# VDRL SPINAL FLUID SLIDE AND TUBE AND KOLMER TESTS

## *Comparison of Reactivity*

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THE VDRL slide test for cerebrospinal fluid was described by Duncan and associates in 1960 (*1*). The slide test requires less spinal fluid and less time to perform than the original VDRL spinal fluid test performed in tubes. Duncan, and more recently Jeffreys (*2*), reported good agreement between the slide and tube tests on cerebrospinal fluid. In 1952 Cannefax and Beyer (*3*) found that the VDRL spinal fluid tube test compared favorably with the Kolmer complement fixation test. But, to our knowledge, no comparison of the reactivity of the slide test and the Kolmer test on spinal fluid has been published.

It had been our practice, in the microbiology laboratory of the California State Department of Public Health, to examine specimens by both the tube and Kolmer tests whenever there was a sufficient volume of spinal fluid. Frequently, however, the volume of fluid was not adequate for both tests. We therefore considered the possibility of substituting the VDRL slide test for the tube test.

Before introducing the slide test as a routine procedure, we tested two series of spinal fluid specimens by the VDRL slide and tube techniques and the Kolmer test. This paper reports the comparative reactivity of these three tests on specimens received routinely in our laboratory and on selected specimens.

### Methods and Materials

The VDRL spinal fluid tube test and the Kolmer complement fixation test were performed as described in the 1959 Manual of Serologic Tests for Syphilis (*4*). The VDRL spinal fluid slide test was performed as described by Duncan and associates (*1*).

Two series of specimens were studied. The first group consisted of 176 spinal fluids submitted from May to December 1961 for routine diagnostic testing. All specimens with an adequate volume were included. Because the number of reactive specimens in this series was small, we were interested in checking additional reactors. Local health departments and State mental hospitals supplied 29 specimens found serologically reactive in their laboratories. These reactive spinal fluids constituted the second series.

Extensive clinical data were not available for the patients from whom the specimens in these groups were drawn, and no attempt has been made to relate test findings to clinical information.

### Results and Discussion

On the routine spinal fluid specimens, the VDRL slide test showed good agreement with the Kolmer and the VDRL tube tests (table 1). Of 172 specimens on which all three tests were performed, 170 agreed in reactivity. For two specimens, the slide and Kolmer tests agreed with each other but disagreed with the tube test. Four specimens were tested by only the slide and Kolmer techniques as the amount of spinal fluid was insufficient for all three tests. Two of these specimens agreed and two disagreed.

In the second series (table 2), agreement among the three tests was not as close as in the first series. Again, however, all three tests agreed in reactivity for a majority of the specimens. The slide and tube tests agreed with each other for all but one specimen.

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**Table 1. Reactivity of VDRL spinal fluid slide and tube tests and Kolmer complement fixation test on 176 routine specimens**

| Number of specimens | VDRL spinal fluid tube test [1] | VDRL spinal fluid slide test | Kolmer test |
|---|---|---|---|
| 165 | Negative | Negative | Negative |
| 5 | Reactive | Reactive | Reactive |
| 1 | Reactive | Negative | Negative |
| 1 | Negative | Reactive | Reactive |
| 2 | Insufficient | Reactive | Reactive |
| 1 | Insufficient | Reactive | Negative |
| 1 | Insufficient | Negative | Reactive |

[1] Insufficient indicates not enough volume of spinal fluid for testing.

**Table 2. Reactivity of VDRL spinal fluid slide and tube tests and Kolmer complement fixation test on 29 reactive specimens**

| Number of specimens | VDRL spinal fluid tube test [1] | VDRL spinal fluid slide test | Kolmer test [1] |
|---|---|---|---|
| 16 | Reactive | Reactive | Reactive |
| 5 | Reactive | Reactive | Negative |
| 1 | Negative | Reactive | Reactive |
| 1 | Negative | Negative | Reactive |
| 1 | Reactive | Reactive | Anticomplementary |
| 3 | Insufficient | Reactive | Negative |
| 1 | Insufficient | Reactive | Reactive |
| 1 | Reactive | Reactive | Insufficient |

[1] Insufficient indicates not enough volume of spinal fluid for testing.

Based on the results of this study, our laboratory began using the VDRL slide spinal fluid test routinely in early 1962. Because of the smaller volume of spinal fluid required for the slide technique, we are able to perform both the slide and Kolmer tests on almost all specimens. We find that for the specimens submitted to our laboratory the results obtained with this combination of tests are as satisfactory as those obtained with the VDRL tube and Kolmer tests.


## Summary

At the microbiology laboratory of the California State Department of Public Health, results of a comparative study of the reactivity of the VDRL slide and tube tests and the Kolmer complement fixation test on cerebrospinal fluid specimens indicated that the slide and tube techniques compare favorably with each other and that they agree equally well with the Kolmer test.


### REFERENCES


(*1*) Duncan, W. P., Bossak, H. N., and Harris, A.: VDRL slide spinal fluid test. Tech Bull Regist Med Techn 30: 217–219 (1960).

(*2*) Jeffreys, L. U.: The use of the VDRL slide spinal fluid test in a public health laboratory. Public Health Lab 19: 116–118, November 1961.

(*3*) Cannefax, G. R., and Beyer, H. R.: A qualitative and quantitative comparison of the Kolmer complement-fixation and VDRL flocculation spinal fluid tests. Amer J Syph 36: 376–378 (1952).

(*4*) U.S. Public Health Service: Manual of serologic tests for syphilis. U.S. Government Printing Office, Washington, D.C., 1959.


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