



Granulomata showing central necrosis and a giant cell containing intracytoplasmic refractile material (arrow) (haematoxylin and eosin).

The histology of the right ovary showed numerous granulomata confined to the site of tubal adhesions, in which there was central eosinophilic amorphous material, surrounded by a narrow zone of palisaded histiocytes, admixed with small lymphocytes, plasma cells, and occasional eosinophils. A few Langhan's giant cells were also present, one of which contained intracytoplasmic refractile material (figure). Stains for acid and alcohol fast bacilli and fungi were negative. The tube showed no clinically relevant abnormality, and in particular there was no evidence of chronic salpingitis.

Although we knew necrotising granulomata could occur in the prostate and other organs postoperatively, at the time of reporting we were unaware of their existence in the ovary. Consequently, the sections were reported as containing necrotising granulomas of uncertain aetiology and that tuberculosis could not be confidently excluded. Therefore, antituberculous treatment was recommended.

We believe a wider recognition of this condition could save patients from unnecessary treatment.

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1 Wilson GE, Haboubi NY, McWilliam LJ, Hirsch PJ. Postoperative necrotising granulomata in the cervix and ovary. *J Clin Pathol* 1990;43:1037-8.

Duration of toxoplasma infection

Joynson *et al* report the potential role of IgG avidity in the estimation of the duration of toxoplasma infection and its application to the detection of infection acquired during pregnancy.¹ From the data presented by these workers it is apparent that quantitative IgM

measurement represents an alternative to avidity assays in this context. Avidity estimation performed at the two study centres correctly identified seven out of seven patients with onset of lymphadenopathy within three months. Of 11 patients with lymphadenopathy for more than six months, however, one was incorrectly classified by the Swansea avidity findings and two were misclassified by results of testing at Oxford. Of 19 samples tested at both centres, four discordant results were also recorded.

In contrast, all seven acutely infected patients had "strongly positive" IgM findings, and all 11 with chronic lymphadenopathy had lower IgM titres ("positive", "equivocal", or "negative"). The IgM ELISA method used has been shown to be highly consistent. Of 30 sera tested at three separate centres, 29 sets of results were consistent and only one discrepant result was reported.²

In our laboratory we undertake semiquantitative specific IgM measurement to estimate the duration of toxoplasma infection in a number of contexts including pregnancy. It has been shown that the immunosorbent agglutination assay (ISAGA) is significantly more sensitive than ELISA for the detection of toxoplasma specific IgM.³ In our experience ISAGA reactivity persists for an average of 18 months after acute infection; ELISA reactivity is usually lost within six months. Furthermore, IgG antibody measured by the dye test rises during the initial two months of infection to reach a plateau, with a slow decline subsequently.⁴ Consequently our approach to the serotesting of pregnant women is to perform the dye test as well as estimating IgM using both ELISA and ISAGA.

If specific IgM is detected a repeat sample of serum drawn at least 10 days after the first is tested in parallel with the initial sample by all three assays. Patients with rising dye test titres and detectable IgM are said to be infected within the preceding two months;

those with stable dye test findings and positive ELISA and ISAGA results can be classified as having been infected for between two and six months; patients with stable dye test titres, negative ELISA, and positive ISAGA findings are classified as having been infected for six to 18 months. Other combinations of findings are rarely seen.³

The disadvantage of our approach is its requirement for a second sample with a consequent delay in diagnosis. In practice, rising dye test values are rarely seen. Of 200 pregnant women with detectable toxoplasma specific IgM tested in our laboratory over the preceding two years, none has shown rising dye test findings when the repeat assay was performed.

The experience of Joynson *et al* and our own group illustrates the need for a large prospective study comparing different methods for dating the duration of toxoplasma infection. Potential methods include quantitative IgM assessment, IgG avidity, IgA estimation, differential agglutination reactions and immunoblotting.⁴ Until such a study is complete any estimation of the duration of infection should be treated with caution, in view of individual variation within the immune response.

Finally, it should be remembered that the duration of infection is only an indirect measure of the crucial factor in toxoplasmosis associated with pregnancy—the presence of parasitaemia itself. Direct testing for the presence of the parasite using novel methods such as the polymerase chain reaction can be used.⁵

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- 1 Joynson DHM, Payne RA, Rawal BK. Potential role of IgG avidity for diagnosing toxoplasmosis. *J Clin Pathol* 1990;43:1032-3.
- 2 Joynson DHM, Payne RA, Balfour AH, Prestage ES, Fleck DG, Chessum BS. Five commercial enzyme linked immunosorbent assay kits for toxoplasma specific IgM antibody. *J Clin Pathol* 1989;42:653-7.
- 3 Duffy KT, Wharton PJ, Johnson JD, New L, Holliman RE. Assessment of an immunoglobulin-M immunosorbent agglutination assay (ISAGA) for detection of toxoplasma specific IgM. *J Clin Pathol* 1989;42:1291-5.
- 4 Holliman RE. The diagnosis of toxoplasmosis. *Serodiag Immunother Infect Dis* 1990;4: 83-93.
- 5 Savva D, Morris JC, Johnson JD, Holliman RE. Polymerase chain reaction for detection of *Toxoplasma gondii*. *J Med Microbiol* 1990;32:25-31.

Drs Joynson and Payne comment:

We agree with the author that the IgM ELISA method which we use is highly consistent in identifying acute infection. The difficulty in determining the duration of infection, however, occurs when relatively low, stable dye test titres are found and IgM ELISA and ISAGA results are positive or equivocal. We have obtained positive IgM ELISA results in sera taken more than six months apart, in some instances more than two years apart. In most of these sera high IgG avidity titres can be shown: we believe that in these circumstances this additional test does help to interpret the serological result.

A prospective study of different methods for dating the duration of toxoplasma infection, including IgG avidity testing, is currently in hand.