

TOXOPLASMOSIS AND HABITUAL ABORTION

Our experience

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Toxoplasmosis is transmitted to man through the ingestion of mature oocytes of cysts present in the flesh of numerous animals. The release by the digestive enzymes of the infective forms, respectively the cystic sporozoites and bradzoites, is followed by the invasion of the intestinal epithelium and by the haematogenous and lymphatic dissemination to all the organs where the parasite is multiplied in the cells ⁽¹⁾ causing their destruction.

With the participation of the immune system of the host the multiplicative - destructive - invasive phenomena and the constitution of cysts is seen particularly in cerebral and muscular tissue. The protective role of the defense mechanism (neutralizing anti-bodies activated by the complementary system) is in subordination in respect to the cellular defences and only effective on extra-cellular forms ⁽²⁾.

Immunity in confrontation with toxoplasma brings about the establishment of a state of premunition in which the infection is controlled by a valid indirect cellular defense dependant on the continuous antigenic stimulus of the latent cysts.

Such immunity is able to confer resistance against exogenous re-infection, even if it does not altogether preclude the possibility of transitory parasitic phases and really does not give complete protection from the re-activation of a chronic toxoplasmosis for the dissemination of encysted parasites. Therefore it is probable that in an old maternal toxoplasmic infection there may be a transmission of parasites to the product of conception on the part of localized toxoplasmoses centers in the myometria and the decidua, turning thus as much on the anatomic defences of the placenta as on the maternal immunological defences. However, experience has confirmed that for the purposes of toxoplasmic foetopathy only the primary maternal infections contracted during pregnancy are dangerous, because very often in these the maternal antibody reac-

SUMMARY

The possibility that toxoplasmosis may be an important cause of single or repeated abortion has been considered for some time.

The agreement among various authors is, however, far from being reached, above all in the case of habitual abortion.

The present research shows that the frequency of positive serological tests on patients with habitual abortion is not substantially different from that of a control group, and that toxoplasmosis, even if only latent, may only in exceptional cases be considered a cause of habitual abortion.

tion is insufficient or late. But when the volume and the virulence of the parasites in the maternal blood is low, even in the primary infection the foetus remains unharmed.

In maternal re-infection that may eventually be verified in pregnancy, not only is the volume of parasites in the blood of the pregnant woman low, but above all her antibody response is ready and effective so that the foetus runs no risk. It is possible, however, that in a re-infection there is a high parasitic volume associated with total anergy in the maternal immunitary system: in such a case infection could not be excluded.

With regard to latent toxoplasmosis in the pregnant woman as a possible cause of abortion agreement has not yet been reached. Some Authors (^{3, 4}) have maintained that one of the causes of spontaneous and repeated abortion is to be attributed to the presence of toxoplasmic cysts in the uterine musculature. During pregnancy the intramural growth of the placenta would erode the toxoplasmic cysts, present for some time in the uterus, favouring the passage into the foetus of the parasites in vegetative form. Besides, the cysts might burst spontaneously on account of the distension to which the uterus is subjected to with the progress of pregnancy, and the protozoa thus freed could invade the placenta, migrating into the endometrium, creating an impediment to the normal implanting of the ovum or to its normal development. However, up to now these hypotheses have not been demonstrated in human pathology.

Many Authors have studied with positive dye-test, women who had a history of repeated abortions. The conclusions are not in concordance. While some Authors (^{5, 6, 7}) maintain that latent toxoplasmosis is certainly the most important cause in the etiology of habitual abortion, other (^{8, 9}) affirm the contrary.

The experiment of Stray-Pedersen and Lorenzen-Styr is interesting in having

shown a plausible relationship between toxoplasmic infection in the uterus and habitual abortion from the moment in which a fair number of women having habitual abortion showed (IFI) the presence in the endometrium of toxoplasma. The parasite was also revealed in the menstrual fluid, and successively in further consecutive biopsies, such as the aborted matter. The fact that only trophozoites were observed does not exclude the possibility that cysts might not exist in the uterus, agreeing thus with Remington (¹¹). Such cysts might in fact have burst during the tissue-homogenisation procedure or have been situated in anatomical areas inaccessible to the examination (e.g. miometric).

Little value need be given to the encountering of toxoplasmic cysts in the uterus after hysterectomy, since we know that about 0.80% of the population may be infected with toxoplasmosis, and how infection easily leads to the presence of cysts in various tissues.

What is difficult to admit is the possibility of a continual passage of parasites from the uterine musculature to the endometrium which is monthly renewed, a passage that would have to be admitted in order to explain the defects of establishment.

Possible variations under the heading of antibodies, with the increase of antibodies in pregnancy, adopted by the supporters of such a theory, as proof of a presumed re-activation of the ailment of cyst-ruptures, can instead also be explained by the physiological variations of serum proteins and of the immunoglobulins observable in pregnancy (¹⁴).

To sum up, notwithstanding considerable research there is no convincing proof that latent toxoplasmosis is a cause of single or repeated abortions. It should therefore be concluded that for lack of precise documentation and demonstration in so many cases of presumed abortion due to toxoplasmosis, there has been,

Table 1. — *Comparison between the rate of antibodies anti-toxoplasma in women affected by habitual abortion and those gravid without abortive pathology.*

Titer	Abortion		Control	
	IHA	IFA	IHA	IFA
1:2048	2	3	1	1
1:1024	1	0	1	1
1:512	3	3	2	1
1:256	5	4	4	4
1:128	30	31	32	33

instead, a coincidence of two characteristics that recur in the average population with a frequency of about 10% (abortion) and of 40% (latent toxoplasmosis infection). In spite of this it must be added that several cases of repeated abortion have clearly benefited from specific anti-toxoplasmodic treatment⁽¹²⁾. However, according to Tolentino, the fact that a woman succeeds in bringing her pregnancy to a successful conclusion only after having had antitoxoplasmodic treatment cannot be accepted as sufficient proof, because antitoxoplasmodic treatment involves chemo-therapeutics which are also active on other micro-organisms, and because the importance of other affections, among which are pyelonephritis and cystitis, are well-known to be the causes of repeated abortions.

MATERIAL AND METHODS

From 1978 up-to-date we have examined in our clinic 41 women affected by habitual abortion.

After having excluded all causes of abortion due to uterine malformation, systemic diseases, metabolic disorders, endocrinopathies and chromosomal aberrations in both spouses, we performed on the patients the haemo-agglutination (IHA) test, the immuno-fluorescence of antibodies test (IFA) and antitoxoplasma to determine the titer.

We also examined a control group consisting of 40 pregnancies in different stages of gestation without previous abortive pathology.

RESULTS AND CONCLUSIONS

The frequency of positive serological tests on the patients with habitual abortions was not substantially different from that of the control group.

Our experience, in substance, confirms that of other Authors who affirm that latent toxoplasmosis can only be considered the cause of habitual abortion in exceptional cases (persistence of endometrial cysts). However, in the presence of high serological rating in pregnancy it is worth establishing, as a measure of prudence some adequate therapy as advised by various Authors^(13, 14).

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