has yet been shown to harbor a pheochromocytoma. The low predictive accuracy in malignant pheochromocytoma is a consequence of the population studied; there were very few patients in which malignant pheochromocytoma was suspected and in which a true-negative scan was obtained.

3. Figure 1 merely documents the definitions of what constitutes grades 0–3 intensity of [^{131}I]MIBG uptake and is not meant to "convince" anyone of the presence of a tumor or not. As stated in the classification criteria, the vast majority of tumors have grade 3, intense uptake (as shown in Fig. 1C). Figure 1B shows minimal uptake which might occur in some normal individuals [but which occurs with higher frequency in MEN patients with adrenal hyperplasia (*2*)] when imaged with the protocol as defined; namely, 0.5 mCi/1.7 m^2 [^{131}I] MIBG, imaging 24, 48, and 72 hr after injection with large field-of-view camera, high-energy collimator, and an image obtained for at least 100,000 cts or 20 min (*1,2*).

4. Ultrasound, in skilled hands, may be helpful in locating certain abdominal pheochromocytomas (intra- and extra-adrenal) but does not permit screening of the entire body (e.g., intra-thoracic and cervical lesions) nor does it lend itself to the location of metastatic deposits. The radionuclide bone scan may be useful in locating skeletal metastases (the commonest site of metastases) but will not reveal soft-tissue tumor deposits. However, a bone scan probably should be obtained in all patients with pheochromocytoma as part of the staging procedure (there being about a 10% chance of malignancy).

5. In general, we fully concur with the sentiments expressed in the final paragraph of Dr. Schober et al.'s letter. We must emphasize again that [^{131}I]MIBG scintigraphy is *not* a technique for the diagnosis of pheochromocytoma. Diagnosis should rest on the clinical and biochemical investigations. The location of the suspected lesion is the next step and should initially be by a noninvasive technique (e.g., [^{131}I]MIBG scintigraphy). Ultrasound may have a role if the skills are locally available, but does suffer from the limitations listed above.

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Technetium-99m DMSA Uptake by Metastatic Carcinoma of the Prostate

TO THE EDITOR: In a recent report, Lamki and Shearer (*1*) observed the visualization of bone metastases from carcinoma of the prostate after technetium-99m (^{99m}Tc) DMSA injection. They discussed some of the possible explanations for their finding such as non specific binding, the similarity between the cytosol proteins in some of malignant tumors and those found in renocortical tubules, and the metallothionein content of the tumor.

The aim of our report is to propose another possible explanation, which is the presence in the [^{99m}Tc]DMSA injected by these authors, of DMSA labeled by ^{99m}Tc of another valence. Indeed, since Lin et al. (*2*) labeled DMSA with ^{99m}Tc, many authors (*3–5*) have studied this radiomolecule and they have concluded that a mixture of various technetiated complexes could appear depending on factors such as the pH, ^{99}Tc carrier, relative concentration of the reagents, delay between the labeling and the analysis (*6*). When the DMSA is labeled with ^{99m}Tc at an alkaline pH and low concentration of $SnCl_2$, it is postulated (*7*) that the radiotracer obtained holds a pentavalent Tc core and is different from the well-known renal scanning agent. The accumulation of this tracer has been observed in some tumors (*8–11*).

Actually, we are evaluating the clinical value of this last tracer for the detection of neoplasic lesions. So far, we studied three patients with carcinoma of the prostate and we found that bone metastases visualized by [^{99m}Tc]methylene diphosphonate (Mallinckrodt Diagnostica) bone scintigraphy showed an increased uptake of [^{99m}Tc] 5 DMSA (Fig. 1).

The hypothesis that the [^{99m}Tc]DMSA used in the above-referred report contained an aliquot of [^{99m}Tc] 5 DMSA is supported by the chromatographic analysis. The thin layer chromatography (Merck Silicagel 60 in n-butanol, acetic acid,

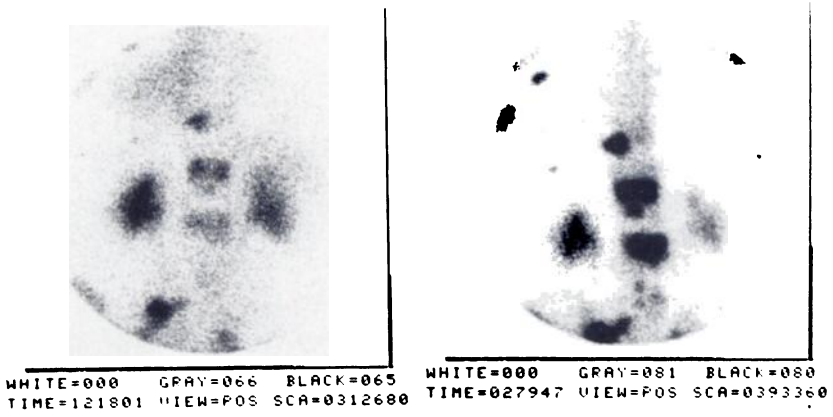

FIGURE 1
Posterior image of lumbar spine taken at 2 hr. Accumulation of [^{99m}Tc] 5 DMSA (left) in areas coinciding with [^{99m}Tc]MDP (right) skeletal lesions

