Photostatic Copying of Immuno-electrophoretic Patterns with the Use of Color Print Filters

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Immuno-electrophoretograms can be replicated inexpensively, rapidly, and to scale by the use of color print filters on a photostatic copy machine. By this method additional copies are readily available for patient charts, permanent record, and any other use.

Following the successful application of using a Xerox photostatic copying machine to provide a permanent record of antibiotic susceptibility tests (disk method) and radial immunodiffusion assay results (Lo and Tess, *Am. J. Clin. Pathol.*, in press), we turned our attention to the possibility of reproducing immuno-electrophoretic patterns in a similar manner. Immuno-electrophoresis on a cellulose acetate matrix was introduced into our hospital when the Beckman Microzone Electrophoresis system became commercially available. At that time we lacked a good photographic set-up in our laboratory for recording precipitin pattern with transmitted or scattered light. Thus, initially, reports were mostly descriptive. Unless a physician had a special interest to come to the laboratory to look at the patterns himself, he relied solely on the description furnished to him by the technologist doing the test. The advent of radial immunodiffusion assays furnished quantitative results of the immunoglobulins and other common serum proteins. This greatly diminished the requests for immuno-electrophoresis of serum proteins.

To encourage clinicians to become more familiar with immuno-electrophoretic patterns and increase the possibility of detecting abnormal proteins, it was decided that a visual impact should be made on the clinicians by submitting immuno-electrophoretic patterns with description to patients' charts.

Most photostatic copying machines are not designed to faithfully reproduce the very faint precipitin lines; thus, modification of the photostatic copy procedure by the introduction of special filters between the face plate of an IBM Copier II machine (with flat top) and the patterns was necessary to obtain an inexpensive, rapid, readable, to scale, reproducible copy (Fig. 1). It turned out that the CP (color print) filters were most economical and suitable for our purposes. For bringing out the contrast with Ponceau S stained precipitin lines, a CP

FIG. 1. Photograph of photostatic copy of immuno-electrophoretogram biconal peak consisting of small amount of immunoglobulin G in narrow band and large amount of immunoglobulin G in broad diffuse band in S, as compared to HS. Abbreviations: aIgG, anti-human immunoglobulin G, rabbit serum; HS, normal human serum; aH, anti-human serum, rabbit serum; S₁, serum from patient with multiple myeloma.

filter Y 040 or a combination of CP filters C 020 and Y 020 would suffice for most purposes. (Use of protein dyes which stain other than red would entail use of different contrasting filters.) The gelatin CP filters are readily available in most photographic equipment stores.

The photostatic copy of the immuno-electrophoretic pattern is no substitute for black and white photographic plates or films which offer resolution of a higher level than achieved by the method described. Hence, for careful analytical study and for publication purposes, a good photograph is indispensable; however, for a small laboratory which lacks proper photographic equipment and has a limited budget but has access to a photostatic copy machine, a photostatic copy of the immuno-electrophoretic pattern with the use of CP filter(s) gives a rapid, inexpensive, readable copy in most circumstances.

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