

SERO-DIAGNOSIS OF TOXOPLASMOSIS BY IMMUNO-DIFFUSION TEST

by

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Introduction

The ability of *Toxoplasma gondii* to cross the placental barrier and invade the fetus in utero has been clearly established in both man and animal. The obstetrician is specially interested in this disease because of the association of latent maternal toxoplasmosis with intrauterine fetal damage.

The study of Remington (1964) has proved a significant correlation of the abnormal outcome of pregnancy in form of premature labour, stillbirth, neonatal death and congenital abnormality with a high *Toxoplasma* antibody titer in the mother. Kimbal *et al* (1971) studied on 5,000 obstetric patients and found a significant correlation between chronic toxoplasmosis and sporadic abortion.

Though the most certain method of diagnosis of toxoplasmosis is isolation of *Toxoplasma gondii* but it is very difficult to achieve. Among indirect tests, haemagglutination test (Jacobs and Lunde 1957) and in some places Dye test (Sabin and Feldman, 1948) are in common use. But there are no studies available in literature using precipitation in agar-gel after

the Ouchterlony technique except that of O'Cooner (1957) who demonstrated *Toxoplasma gondii* antibody in the aqueous humour of the eye. Attempts to use this method for diagnostic purposes on blood serum have proved unsuccessful. Therefore, a further attempt was made in the present study to diagnose maternal toxoplasmosis by agar-gel precipitation technique and also to detect its sensitivity compared to that of Haemagglutination test. A titer of 1:200 or more was taken as significant by haemagglutination test.

Material and Method

As a preliminary step sera from only 10 selected cases were tested by radial immunodiffusion technique. Agar-gel was prepared in buffer saline. Sera for testing were inactivated at 56°C for 30 minutes. After the development of antigen-antibody precipitates, the agar-gel plates were stained with solution containing Amidoblack. The background colour was removed by aqueous solution of acetic acid and glycerine (Mancini *et al* 1965).

Observation

Ten sera from selected cases were studied by radial immunodiffusion technique. All the cases with haemagglutination titers below 1:128 were negative by

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immuno-diffusion test. Also a case of premature labour who had haemagglutination titre of 1:256 remained negative by immuno-diffusion test. which the test become positive are presented. This test still needs further evaluations to advocate its usefulness for routine diagnosis of toxoplasmosis.

TABLE I
Correlation of Haemagglutination Antibody Titer With the Development of Precipitation in Agar-gel:

No.	Disease	Haemagglutination test titers	Immunodiffusion test
1.	Premature labour	Below 1:16	Negative
2.	Inevitable abortion	Below 1:16	Negative
3.	Habitual abortion	1:64	Negative
4.	Threatened abortion	1:16	Negative
5.	Inevitable abortion	1:16	Negative
6.	Inevitable abortion	1:64	Negative
7.	Premature labour	1:256	Negative
8.	Habitual abortion	1:1024	Positive
9.	Neonatal deaths (within 1st week)	1:1024	Positive
10.	Habitual abortion	1:128	Positive

Only 3 cases (cases 8, 9 and 10) which were positive by immunodiffusion test were those who has a titer of 1:128 or more by haemagglutination test (Table I).

Discussion

As a preliminary step, Radial immuno-diffusion for diagnosis of Toxoplasmosis were studied only in 10 selected cases. One out of 10 cases (10 per cent) showed both false positive and false negative reactions respectively (Table I). Its diagnostic usefulness and critical titer at

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