Johnson et al. suggested that the labeling technique and the use of crude rather than pure granulocytes may account for their results being better than those of McKillop et al. (*3*). However, in a study of chronic soft-tissue infection, acute soft-tissue infection, chronic osteomyelitis, and acute osteomyelitis, Schauwecker et al. showed that there was no difference between purified ^{111}In granulocytes and mixed ^{111}In leukocytes (*4*). Chronic osteomyelitis is characterized by a lower granulocyte infiltration than acute osteomyelitis. Infection around some prosthetic joints is associated with a very low grade inflammatory response and may not be obvious to the surgeon at operation, confirmation being obtained from culture of tissue samples. In these circumstances, a false-negative rate with ILLS is to be expected, regardless of the labeling technique (*5*). Variations between the results of different studies are more likely to be a result of this range in inflammatory response and granulocyte infiltration, particularly as the number of infected cases per study is small.

In conclusion, although the ILLS results of Johnson et al. are similar to our own, we recommend that (a) an ILLS is unnecessary for all prosthetic hip referrals: a ^{99m}Tc bone scan should be performed first and an ILLS need only be performed where the ^{99m}Tc uptake can be described as focal superimposed on diffuse, and (b) the ILLS need only be interpreted by the simpler (i.e., the first) method described by Johnson et al.

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REPLY: We reviewed with interest the article by Mountford et al. where the authors classified bone scintigraphy of failed hip prosthesis into normal uptake, focal abnormality, diffusely abnormal, and focally abnormal superimposed on diffusely abnormal (*1*). None of the patients studied in our series with a painful prosthesis associated with x-ray findings of loosened prosthesis exhibited normal activity on bone scan. In fact, it would be most unusual for patients with a radiographically loosened prosthesis not to demonstrate localized areas of increased activity on bone scan secondary to focal areas of abnormal stress transfer from the loosened prosthesis.

We were surprised to read that Mountford et al. advised that patients with a focal abnormality on bone scan and a loosened hip prosthesis need not be investigated any further for infection, since numerous investigators have noted that a wide overlap exists between the focal scintigraphic findings on bone scan secondary to loosening and infection. Furthermore, Mountford et al. made this statement on the basis of only 17 patients in their series with focal abnormality on bone scan and no evidence of infection. This is an extraordinarily strong statement to make as the pertinent literature over the past two decades continues to find this a somewhat controversial issue.

We would also like to stress a word of caution with respect to the statement by Mountford et al. when they "classified ILLS and Ga-67 scans as abnormal if they demonstrated hyperactivity in any distribution" (*1*). The reason for this is that gallium-67 or indium-111 white blood cell uptake is not specific for infection in a loosened prosthesis and may be positive even in the absence of culture proven infection in patients with a painful loose hip prosthesis (*2*).

In the reports published by Schauwecker et al., it was demonstrated that there is no statistical difference in sensitivity with mixed leukocyte preparations (MIX) versus pure granulocyte preparations (GRAN). It was also demonstrated, contrary to Mountford's supposition, that there is no statistical difference in the sensitivity of MIX or GRAN preparations in the detection of acute (MIX-88%/GRAN-100%) versus chronic (MIX-83%/GRAN-79%) osteomyelitis. We also feel, from many years experience, that labeling technique has an enormous impact on clinical results. Leukocyte preparations, MIX or GRAN, if produced using poor technique can result in damaged cells and false negative findings. The only method to properly ascertain viability of labeled leukocytes is radiochemotaxis using a modified Boyden chamber (*3,4*). Since the above-mentioned publications made no reference to viability using a standardized technique such as radiochemotaxis, direct comparison of labeling technique is not possible.

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