The Jackknife Technique in Statistical Analysis

To the Editor:

Dr. Pratt referred to the "procedural error" in our table 4 in his editorial comment in the November issue of Chest (1988; 94:903-04). Dr. Pratt's comment is disappointing, predominantly because it reflects a lack of understanding regarding the jackknife technique which we used in our study. If Dr. Pratt had read our article thoroughly, he would have understood that this technique is designed to circumvent the precise "error" which he refers to.

Modern statistical techniques such as the jackknife provide a means for obtaining an unbiased estimate of the prospective accuracy of a mathematical rule if applied to a completely different sample of patients.

The jackknife technique is essentially the "leaving one out" method. In the case of our study with a total sample of 83, the discriminant function was computed on only 82 cases. The person left out is then classified on the basis of the function rule derived for the 82 cases. This is repeated until every person in the sample has been left out once and classified. The technique presents a way of using the same sample for both rule derivation as well as classification (accuracy estimation). It provides a good, unbiased estimate of the accuracy which could be expected in a completely new sample, yet it maximizes existing patient resources. Thus the jackknifed estimate presented in table 4 and discussed in our paper provides an unbiased estimate of accuracy.

In fact, this technique is applicable for a wide range of research situations. I urge Dr. Pratt and any interested readers to consult the following bibliography for more information.

Allen Rothpearl, M.D.
New York

BIBLIOGRAPHY
Efron B. The jackknife, the bootstrap, and other resampling plans. SIAM monograph No. 38, Society for Industrial and Applied Mathematics, 1982
Lachenbruch PA, Goldstein M. Discriminant analysis. Biometrics 1979; 35:69

Diminished Translucency, a Common Roentgenographic Feature of Tropical Pulmonary Eosinophilia

To the Editor:

Diminished translucency is a common, less recognized roentgenographic feature of tropical pulmonary eosinophilia (TPE) which was observed in 17 of our 25 (68 percent) patients. The majority of these patients had symptoms of four weeks duration or less. This feature was most conspicuous in mid- and lower zones, extending from the periphery towards the paracardiac regions (Fig) and cleared fastest with diethylcarbamazine therapy (within three days).

Long standing cases of TPE progress to crippling pulmonary fibrosis and insufficiency with poorer response to diethylcarbamazine therapy; therefore early diagnosis is a necessity.

DISCUSSION

We found the roentgenographic feature of diminished translucency—when present—is useful for early recognition of coexistent miliary tuberculosis, since this feature clears within three days. This feature is also useful when peripheral eosinophilia is interrupted due to intercurrent infection, or when typical clinical features are lacking.

Webb was the first to note a "faint generalized loss of translucency" in 22 of 40 cases of TPE. Herlinger noted diminished translucency as the cardinal feature of TPE in 62 percent of his cases.

The exact pathologic basis of this roentgenographic feature is difficult to explain. Udwadia and Joshi, in their pathologic studies of TPE, described "histiocytic infiltration with exudative features" in three of their patients with symptomatology of less than three weeks duration. This at least partly, along with tissue hypersensitivity during acute eosinophilic infiltrations, may contribute to the greyenss of the lung fields in its early phase.

A larger study with roentgenographic pathologic correlation might give better insight into the cause and diagnostic usefulness of this feature.

K. Satish Chandra, M.D.; Sundaresh Peri, M.Sc.; Lakshmana Moorthy, B. R., M.D., and Birbhada Rao, P.V., M.D., Warangal, India

REFERENCES
1 Herlinger H. Pulmonary changes in tropical eosinophilia. Br J Radiology 1963; 36:889-901
2 Udwadia FE. Tropical eosinophilia-a corollary of clinical, histopathologic and lung function studies. Dis Chest 1967; 52:531-38
4 Udwadia FE, Joshi VV. A study of tropical eosinophilia. Thorax 1964; 19:548-54