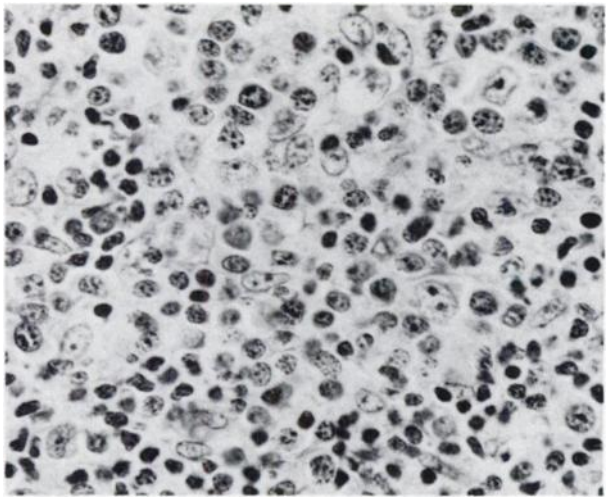

FIG. 1. Photomicrograph showing pleomorphic cellular infiltrate including immunoblasts, histiocytes, and plasma-cytoid cells.

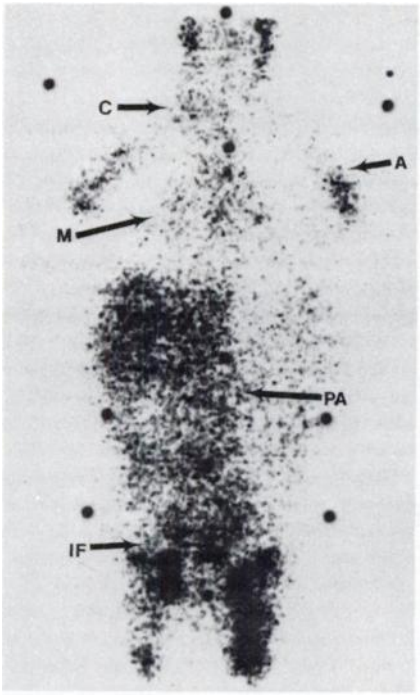

FIG. 2. Gallium-67 citrate scan showing intense tracer concentration in cervical, axillary, mediastinal, para-aortic, and iliofemoral node groups. At autopsy all these areas showed AILD lesions.

higher site-by-site positivity rate in histiocytic lymphoma over lymphocytic forms, although this was not confirmed in a smaller series reported by McCaffrey et al. (*8,9*). The histiocytic component was prominent in the current case, which may account for the intense concentration of gallium (Figs. 1 and 2).

Angio-immunoblastic lymphadenopathy with dysproteinemia is an important new addition to the spectrum of lymphoreticular disorders, and AILD must now be added to the list of differential possibilities in interpreting a positive gallium scan.

SATINDER P. GILL
JAMES H. THRALL
MARK L. BEAUCHAMP
MAY L. VOTAW
University of Michigan Medical Center
Ann Arbor, Michigan

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Localization of ^{67}Ga in Renal Microabscesses

Many investigators have shown that ^{67}Ga is a useful agent for identifying inflammatory processes. However, reports on renal inflammatory lesions have been scanty. Increased ^{67}Ga concentration in the kidneys has been observed in acute pyelonephritis (*1,2*), nephrolithiasis, and after ureterosigmoidostomy (*3*), all apparently related to inflammation. We describe here a case in which multiple microabscesses of the kidney were shown by ^{67}Ga scanning and autoradiography of the removed kidney.

A 57-year-old black woman, 6 weeks before the present admission, had had the sigmoid colon resected for a well-differentiated mucin-producing adenocarcinoma. At surgery, the left distal ureter and left trigone area were thought to be involved by direct tumor extension. A partial cystectomy, distal ureterectomy, and ureterostomy were performed. Postoperative urine cultures from a ureterostomic catheter disclosed *Pseudomonas aeruginosa*. The patient was treated with Vibramycin and carbenicillin and was discharged on Macrodantin 15 days after operation.

Subsequently she was readmitted with chills, a fever spiking to 104°F, and slightly purulent discharge from the ureteral catheter but without tenderness of the costovertebral angle. Urine cultures yielded over 100,000 colonies of *Pseudomonas aeruginosa*. To aid in localizing a possible abscess, scans were obtained using 3.93 mCi of ^{67}Ga citrate and a dual-head scanner with two pulse-height analyzers, one set to receive the 93-keV photons and the other to bracket the two middle peaks at 184 and 296 keV. The 24-hr scan showed unilateral activity in the left kidney, and another scan at 4 days showed persistent or even greater uptake in

the same kidney (Fig. 1A and 1B). This was interpreted as renal or perirenal abscess or pyelonephritis. Renal scintigrams with ^{99m}Tc-DTPA, obtained the next day to evaluate renal function, showed almost absent function in the left kidney with relatively good function on the right (Fig. 1, bottom). The creatinine clearance of the involved kidney was only 2 ml per minute.

Because of the lack of function and persistent growth of the *Pseudomonas aeruginosa*, a left nephrectomy was performed. At surgery, the surface of the left kidney appeared normal and without evidence of perirenal abscess. On longitudinal section, the renal medulla showed numerous small necrotic areas with a diffuse yellow-tan appearance throughout the parenchyma (Fig. 2C). An autoradiogram of the surgical specimen, obtained with approximately 36 hr of contact exposure (Fig. 2A), showed localization of ^{67}Ga activity around the necrotic areas. A scan, obtained using the 184- and 296-keV photons, of the section of the excised left kidney showed a similar distribution of the activity. Microscopic examination revealed multiple microabscesses in the renal papillae with sheets of polymorphs surrounding the necrotic centers, together with evidence of subacute pyelonephritis (Fig. 2D).

