CASE NOTES

CONGENITAL TOXOPLASMOSIS*

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NUMEROUS cases of human infection with *Toxoplasma hominis* have been reported in the Americas and on the Continent of Europe since Janku (1923) described the first clinical case. The first undoubted case reported as occurring in the United Kingdom was that described by Jacoby and Sagorin (1948). Since then the number of cases reported in Great Britain have been fewer than expected.

One case was reported by Wilson and Forest Smith (1949), two by Farquhar and Turner (1949), one by Ridley (1949), one by Nutt (1949), two by Hutchison (1949), and one by Hudson (1951). Hutchison (personal communication) has seen three further cases since his report was published. In discussing Hudson's case, Ridley remarked that he had seen two cases of toxoplasmosis 18 months previously, and none since, though he had been on the look out for them, and that his paediatric colleague had seen only one.

The findings of Fisher (1951), and the later report by Burkinshaw, Kerman, and Sorsby (1953) on a population of mental defectives, indicate that an increasing proportion of positive toxoplasmin reactions is found with increasing age of population, and that this toxoplasmin positive reaction is usually acquired some years after birth. It cannot therefore be assumed that positive serological findings establish that abnormalities found in brain or eye, suggestive of toxoplasmosis, are in fact due to this infection. A positive serological reaction affords only moderate support for such a diagnosis, except in very young children. On the other hand, the presence of choroido-retinitis, together with calcification of the brain, establishes a high degree of probability that the lesions are due to toxoplasmosis.

It may be that true congenital toxoplasmosis is a rarer disease than it has been thought to be, and another case is therefore of interest, especially to ophthalmologists, on whose findings the discovery of these patients will in many cases depend.

The pathological, clinical, and radiological features of the disease have been carefully studied and described by Wolf and Cowen (1937), Wolf, Cowen, and Paige (1939a, b; 1941), and Cowen, Wolf, and Paige (1942). An excellent summary of the disease was given by Ridley (1949).

The most characteristic clinical features of the congenital type of human toxoplasmosis are:

Internal hydrocephalus with microcephaly,
Intracranial calcification,

Disturbance of nervous function,
Bilateral macular choroido-retinitis.

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- (i) *Hydrocephalus*.—This is an almost constant finding, although the heads of these patients are usually small.
- (ii) *Intracranial Calcification*.—This is extremely common and takes the form of curvilinear streaks in the region of the basal ganglia or optic thalamus, or of multiple sub-cortical flakes of varying size scattered over the hemispheres.
- (iii) *Disturbance of Nervous Function*.—This may take the form of mental deficiency, spasticity, or convulsions.
- (iv) *Choroido-Retinitis*.—This affects chiefly the macular area, and is often associated with optic atrophy.

Other ocular complications are not uncommon; these include:

Microphthalmos,	Complicated cataract,
Persistence of pupillary membrane,	Nystagmus,
Iridocyclitis,	Vitreous opacities,
Papilloedema.	

The mode of transmission of the disease is unknown. It is known to affect animals and birds both wild and domesticated, and ticks have been suggested as possible vectors.

Treatment is unsatisfactory and is usually aimed at the prevention of further damage. Summers (1949), reporting on toxoplasmosis in mice, found the following drugs effective, in this order:

- (1) 4, 4'-diamino-diphenyl-sulfone,
- (2) sodium sulphathiazole,
- (3) aureomycin,
- (4) sulphamerazine.

Case Report

A boy aged 10 months was referred to the Glasgow Eye Infirmary in October, 1952, having been examined at a child welfare eye clinic and found to have variable strabismus and a white area in both fundi.

The child was reported to have been cross and irritable for 2 weeks previously, but to have appeared healthy until that time.

History.—The mother stated that her health was good during pregnancy, and that the labour, which occurred at full time, was normal. The child's weight was 6½ lb. at birth. He appeared healthy and thrived normally but was unable to sit up. (He did not sit up till he was 11 months old, and is still unable to stand alone at 17 months). No animals were kept in the house where the child was born, though the mother made two visits to the Zoological Gardens some months before the confinement. An older child, a girl of 3 years, is healthy and appears to have normal vision.

Examination.—The child was found to be moderately well nourished. He opened the right eye more widely than the left, which appeared to be the smaller one. There was slight corneal haze in the right eye with some persistence of pupillary membrane. The left eye showed more marked pupillary membrane strands below. The pupils, however, dilated fairly well with atropine, and ophthalmoscopic examination was carried out under general anaesthesia.

The right eye showed a pale atrophic disc with blurred margins, and a pale area of choroido-retinitis in the lower temporal quadrant with pigmentary disturbance involving the macular area (Fig. 1).

FIG. 1.—
Right eye.

FIG. 2.—Left
eye.

The left eye showed a similarly pale atrophic disc with ill-defined edges, and a wider area of choroido-retinitis extending from the macular area to the lower temporal periphery, with gross pigmentary disturbance in the macular area. In the extreme periphery of this area of choroido-retinitis the retina appeared to be raised, but the view here was obscured by vitreous bands (Fig. 2).

X rays.—The child's skull showed "multiple irregular flakes of calcification throughout the brain suggestive of toxoplasmosis" (Figs 3 and 4). The chest revealed no abnormality.

FIG. 3.

FIG. 4.

Medical Examination.—The child was referred to the paediatrician, and admitted to the Royal Hospital for Sick Children, Glasgow, for further investigation. He was found to be microcephalic and mentally deficient. Blood samples were taken and the complement-fixation test for toxoplasmosis was found to be positive for both mother and child.

The child's serum gave a titre of 1/80. The mother's serum gave a titre of 1/8. The cytoplasm modifying antibody test was also positive for mother and child. Mother's serum $\equiv$ titre of 1/180; child's serum $\equiv$ titre of 1/530. Mother's Wassermann reaction negative.

Therapy.—A 2-weeks' course of aureomycin was given in the hope of preventing further damage, but this did not produce any obvious improvement in the state of the patient.

Summary

A further case of congenital toxoplasmosis occurring in the United Kingdom is reported.

The eyes showed persistence of pupillary membrane, areas of choroido-retinitis, and atrophic optic discs.

The child was microcephalic and mentally retarded.

X ray of the skull showed areas of calcification in the brain.

The complement-fixation test for toxoplasmosis and the cytoplasm modifying test were both positive for mother and child.

The value of the combination of choroido-retinitis and brain calcification in establishing the diagnosis is stressed.

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