

# THE ROLE OF TOXOPLASMOSIS IN REPRODUCTIVE WASTAGE

By

BHAWNA MISTRY, VINITA SALVI, S. V. DESAI,  
J. K. DHURANDAR AND K. M. INGLE

## SUMMARY

**A relationship between reproductive wastage and toxoplasmosis has been suggested by many workers. In this study 138 patients with two or more obstetric losses were studied for presence of toxoplasma antibodies. Thirty-two of these patients had a positive toxoplasma antibody titre. A higher incidence of abortion and preterm delivery was found in patients with positive toxoplasma antibody titre.**

### *Introduction*

The first reports on toxoplasma infection in man were presented by Wolf *et al*, 1939. Since then many workers have carried out studies which proved the relationship between toxoplasma infection and obstetric pathology, such as abortion, premature delivery, stillbirth and congenital malformation.

The prevalence of this infection in the general population varies between 5 to 45 per cent (Stray-Pederson, 1980). Langer (1963) has actively advocated treatment of women with serological evidence of toxoplasma infection while Remington (1976) has advocated a more cautious approach.

The aim of the present study is to determine the prevalence of toxoplasma antibodies in women with two or more pregnancy losses. The perinatal outcome in the women with a positive toxoplasma antibody titre was compared with the women with absent toxoplasma antibodies.

### *Material and Methods*

One hundred thirty-eight women with bad obstetric history were studied. These patients had pregnancy wastage in the form of two or more abortions, still births or neonatal deaths. In all these women routine tests were performed to rule out other causes of pregnancy wastage. These tests included blood group, Rh, VDRL test, fasting and post-glucose blood sugar and routine urine examination. Repeated per vaginum examinations were done to rule out incompetent cervix.

A toxoplasma antibody titre was done by haemagglutination method. The test used i.e. Tox HA test kit provides a simple, sensitive and standardised test system for the rapid detection and titration of antibodies to toxoplasma gondii. This method which is also referred to as the indirect haemagglutination test for toxoplasmosis is based on the work of Jacobs and Lund (1957).

The collection of the test samples was done as follows:

Five ml of blood was collected by venopuncture. This was allowed to clot natural-

*From: Nowrosjee Wadia Maternity Hospital, Parel, Bombay 400 012.*

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ly and the serum was separated by centrifugation. As antibody levels in normal non-infected individuals seldom exceed a titre of 1:64, the titre of 1:64 or more is strongly suggestive of recent, although not necessarily still active infection.

The perinatal outcome in the women with positive toxoplasma antibody titre was compared with patients in whom toxoplasma antibodies were absent.

### Results

Of the 138 women in the current study 32 women (23.2 per cent) had a positive toxoplasma antibody titre i.e. 1:64 or more.

As seen in Table I, in the age group of 21 to 30 years as many as one-fourth of the patients had a positive toxoplasma antibody titre.

TABLE I  
Age Distribution

Age in years	Negative		Positive	
	No.	%	No.	%
<20	14	13.20	2	6.25
21 - 25	40	37.74	16	50.00
26 - 30	24	22.64	8	25.00
31 - 35	18	16.98	4	12.50
>35	10	9.43	2	6.25

26.8 per cent of the patients were detected to have a positive titre when the gestational age was 14 to 28 weeks.

TABLE III  
Perinatal Outcome

Outcome	Negative		Positive	
	Number	Per cent	Number	Per cent
Full term live birth	76	71.69	20	62.50
Spontaneous abortion	4	3.77	4	12.50
Preterm delivery	8	7.55	6	18.75
Still birth				
Macerated	12	11.32	2	6.25
Fresh	4	3.77	0	
Neonatal death	2	1.88	0	

TABLE II  
Gestational Age Distribution

Gestational age in weeks	Negative		Positive	
	No.	%	No.	%
<13	14	13.21	2	6.25
14 - 28	82	77.36	30	93.75
>28	10	9.43	0	0

Only 20.8 per cent of the patients with a full term live birth had a positive antibody titre as compared to a significantly higher incidence (50 per cent) of positive titre in those patients who terminated in a spontaneous abortion. Similarly 42.9 per cent of patients with a preterm delivery also had a positive titre. Two out of 14 patients (14.3 per cent) who had a macerated still birth had a positive titre. None of the cases which terminated in fresh still birth or neonatal death were positive for toxoplasma antibodies.

As seen in Table III the chance of a full term live birth was lower if the patient had a positive titre as compared to patients with a negative titre. The spontaneous abortion rate was quadrupled and the rate of preterm deliveries was doubled if the titre was positive.

### Discussion

The existence of toxoplasma infection in man is not a controversy any longer. However, there have been controversial reports regarding the extent to which toxoplasma infection causes abortions, still births and congenital anomalies. Jones *et al*, 1969 have reported a significant association of toxoplasma antibodies and abortion in Los Angeles. Zigelboism *et al*, 1968 have reported that the occurrence of toxoplasma antibodies was higher in patients with a history of fetal wastage, as compared to the normal obstetric population.

Positivity of the haemagglutination test only implies that patient has been exposed to the infection. Pseudocysts may be present in the body and may affect the fetus if they are present at the placental site. A conversion of negative to positive in the complement fixation test or haemagglutination test or a rise in the titre in these tests is necessary to prove an acute toxoplasma infection. Isolation of the organism from the products of conception is the surest method to know that fetal loss was due to toxoplasmosis. This is cumbersome and costly.

In the study conducted by Paul Southern there was no convincing evidence in support of an etiological relationship between toxoplasma gondii and fetal wastage. On

the other hand Hingorani and coworkers reported a greater incidence of fetal losses in patients with a positive antibody titre.

The current study too appears to correlate the incidence of toxoplasma antibodies with increased fetal wastage, namely abortions and preterm delivery.

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