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Fetal cataract in congenital toxoplasmosis

D. A. L. Pedreira, E. M. A. Diniz, R. Schultz†, L. B. Faro‡ and M. Zugaib*

Division of Obstetrics, Hospital das Clínicas; *Neonatal Intensive Care Unit, Instituto da Criança; †Division of Pathology, Hospital Das Clínicas; ‡Division of Clinical Pathology, Hospital das Clínicas, Faculty of Medicine, University of São Paulo, São Paulo, Brazil

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ABSTRACT

We report a case of the prenatal diagnosis of fetal cataract due to congenital toxoplasmosis. To the best of our knowledge, this is the first report of such a case. We discuss the long-term ocular sequelae of the condition and how they should affect prenatal counselling.

INTRODUCTION

The development of safer techniques for fetal invasive procedures has led to significant progress in the antenatal diagnosis of congenital infections. However, even in the absence of ultrasonographic findings of structural anomalies, ophthalmological prognosis can rarely be determined, because one of the most frequent sequelae of congenital toxoplasmosis is chorioretinitis, and this cannot be diagnosed by ultrasound. Diagnosis of ophthalmological defects would therefore have a great impact on prenatal counselling.

Examination of infants affected by congenital toxoplasmosis 3 months after birth will reveal cataract in about 10% of cases[1]. Previous cases of the prenatal diagnosis of congenital cataract by ultrasound have been reported (Table 1), but in none of these cases was the cataract associated with congenital infection. We report here the diagnosis of a case of fetal cataract due to congenital toxoplasmosis.

CASE REPORT

A 16-year-old primigravida, who was a recent immigrant to Brazil, underwent a routine ultrasound examination at 20 weeks' gestation and the findings were normal. She did not have any contact with cats but she was a regular consumer of bovine raw meat. At 30 weeks, routine ultrasound examination revealed fetal hydrocephaly. Maternal serology for toxoplasmosis, rubella, cytomegalovirus and HIV was carried out and was positive for toxoplasmosis, both IgM and IgG (by enzyme-linked immunosorbent assay (ELISA)) being positive. Treatment with spiramycin was started and the patient was referred to our hospital. At 33 weeks + 4 days, the patient was evaluated in our unit, where hydrocephaly was confirmed in association with hyperechogenicity of the right lens (Figure 1a) and absence of coordinated eye movements. Fetal growth was normal but there was mild placentomegaly and splenomegaly. Amniocentesis for karyotyping and infection screening was indicated but, before this could be carried out, spontaneous labor occurred at 33 weeks + 6 days. A Cesarean section

Table 1 Review of the literature on prenatal diagnosis of cataract

	Number of cases	*Cataracts*	*Associated disease*
Bronshtein *et al.* (1991)[2]	2	bilateral	1 MMF
			1 hypoplastic left heart*
Gaary *et al.* (1993)[3]	1	bilateral	1 Lowe's syndrome
Zimmer *et al.* (1993)[4]	5	bilateral	1 trisomy 13
			1 Neu Laxova syndrome
			3 MMF
Rosner *et al.* (1996)[5]	1	unilateral	1 unknown†
Monteagudo *et al.* (1996)[6]	2	bilateral	3 autosomal dominant cataract†
	1	unilateral‡	
Drysdale *et al.* (1997)[7]	1	bilateral	1 autosomal dominant cataract†

*False-negative prenatal diagnosis at 32 weeks; †cataract was an *isolated* finding; ‡contralateral anophthalmia; MMF, multiple malformations of unknown cause

Correspondence: Dr D. A. L. Pedreira, Av. Cons. Rodrigues Alves, 1275 ap#32, 04014-012 São Paulo, Brazil

