LETTER TO THE EDITOR

**A RELIABLE SILVER STAINING METHOD FOR PNEUMOCYSTIS
CARINII AND RETICULUM FIBERS IN
HISTOLOGIC SECTIONS**

For the purpose of staining *Pneumocystis carinii* in paraffin sections, Gomori's methenamine-silver nitrate (4), Grocott's methenamine-silver nitrate (5), a rapid staining technique by modified Grocott's methenamine-silver nitrate (3, 8, 9), toluidine blue 0 (2), and cresyl echt violet (1) have been reported.

Among these staining methods, the methenamine-silver nitrate has routinely been used. By means of this technique, general fungi are easily stained but the cytoplasm of host cells also are often colored concurrently. As the result, the identification of *Pneumocystis carinii* is sometimes difficult. The author developed a method to obtain stable and satisfactory results by the addition of an equal volume 0.6% hydrochloric acid or 0.3% sulfuric acid into the 0.3% potassium permanganate solution on the silver impregnation method (6, 7). According to previous techniques, the paraffin sections easily detached from the slides when they were washed after treatment with sodium thiosulfate solution. However, this problem has been solved by rinsing in 0.2% acetic acid after the sodium thiosulfate solution treatment. Although the previous rapid staining technique requires a long time to warm up the solution, this new staining method is more rapid because it can be

FIG. 1. Cyst of *Pneumocystis carinii* in lung tissue section. Modified silver method. $\times 600$

FIG. 2. Reticulum fibers in liver tissue section. Modified silver method. $\times 400$

performed at room temperature without warming. The used ammoniacal silver solution may explode due to the formation of the blackish silver fulminate (AgONC) in the solution. This danger could be prevented by the addition of an equal volume

of used sodium thiosulfate into the ammoniacal silver solution.

Pneumocystis carinii, fungi and reticulum fibers were stained black. Collagen fibers and nuclei were stained red. Other tissue elements were stained pink (Figs. 1,2). This is a consistently reliable staining method for *Pneumocystis carinii* and reticulum fibers. Moreover, this method has proved superior to others in demonstrating a specific staining for *Pneumocystis carinii* in histologic sections.

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