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, surround- ed 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 refrac- tile 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 gran- ulomata could occur in the prostate and other organs postoperatively, at the time of report- ing we were unaware of their existence in the ovary. Consequently, the sections were reported as containing necrotising gran- ulomata of uncertain aetiology and that tubercu- losis could not be confidently excluded. Therefore, antituberculous treatment was recommended.

We believe a wider recognition of this condition could save patients from unneces- sary treatment.

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Drs Joyson and Payne comment:

We agree with the author that the IgM ELISA method which we use is highly con- sistent in identifying acute infection. The difficulty in determining the duration of infec- tion, 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 results.

A prospective study of different methods for dating the duration of toxoplasma infec- tion, including IgG avidity testing, is cur- rently in hand.

Correspondence

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

### Duration of toxoplasma infection

Joyson *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 semiquan- titative 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.5

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 Joyson *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 and IgM antigen detection and immunoblotting.6 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.7

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