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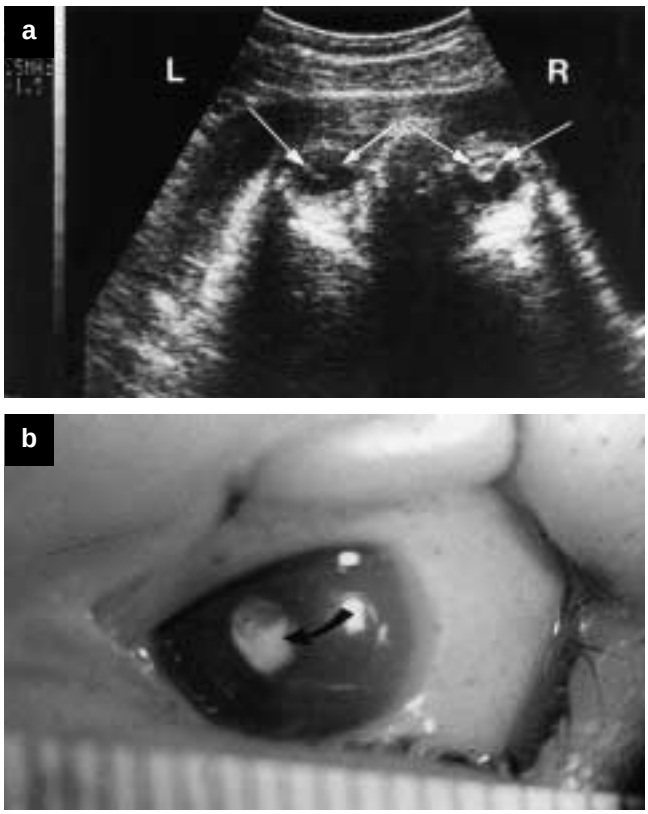

Figure 1 (a) Ultrasound image showing a transverse section of the fetal head at the level of the orbits. Note the hyperechogenicity of the right (R) lens (right arrows), when compared to the normal left (L) lens (left arrows). (b) Postnatal detail of the right lens showing the cataract (curved arrow)

was performed, owing to abruptio placentae, before we could confirm our diagnosis of congenital toxoplasmosis. The live-born female infant weighed 1955 g and had hepatosplenomegaly but normal head circumference. Ophthalmological examination showed microphthalmia and cataract in the right eye (Figure 1b), with an exuberant inflammatory reaction in the left vitreous, which prevented retinal analysis. Polymerase chain reaction and analysis of cord blood IgM (by immunofluorescence and ELISA) were positive for toxoplasma. Computed tomography revealed cerebral ventricular dilatation and intracranial calcifications. Histopathology of the placenta showed villositis and positive immunohistochemistry for toxoplasmosis. The infant was treated with sulfadiazine and pyrimethamine during the first year of life and the cataract was removed. Evaluation at 1 year and 3 months revealed amaurosis and mild delayed mental and motor development.

DISCUSSION

The association between ocular lesions and congenital toxoplasmosis is well established and includes mainly retinochoroiditis, optical nerve atrophy, strabismus and microphthalmia[8]. The retina and choroid are generally affected first, then iridocyclitis and cataracts can develop, as secondary complications of retinochoroiditis[9].

Meenken and co-workers[10], retrospectively evaluating 17 severe cases of congenital toxoplasmosis after birth, found a visual acuity of less than 0.1 in 85% of the cases. Mets and associates[1], prospectively evaluating 94 cases of congenital toxoplasmosis, found cataract in nine cases (10%). Abnormal visual acuity was found in eight, and cataract was unilateral in six of the nine children.

Studies on the prenatal diagnosis and early treatment of congenital toxoplasmosis have suggested that postnatal outcome can be improved. Nevertheless, if hydrocephaly is observed before birth, the prognosis becomes worse and termination of the pregnancy is often proposed[8]. As previously shown[1,10], long-term ocular sequelae in the presence of cataract due to congenital toxoplasmosis are quite unfavorable. Therefore, the possibility of prenatal diagnosis of ocular lesions will improve prenatal counselling.

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