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REPLY: We thank Drs. Staudenhertz and Leitha for their comments and note their concern over our finding of a positive relationship between oxyphil cell content of parathyroid lesions and the positive uptake during the late phase of dual-phase ^{99m}Tc-sestamibi (MIBI) (*1*). We initiated our retrospective study after observing positive uptake during the first phase of the scan but not during the late phase in a patient with parathyroid adenoma in whom no oxyphil cells could be found (*2*). Admittedly, our study had some limitations, such as its retrospective design and the small number of patients included. However, we carefully performed the interpretation in a blind fashion for both the scintigraphic and the pathologic findings and assessed the late phase of ^{99m}Tc-MIBI independently from the early phase. This had not been done by other investigators (*3,4*).

The discrepancy noted by Staudenhertz and Leitha between the results of their study (*3*) and ours (*1*) is not entirely clear. In their study, no independent relationship was found between the positivity of the scan and the parathyroid oxyphil cell content using multivariate analysis that included laboratory parameters, age, sex and volume of the parathyroid adenoma. However, they did not differentiate in their analysis between positivity during the early phase versus the late phase. Although their study included more patients than ours, it is likely that it had insufficient power to allow the detection of an independent relationship with oxyphil cell content using a multivariate analysis model. In our study, the calcium levels were almost identical between patients with and without positive late-phase uptake, which is in contrast to the higher calcium levels of those patients who had a positive scan during the early phase. It is therefore unlikely that calcium levels play a role in the late retention of ^{99m}Tc-MIBI in parathyroid lesions. There is a wider concern to us as to the biologic plausibility of prolonged cellular retention of MIBI in parathyroid lesions. Currently, the presence of mitochondria-rich oxyphil cells appears to be the most plausible hypothesis, although more research must be done on this topic.

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Regarding Sentinel Lymph Node Localization in Early Breast Cancer

TO THE EDITOR: In their recent article, Gulec et al. (*1*) state that the ideal radiocolloid for sentinel lymph node biopsy (SLNB) should migrate in a reasonable time frame (0.5–1 h) in sufficient quantities to be detected by a gamma detecting probe. They also state that radiocolloid retention in sentinel lymph nodes and delay of pass-through to nonSNs should be sufficiently long to permit SLNB to be performed over a wide range of time intervals (0.5–8 h) after injection of the colloid. While we understand the desire to embrace such a definition, we have to disagree with it. Logically, the ideal radiocolloid for SLNB is one that most accurately maps physiological lymphatic drainage from the primary tumor site to draining sentinel nodes (SNs). The ideal radiocolloid will thus be one with a particle size that allows it ready entry into the lymphatic system under physiological conditions.

These "ideal" radiocolloids would have particle sizes in the 5–75 nm range. Particles > 75 nm will have only limited entry into lymphatics under physiological conditions and migrate more slowly through the lymphatic vessels. Most particles in filtered ^{99m}Tc-sulfur colloid are >75 nm in diameter; when using this tracer, there are fewer particles in the lymphatic vessels. These vessels usually are not visualized during dynamic imaging, whereas they are routinely seen using radiocolloids such as antimony sulfide or nanocolloid of albumin, both of which have the majority of their particles in the desirable size range. Visualization of the lymphatic vessels is important, because the channels can be seen draining directly into SNs. More accurate identification of SNs is thus obtained, and, therefore, small-particle radiocolloids are preferred for any lymphatic mapping procedure, including SLNB.

With smaller-particle-size colloids, more tracer might be expected to pass through SNs and lodge in second-tier nodes; however, this is not determined solely by particle size and certainly does not occur in all patients. Using ^{99m}Tc-antimony sulfide colloid, the appearance of tracer in second-tier lymph nodes correlates with the speed of movement of the tracer through the lymphatics (*2*). The higher the flow rate, the greater the likelihood that activity will be seen in second-tier nodes. Nevertheless, in many patients, antimony sulfide colloid passes to the SN and remains in this node, with no movement whatsoever to second-tier nodes over several hours.

Some second-tier activity will occur in certain circumstances with any radiocolloid, including microfiltered ^{99m}Tc-sulfur colloid,