positive for both IgG and IgM antibodies. In view of the fact that the IgG antibodies were strongly positive we considered it unlikely that these were cases of early syphilis with low RPR values due to early stage disease.[1] We suspected that these individuals may have produced antibodies of the non-agglutinating or incomplete type and therefore performed a Kolmer complement-fixation test (CFT) using Difco cardiolipin-lecithin antigen (Detroit, Michigan, USA) as well as a Coombs antiglobulin test on both specimens.

The Coombs antiglobulin test was performed using equal volumes of undiluted patients' sera and charcoal particles on to which cardiolipin was adsorbed (VDRL carbon antigen, Wellcome Research Laboratories, Beckenham, Kent). Normal control sera as well as phosphate-buffered saline (PBS 0·15 mol/l) were used as negative controls. The mixtures were rotated for 10 minutes followed by three washing steps in PBS to remove unbound serum components. After the final wash 0·2 ml Coombs reagent (goat anti-human globulin, Institute Pasteur, Paris) was added to the charcoal particles, incubated overnight at 37°C, and assessed the following day for agglutination. The serological results are shown in the table.

The positive results for IgM show that in case 1 the patient had active syphilis. Although the RPR test result was negative the Kolmer CFT and Coombs test, which measured non-specific antibodies to cardiolipin, gave positive results showing the presence of incomplete antibodies to cardiolipin. The results obtained on the second patient (case 2) were similar except that the Kolmer CFT result was negative. This may have been due to the presence of an incomplete antibody with poor complement-binding activity. Darkfield examination for detection of *Treponema pallidum* was not performed.

Clinical diagnoses of active syphilis had been made for both patients, but it was possible only to obtain a case history as well as follow-up sera from the first patient. This 46-year-old man attended the clinic for sexually transmitted diseases on 12 November 1981 complaining of a penile ulcer, which had been present for two weeks. He later also admitted having a urethral discharge for three weeks and denied extramarital sexual contact. On examination the right inguinal lymph glands were greatly enlarged, he had a profuse, thick, grey urethral discharge, and there was a large ulcer at the corona (about 15 mm in diameter). Clinically the ulcer looked like a chancre, but the inguinal lymphadenitis made the diagnosis of chancroid more probable. Smears of the urethral discharge gave negative results for *Neisseria gonorrhoeae* (no culture was performed).

Treatment consisted of a single intramuscular injection of benzylpenicillin (5 million units); weekly injections of benzathine penicillin (2·4 million units for two weeks; and long-acting sulphonamides (one tablet daily for two weeks). On 4 December all that remained was a small scab at the site of the penile ulcer; the results of serological investigations are shown in the table. The patient's wife also had clinically active syphilis (table).

These results indicate that incomplete antibodies to cardiolipin may occasionally complicate the serodiagnosis of syphilis. The incidence of such antibodies is not yet known but is probably low. The importance of using the TPHA as a screening test with subsequent investigation of positive specimens for IgM antibodies by the FTA-ABS test is emphasised.

TABLE *Serological test results of two patients with clinically active syphilis*

	Results of serological tests					
	RPR	*TPHA*	*FTA-ABS*			
Patients			*IgG*	*IgM*	*Kolmer CFT*	*Coombs test*
Case 1						
Initial results	–	+	3+	1+	1/64	+
On 4.12.81	–	+	1+	–	–	–
Case 2						
Initial results	–	+	3+	1+	–	+
Wife*	1/16	+	4+	–		

+ Positive; – negative
*Of the patient in case 1
RPR = rapid plasma reagin (test); TPHA = *Treponema pallidum* haemagglutination assay; FTA-ABS = fluorescent treponemal antibody-absorption (test); CFT = complement-fixation test

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References

1. O'Neill P. A new look at the serology of treponemal diseases. *Br J Vener Dis* 1976; **52**;296.

Notices

Medical mycology

A postgraduate course in medical mycology (dermatomycology) is to be held from 16-18 September 1982 at the University of California, San Francisco, USA. For further information please write to: Extended Programs in Medical Education, Room 569-U, School of Medicine, University of California, San Francisco, California 94143, USA (telephone No: 666-4251).

Retirement symposium

A one-day symposium on sexually transmitted diseases is being held in honour of Dr C S Ratnatunga, FRCP(Ed), on Friday 24 September 1982 at the Royal Free Hospital, Pond Street, London NW3. You are invited to contact the Marlborough Department of Venereology at this address for details.