Although the exact mechanism for cellular uptake of ^{67}Ga is not yet known, the available evidence suggests that the white cells of the abscess, especially those in the abscess wall, concentrate ^{67}Ga. An autoradiographic study by Gelrud et al. (*4*) has shown the association of ^{67}Ga with lysosome or lysosome-like granules in the cytoplasm of the leukocytes. Our findings in this case concur with the mechanism suggested above.

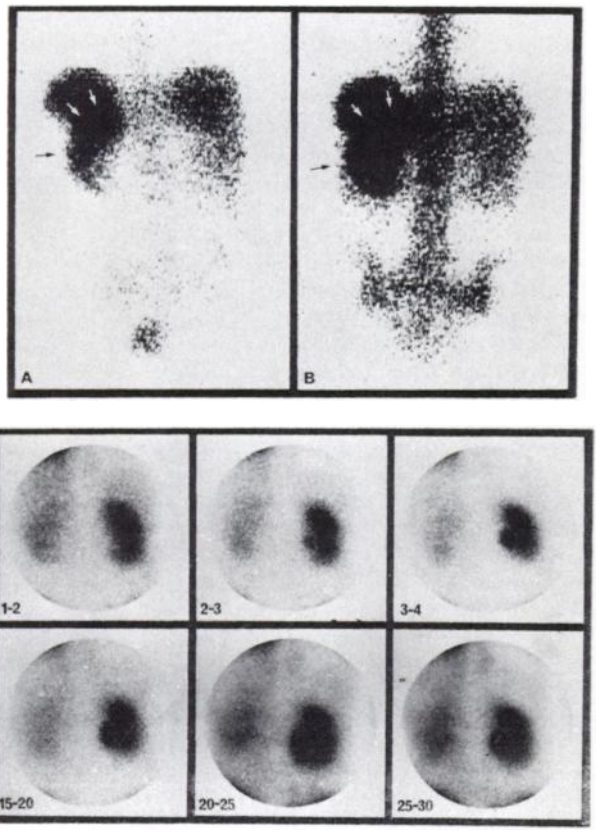

FIG. 1. Gallium-67 scans taken at 24 hr (A) and 4 days (B) show markedly increased uptake and persistent activity in left kidney. (Bottom) ^{99m}Tc-DTPA study shows almost nonfunctioning left kidney. Numbers indicate exposure intervals in minutes.

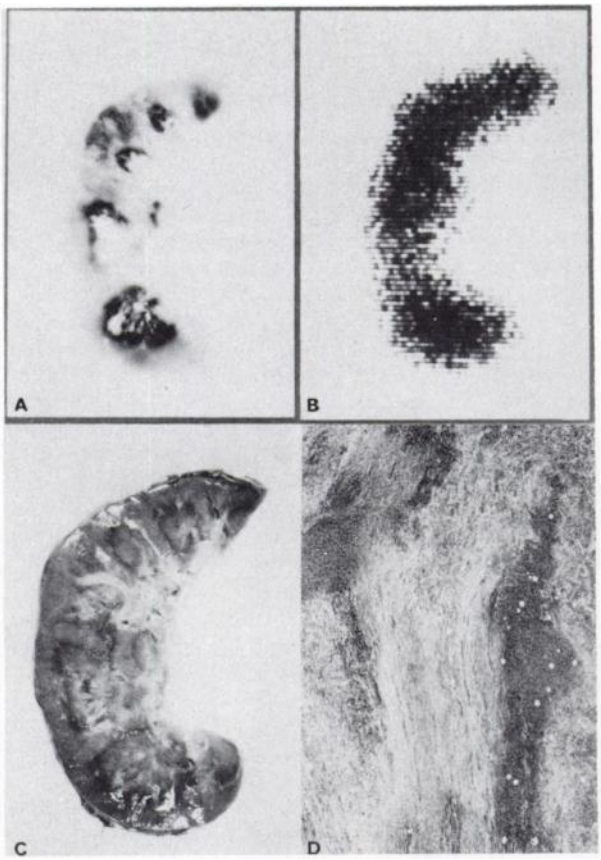

FIG. 2. Autoradiogram (A) and scan (B) of the kidney section show maximum activity in medulla at sites of microabscess. (C) Photograph of cut specimen shows numerous small areas of necrosis primarily in medulla (clear areas). (D) Photomicrograph (×17) of renal medulla showing sheets of polymorphs forming microabscesses.

Normally, less than 15% of the injected ^{67}Ga is excreted through the kidneys during the first 24 hr. Kidneys may normally be visualized if a scan is obtained within this period. In the absence of severe liver disease, the presence of ^{67}Ga activity in the kidneys on a delayed scan (after 48 hr), unilateral renal uptake, or increasing uptake by the kidneys on sequential scans are highly suggestive of an inflammatory process. An ^{67}Ga autoradiogram in an apparently normal kidney was shown by Nelson et al. in this journal (*5*). Most of the activity was distributed in the renal cortex, with little in the medulla. In the case reported here, maximum activity was found in the medulla, which is where the microabscesses were located.

HEE-MYUNG PARK
ALLEN E. FORRY
RONALD L. SAGALOWSKI
Indiana University School of Medicine
Indianapolis, Indiana

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