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FDG PET and Tl-201 SPECT: comments
from a nuclear medicine view.**

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AJNR Am J Neuroradiol 1998, 19 (5) 811

<http://www.ajnr.org/content/19/5/811.citation>

This information is current as
of August 15, 2025.

Preoperative Grading of Gangliogliomas Using FDG PET and Tl-201 SPECT: Comments from a Nuclear Medicine View

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Gangliogliomas are rare tumors and the two papers by Patel et al and Kincaid et al along with my and other accompanying commentaries in this issue of the *American Journal of Neuroradiology* cover most of the facts a radiologist would need to know. I was invited to comment on the potential usefulness of scintigraphy (^{18}F FDG PET or ^{201}Tl -SPECT) in the evaluation of these tumors. The clinical behavior of this tumor does not appear to be directly related to the degree of its malignancy, but rather to its resectability (1). It appears, however, that if close follow up is decided in favor of resection, the degree of malignancy, if known, may be a crucial factor in determining the frequency of follow up radiologic studies. In addition, I believe that the degree of malignancy may also influence the decision for faster, if not immediate, resection. Therefore, if this information were provided by scintigraphy, at least for those tumors located in the brain, we could certainly accept its place in the original evaluation of the patient. The paper by Kincaid et al addresses this issue.

The *Preoperative Grading of Gangliogliomas Using FDG PET and Tl-201 SPECT* by Kincaid et al (page 801) is an interesting retrospective review of this unusual brain tumor. The authors reviewed 11 patients; eight were examined by FDG-PET, two by Thallium SPECT, and one by both studies. Of these 11 patients, nine had low grade and two had high grade gangliogliomas. The two malignant tumors were visible on Thallium scans; however, none of the patients with high grade tumors were examined by PET scans. On the other hand, all the PET studies done in patients with low grade tumors were true negatives, but only one patient with a low grade tumor was examined by a Thallium scan. Given these numbers, I cannot agree with the authors that FDG-PET or Thallium is 100% correct. These are *different* tests that cannot be combined to give the misleading interpretation of 100%.

We can accept that all the low grade tumors had negative FDG, but we do not know what the high grade ones might have been if they had been studied with this radiopharmaceutical. Therefore we cannot conclude at this point that PET can confirm the presence of a low grade but not a high grade tumor because no cases of high grade tumors were studied. On the other hand, the two high grade tumors were visible on Thallium studies, but only one low grade tumor was scanned with Thallium. This is not a sufficient sample to prove that Thallium can indeed confirm that a malignant ganglioglioma is present rather than a benign tumor.

It is understandable that the authors extrapolated their partial findings based on previous experience and publications with various types of tumors that indicated Tl and FDG can show the difference between high and low grade tumors (2). It remains to be proven, however, that this prediction is correct by further experience in the authors' center or in other institutions. It is necessary to see some true positive FDG studies in malignant gangliogliomas and several true negative Tl studies in benign gangliogliomas before we can agree with Kincaid et al that scintigraphy with either FDG or Thallium is 100% sensitive and specific in differentiating benign from malignant gangliogliomas. For the present time, it is a promising technique worth further evaluation.

References

1. Hamburger C, Buttner A, Weis S. **Ganglioglioma of the spinal cord: Report of two cases and review of the literature.** *Neurosurgery* 1997;41:1410-1416
2. Ruiz A, Ganz WI, Post JD, Camp A, Landy H, Mallin W, Sfakianakis GN. **Use of Thallium-201 brain SPECT to differentiate cerebral lymphoma from toxoplasma encephalitis in AIDS patients.** *American Journal of Neuroradiology* 1994;15:1885-1894

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