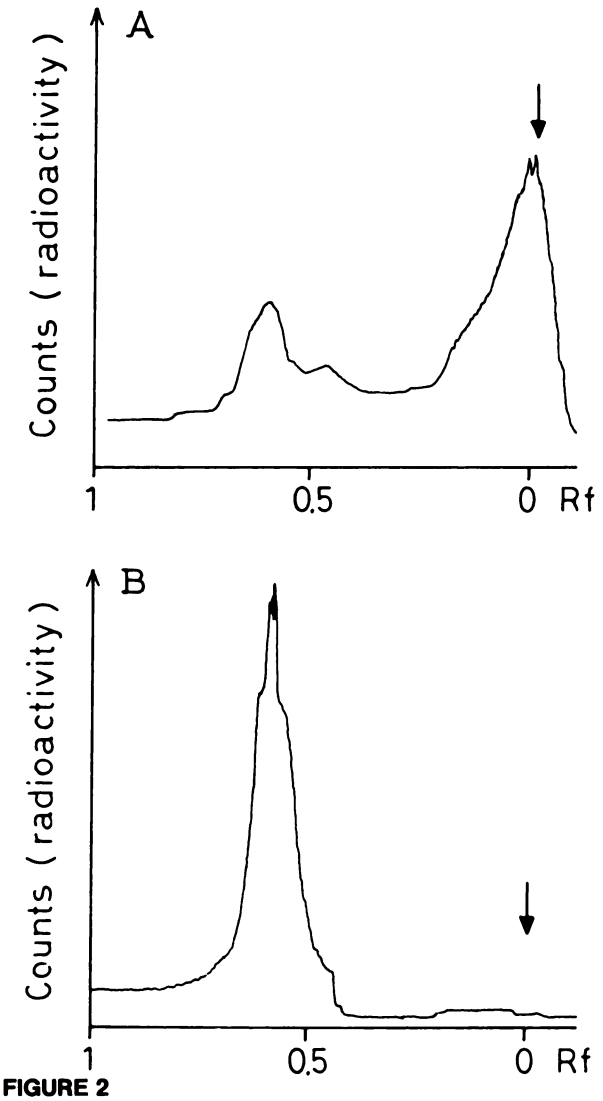

FIGURE 2
Thin layer chromatography of A: [^{99m}Tc]DMSA which remains at origin with, however, one small radioactive peak at an Rf similar to Rf of [^{99m}Tc] 5 DMSA. B: [^{99m}Tc] 5 DMSA which has an Rf between 0.4 and 0.6. Rf of ^{99m}Tc pertechnetate is between 0.7 and 0.9

H_2O 30:20:30) shows that [^{99m}Tc]DMSA (Mallinckrodt Diagnostica) remains at the origin with, however, a few more radioactive peaks, one of them having the same Rf as [^{99m}Tc] 5 DMSA which migrates at an Rf between 0.4 and 0.6 (Fig. 2)

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REPLY: We thank Dr. Jeghers and his colleagues for their suggestion. Although we did not exclude by chromatographic techniques the possibility that there was the pentavalent [^{99m}Tc] (V) DMSA in the trivalent [^{99m}Tc]DMSA we used in our case (*1*), it seems unlikely for the following reasons: (a) The pH needed for [^{99m}Tc] (V) DMSA is much higher (pH 8) than the acid pH used with labeling of the renal imaging agent, (b) the commercial kit preparation of lyophilized DMSA contains a high concentration of tin ($SnCl_2$) unlike the low amounts of $SnCl_2$ needed for the formation of [^{99m}Tc] (V) DMSA, (c) renal uptake in our patient was very high, a finding which is not characteristic of [^{99m}Tc] (V) DMSA as shown by Hata (*2*), (d) our patient showed a rapid soft-tissue clearance of the [^{99m}Tc] DMSA renal imaging agent. Typically the tissue background clearance of [^{99m}Tc] (V) DMSA is slow as evident in the work of Ohta (*3*). Dr. Jegher's image of the [^{99m}Tc] (V) DMSA also shows high background activity.

We agree that a small fraction of [^{99m}Tc] (V) DMSA accounting for tumor localization cannot be excluded; however, other possibilities exist: [^{99m}Tc]DMSA may penetrate into the nuclei and bind to the nucleic acids (*4*). Also, in renal failure or obstruction, nonspecific localization in hypervascular tumors may occur (*5*)—a possibility to be ruled out whenever a high background activity is observed.

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