

# Torch Agents in Neonates and in Infants in Turkey\*

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There is convincing evidence of fetal involvement with the common clinical picture, following maternal infection with *Toxoplasma gondii*, rubella, herpes simplex, and cytomegalovirus which are the known causes of Torch Syndrome.<sup>1, 2</sup>

In a recently, completed two-year study at the Hacettepe Children's Hospital we have assessed the role of congenital infections in neonates and infants seen in the Department of Virology by studying 27 patients and 12 mothers for the presence of Torch agents.

## *Materials and Methods*

The babies were referred to us on the basis of clinical findings attributable to the congenital infections. Blood and urine specimens were obtained from each child and his mother; in addition, a cervical swab smear from each mother was examined. The cerebrospinal fluid was obtained from the lenses of all children with cataracts, and the liver of one infant was also studied.

*Toxoplasma gondii*, rubella, herpes simplex, and cytomegalovirus isolation were carried out by the technique of inoculation into mouse peritoneum, interference method with Echo<sub>11</sub> challenger virus<sup>3</sup> and WI-38 tissue culture respectively.<sup>4</sup> *Toxoplasma gondii* and rubella antibodies were searched by the Sabin-Feldman dye test,<sup>5</sup> the hemagglutination inhibition<sup>6</sup> and sucrose density gradient; for type specific antibody by ultracentrifugation methods.<sup>7</sup>

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### *Results*

The results of our studies are summarized in Table I. Twenty-four of the 27 cases were negative for Torch agents; the three positive cases were of interest to us.

### *Case Reports*

**Case 1:** A 2 year old male was referred because of bilateral cataracts and microcephaly. Cerebral calcification was apparent in the cranial X-ray. Rubella virus was isolated from cultures grown only from the left lens, although both lenses were tested. Presence of rubella antibody was verified by the HI test for the patient and his mother, the results being 1:128 and 1:32 respectively. The sucrose density gradients revealed presence of specific rubella antibody (IgG) in the child.

**Case 2:** A one-day old female was referred to us because of hepatosplenomegaly, jaundice, petechiae as well as microcephaly. Periventricular cerebral calcification was also documented. CMV was isolated from both liver needle biopsy material and the urine of the child. It was also isolated from the mother's urine. Follow-up of the mother one year later again revealed presence of CMV in her urine.

**Case 3:** A 2 month old male was brought to our attention because of hepatomegaly, chorioretinitis and hydrocephaly. Diffuse cerebral calcification was present on X-ray. *Toxoplasma gondii* was isolated from the cerebrospinal fluid of the patient. The presence of specific toxoplasma antibody in both the patient and the mother was verified by the Sabin-Feldman Dye test, the results were 1:1024 and 1:512 respectively.

### *Discussion*

The demonstration of the rubella virus in the lens of the first case is the 26th reported case in the medical literature. In the case where CMV was isolated from the liver, the mother of this child continued to excrete the virus from her urinary tract for over a year. An older sibling with microcephaly had no viruria; the older child could not be tested further. However, we postulate, on the basis of the microcephaly present in both children and the mother's continuous excretion of CMV, that the CMV might be the causative agent for the microcephaly. If this were documented, it would be the fourth family in whom consequent CMV infections were shown.<sup>8-10</sup>

Isolation of rubella, CMV virus and *Toxoplasma gondii* from 3 patients out of 27 with the Torch Syndrome in our preliminary study indicates the clinical importance of this work which must be carried on more vigorously in the future in Turkey.

*Summary*

Three positive results obtained in the course of this study point out the value of the investigation for the Torch agents.

*REFERENCES*

1. Nahmias A. J.: The Torch Complex, *Hosp. Prac.* May, 1974, p. 65.
2. Shin Y. H., Glass L., Evans E. H.: The Torch Syndrome, *Pediatr Ann* 5: 106, 1976.
3. Parkman P. D., Buescher E. L., and Artenstein M. S.: Recovery of rubella virus from army recruits, *Proc. Soc. Exp. Biol.* 111: 225, 1962.
4. Weller T. H.: Cytomegaloviruses: The difficult years, *Infect. Dis* 122: 532, 1970.
5. Sabin A. B., and Feldman H. A.: Dyes as microchemical indicators of a new immunity phenomenon affecting a protozoan parasite (*Toxoplasma*), *Science* 108: 660, 1948.
6. Center for Disease Control: A procedural guide to the performance of the standardized rubella hemagglutination-inhibition test. United States Department of Health, Education, and Welfare, Mental Services and Mental Health Administration, Center for Disease Control, Atlanta, Ga., October, 1-30, 1970.
7. Vesikari, T., Vaheri A., Pettay O., and Kunnas M.: Congenital rubella: Immune response of the neonate and diagnosis by demonstration of specific IgM antibodies, *J. Pediatr* 75: 658, 1969.
8. Embil J. A., Ozere R. L., and Haldane E. V.: Congenital cytomegalovirus infection in two siblings from consecutive pregnancies, *J. Pediatr* 77: 417, 1970.
9. Krech U., Konjajev Z., and Jung M.: Congenital cytomegalovirus infection in siblings from consecutive pregnancies, *Helv Paediatr Acta* 26: 355, 1971.
10. Stagno S., Reynolds D. W., Lakeman A. W., Charamella L. J., and Alford C. A.: Congenital cytomegalovirus infection (C-CMV): Consecutive occurrence with similar antigenic viruses (abstract), *Pediat. Res.* 7: 151, 1973.