**Tuberculin Skin Test in Asymptomatic HIV Seropositive Carriers**

To the Editor:

"The tuberculin skin test has been the traditional method of diagnosing infection with mycobacterium tuberculosis... no better diagnostic methods have yet been devised."

"Screening for tuberculosis has relied upon the tuberculin skin test, and the emphasis in screening has shifted to finding those who are at risk of developing disease and infecting others as well as detecting those who already have disease. The tuberculin skin test is the preferred initial method of screening."

"In recent years, reported tuberculosis cases in New York City have increased substantially in large part related to coexisting human immunodeficiency virus (HIV) and mycobacterium tuberculosis infection... data suggest that HIV infection in the absence of AIDS is associated with increased TB morbidity... most tuberculosis in patients with AIDS results from reactivation of a previously acquired latent infection."

"In certain high risk areas for AIDS, the number and proportion of cases of tuberculosis relation to occult HIV immunosuppression may be large, and this may be of major importance with respect to the clinical presentation and control of tuberculosis."

"Since tuberculosis is transmissible, treatable, and possibly preventable... tuberculosis must be considered in dealing with intravenous drug abusers or Haitians with AIDS so that diagnosis can be made... and transmission to healthy subjects prevented. A higher than normal rate of falsely negative tuberculin skin test was recorded not only in patients with AIDS... but also in HIV seropositive subjects with concomitant tuberculosis. "An immediate problem is to assess the validity of tuberculin skin test results in persons with tuberculosis infection and HIV infection."

We studied a group of prisoners as they have a substantially higher risk of being anti-HIV carriers than the general population. In prisons, considerable numbers of intravenous drug users (a high proportion of whom are probably HIV carriers) can be expected to have occasional homosexual contacts. We performed tuberculin skin test (PPD Schlaw 5 TU) and chest x-ray in 143 subjects (127 men and 16 women) on two consecutive days. HIV serologic tests (Abbot and Sorin enzyme immunoassays as first screening test; positivity was confirmed by Western Elot, DuPont) and determination of lymphocytes subsets in HIV seropositive subjects (Ortho monoclonal antibodies and cytofluorimeter Epics/ct) had already been performed. All the subjects were examined by a physician (history and physical examination) and underwent a serologic study for anti-HIV antibodies when admitted in prison. Then a specialist in infectious diseases took care of all HIV seropositive prisoners. The tuberculin skin test was read by a specialist in pulmonary medicine unaware of the HIV test results. A tuberculin skin test was considered to be reactive with an induration larger than 5 mm. Subjects were divided into two groups (reactive or non-reactive) according to this threshold for statistical analysis. In Italy there is no clinic-epidemiologic reason to consider a 6 to 10 mm reaction of uncertain significance owing to the rarity of non-tuberculous mycobacterial infections. We found 52 HIV seropositive subjects, 43 of whom were symptomless and included in the study. The control group was 65 HIV seronegative prisoners of the same age. Chest x-ray film showed no pleuro-pulmonary lesion in any subject. The results are summarized in the table.

Our data show a significant difference as 28 HIV seronegative (43 percent) but only four HIV seropositive (9 percent) patients were reactive to PPD T-helper cell counts for the four HIV seropositive reactive subjects were 763, 380, 348, and 517 x cu mm. There is no epidemiologic reason to suppose a real inferior incidence of tuberculosis infection in HIV seropositive patients. Indeed, intravenous drug users have a high incidence of tuberculosis infection. We found a significant decrease of T-helper lymphocytes in our subjects; this may be the cause of a falsely-negative tuberculin skin test result in asymptomatic HIV seropositive people.

We conclude that: 1) this test cannot be confidently used in asymptomatic HIV seropositive subjects (with a T-helper lymphocyte count decreased) as screening test for tuberculosis control; 2) HIV seropositivity should be included in the list of causes of falsely negative tuberculin skin test; and 3) tuberculin skin test test negativity has to be evaluated more carefully for tuberculosis control owing to the growing incidence of symptomless HIV seropositive persons in the general population.

