAL RECORDS

DEAFNESS IN TOXOPLASMOSIS

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TOXOPLASMOSIS, an infection due to Toxoplasma gondii, may appear in either congenital or acquired forms.

The clinical manifestations of congenital toxoplasmosis were described by Woods (1956) as: "either macular or extra-macular focal choroidal exudates, encephalitis, often internal hydrocephalus, mental retardation, various other neurological signs, and often areas of cerebral calcification".

Most cases of the acquired form of toxoplasmosis are asymptomatic. Focal choroiditis occurs only occasionally, and systemic symptoms are rare. A positive serological reaction (Sabin-Feldman dye test) is usually the only evidence of the infection.

There are few published reports of ear involvement in this disease (Callahan *et al.*, 1946, Campbell and Clifton, 1950, Frenkel and Friedlander, 1952, Dietzel, 1958, Kelemen, 1958), and it, therefore, seems worthwhile to report the following case in which congenital toxoplasmosis was associated with deafness.

Case Report

A.R., a 14 year old Yemenite boy suffering from severe deafness, had been in a school for the deaf from the age of 7 years. He was the oldest child; the four other children were of normal development and possessed good hearing. His general physical development seemed normal, but when he had not even "burbled" by the age of 2 years his mother suspected deafness. In early infancy he had suffered from a transient discharge from the ears. Two years after admission to the school for the deaf, defective vision was also suspected, and the patient was examined by an ophthalmologist.

The general physical examination revealed no abnormalities, except for those of hearing and vision. The results of the examinations of the urine and blood chemistry were within normal limits. Blood counts on two occasions showed an eosinophilia of 5 per cent. and 9 per cent. The Wassermann and Kahn tests were negative, as was the Mantoux test.

X-ray examination of the skull revealed no calcifications or other abnormalities except for a slightly sclerotic right mastoid process. The E.E.G. was normal.

The Sabin-Feldman dye test was positive to a titre of 1:64.

Ophthalmologic findings: There was a large, round, chorioretinal lesion in the macular region of the fundus of the right eye. The lesion had sharp margins,

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was mostly pigmented, and contained atrophic areas (Fig. 1). The left fundus was normal. Vision was:

O.D.—0·5$^{\wedge}_{\vee}$ cyl. + 1·0 ax. 90° 5/20.
O.S. cyl. + 1·0 ax. 90° 5/6.

The findings were similar to those of the first ophthalmologic examination when the patient was 9 years old. The diagnosis made was non-active, right

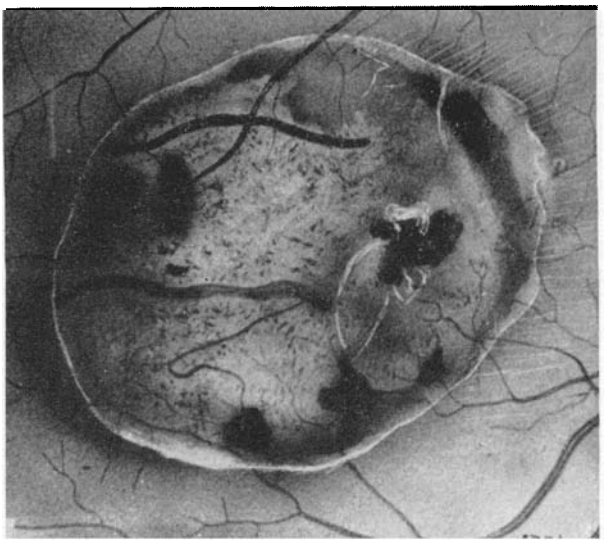


FIG. 1.
Right eye: Large chorioretinitic lesion in the macular region, with scarring.

chorioretinitis centralis with scarring. The lesion described is characteristic of toxoplasmosis.

Otologic findings: Both ear drums were normal. An audiometric test revealed bilateral subtotal nerve deafness (Fig. 2). There was no vestibular reaction even to strong stimuli during caloric and rotation tests.

