Detection of Myeloma Casts by Evans Blue in Kidney Biopsy Specimens and Urinary Sediment

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Dear Sir,

Detection of myeloma casts by morphological criteria [1] and immunofluorescence study of urinary sediment using monoclonal antibodies have been suggested [2]. Four cases with light-chain deposition nephropathy were diagnosed in our laboratory by immunofluorescence investigation of kidney biopsy specimens. All patients were male (age range 30-50 years) and were diagnosed as having minimal changes in glomeruli, interstitial nephritis, and casts in tubules. Myeloma casts were found in 1 case by light microscopy. Kidney biopsy specimens and urinary sediments of these patients (2 with kappa-type and 2 with lambda-type light-chain nephropathy) were stained with Evans blue which is used as a background staining in most diagnostic immunofluorescence tests.

In both cases of kappa-type light-chain nephropathy, many casts were Evans blue positive, showing a highly dense red fluorescence in the kidney biopsy specimens (fig. 1). In their urinary sediments, few masses and some cells, most probably renal cells, were positive. In both cases of lambda-type light-chain nephropathy, the kidney biopsy specimens, were negative; on the other hand, many Evans blue positive casts were seen in their urinary sediments (fig. 2). Kidney biopsy specimens and urinary sediments of 30 patients with other glomerular diseases were stained with Evans blue; none of them were positive but for 1 case with obsolescence, glomeruli and periphery of broad waxy casts were positive in the urinary sediments of 2 cases with advanced glomerular disease. These cases are too few to draw any firm conclusion. In summary as compared with other techniques, this method seems to be rapid, simple, specific, and economic for the detection of myeloma casts in the urinary sediment of lambda-type and in kidney biopsy specimens of kappa-type light-chain nephropathy.

References
Fig. 1. Kidney biopsy specimen from a patient with kappa-type light-chain nephropathy. ×250.

Fig. 2. Urinary sediment from a patient having lambda-type light-chain nephropathy. ×250.

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