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**Table**

<table>
<thead>
<tr>
<th>HIV</th>
<th>HIV sero-negative</th>
<th>HIV sero-positive*</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>(n = 65)</td>
<td>(asymptomatic)</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>60 M, 5 F</td>
<td>24 M, 9 F</td>
<td></td>
</tr>
<tr>
<td>Age (yrs)</td>
<td>29 ± 5 (19 - 38)</td>
<td>28 ± 4 (20 - 38)</td>
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<tr>
<td>Tuberculin skin test†</td>
<td></td>
<td></td>
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<tr>
<td>Reactive (6 to 10 mm 72 h)</td>
<td>10</td>
<td>28</td>
</tr>
<tr>
<td>Non reactive (&lt; 5 mm 72 h)</td>
<td>37</td>
<td>39</td>
</tr>
</tbody>
</table>

*Lymphocytes 2.384 ± 1.020 x cu mm (normal range 900 to 4.500 x cu mm), B cells 9 ± 4, 6 percent (7 to 17 percent), T cells 69 ± 8 percent (54 to 70 percent), T-helper cells 23 ± 7 percent (33 to 47 percent), T-helper cells 569 ± 241 x cu mm (828 to 1.332 x mm), T-suppressor cells 43 x 10 percent (15 to 25 percent), T-suppressor cells 1.025 x 230 x mm³ (340 to 710 x cu mm), T-helper/T-suppressor ratio 0.6 x 0.28 (1.45 to 2.45). Normal range values are inferred from tests performed in our laboratory in control subjects.

†Chi-square = 12.5, p<0.0005
REFERENCES
3 CDC. Tuberculosis and acquired immunodeficiency syndrome. New York City. MMWR 1987; 36:785-95

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Cotton Fiber Intraarterial Granuloma After Cardiac Catheterization

To the Editor:

An open lung biopsy obtained during evaluation of a patient with pulmonary hypertension revealed an unusual finding.

A 68-year-old man presented with atypical chest discomfort, disabling dyspnea, and hypoxemia out of proportion to his moderate obstructive pulmonary disease. Pulmonary hypertension was confirmed at cardiac catheterization. A thorough evaluation did not reveal pulmonary thromboembolic disease, obstructive lung disease, interstitial lung disease, inhalation or hypersensitivity disease, collagen vascular disease, or chronic pulmonary venous hypertension. Therefore, we were concerned with other, less common disease processes such as primary pulmonary hypertension, amyloidosis, vasculitis, veno-occlusive disease, or arterial tumor embolus. Open lung biopsy did not verify any of the above, but showed a mild granulomatous interstitial pneumonitis suggestive of hypersensitivity pneumonitis. Additionally, an intra-arterial granulomatous reaction to a birefringent material identified as cotton fibers was noted (Fig 1).

The discovery of intra-arterial cotton fiber emboli and associated granulomatous arteritis was unexpected. Previous experimental work with animal (guinea-pig) models of cotton fiber emboli describe the histopathology as "resembling the arteritis of hypersensitivity", as seen in our patient. A wide variety of materials (including cotton fibers) cause foreign body emboli when introduced into the vascular system. Although rarely reported in human subjects, cotton fiber emboli were documented following cardiac catheterization in a patient with pre-existing pulmonary hypertension. That report led to discontinuing the practice of placing cardiac catheters between layers of gangue tissue during sterilization, which can leave cotton-wool fibers on catheters. Cotton fibers can still come into contact with the catheter from touching cotton pads during the procedure or during passage through skin sterilized with cotton swabs. We presume that one of these mechanisms was responsible for the introduction of cotton fibers into the pulmonary artery in our patient. Recognition and elimination of these potential avenues of contact will help limit the development of cotton fiber emboli following cardiac catheterization.

REFERENCES

Curtailment of Cardiac Reserve in Mitral Valve Prolapse

To the Editor:

According to the cardiomyopathic theory for the pathogenesis of mitral valve prolapse, a diminished cardiac reserve may occur in this disorder, even in the absence of significant atrioventricular regurgitation. Left ventricular dysfunction is not usually detected under baseline condition, but could be revealed under the effect of...