All the other members of the patient's family were examined. In none of them was any abnormality detected on general, ophthalmologic and otologic examinations. The Sabin-Feldman dye test was positive to a titre of 1:64 in the mother, negative in the father and siblings. On the basis of the serological finding the mother was diagnosed as suffering from asymptomatic acquired toxoplasmosis.

Discussion

Association of nerve deafness with toxoplasmosis of the eye was reported by Campbell and Clifton (1950) in 3 members of the same family. The Sabin-Feldman dye test was positive to a titre of 1:128 in one of them, and to a titre of 1:32 in the other two. Dietzel (1958) found slight hearing disturbances in 5 out of 10 children affected by toxoplasmosis. The diagnosis was proved by the

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presence of the parasites in the spinal fluid. The author concluded that toxoplasmosis could be a cause of hearing defects of retrolabyrinthine origin. The histopathologic changes in the ears of a 25-days old infant, and of a fetus delivered following perforation because of hydrocephalus, were described by Kelemen (1958). In the first case toxoplasma parasites were demonstrated, whilst in the second the pathological findings suggested toxoplasmosis. He emphasized that infantile toxoplasmosis must be considered a hitherto unrecognized cause of congenital hearing defects. Callahan, Russell and Smith (1946) reported a case of a 6-weeks old boy on whom a bilateral mastoidectomy

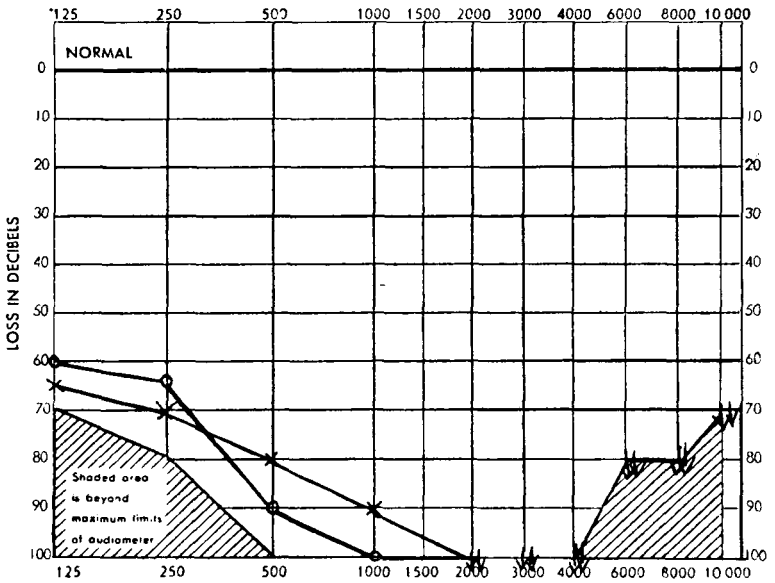


FIG. 2.
Audiogram, indicating subtotal bilateral deafness.

was performed. Death occurred 20 days later. Toxoplasma parasites were identified in histological sections of the left middle ear. Wilder (1952) found the parasites in the sections of 53 human eyes.

A positive Sabin-Feldman dye test to a titre of 1:64 is considered of diagnostic value (Beverly and Beattie, 1954, Woods *et al.*, 1954). In the case of the boy described above, the lack of evidence of any other granulomatous disease to which the choroidal scars might have been attributed also favours the diagnosis of congenital toxoplasma choroiditis. The discharge from the ears in infancy was probably due to a common infection leading to otitis media, but toxoplasmosis cannot be excluded as the cause. It does not seem likely, however, that the nerve deafness was a result of the middle-ear infection. The evidence suggests that both the fundus of the eye and the hearing apparatus were simultaneously injured by the toxoplasma infection.

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Summary

A case of congenital toxoplasmosis is described in which there was toxoplasma choroiditis in one eye, and bilateral subtotal nerve deafness.

The possibility that the deafness was due to the toxoplasma infection is discussed.

Acquired asymptomatic toxoplasmosis was diagnosed in the patient's mother on the basis of a positive Sabin-Feldman dye test.

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