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REPLY: We welcome the comments of Dr. Wahl, whose note of caution is appropriate and important. Clinically, with the use of appropriately fractionated doses, hepatic and renal tissue tolerate doses of ~2000 rad (*1,2*). The response of melanoma to radiation is variable (*3*); some tumors respond favorably to doses as low as 1400 rad while others demonstrate resistance to doses as high as 6000 rad. The reason for this discrepancy is not clear; it may be related to tumor size (hypoxia), degree of dose fractionation, or individual cell sensitivity to radiation. Obviously, hepatic and renal problems are less important in patients with relatively radiosensitive tumors.

We agree with Dr. Wahl on the importance of recognizing the *relative* radiation sensitivity of the liver and kidney, and we stressed the need for improved methods of labeling and/or purification to lower the radiation dose to these organs. Until this is accomplished, the palladium-109-labeled antibodies reported in the manuscript would be of value only in treating the patient with a radiosensitive melanoma. The results, however, do demonstrate the feasibility of this approach for radiotherapy. A similar labeling approach should be able to be used to produce antibodies against other tumors with greater sensitivity to radiation and greater margins of safety with respect to hepatic and renal radiation exposure.

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Selection of Energy Windows for the NEMA Standard Specifications

TO THE EDITOR: Over the last several years our group at the University of Washington has had the opportunity to conduct a variety of test procedures on a large number of scintillation cameras. More recently, in conjunction with a portable computer system being developed for the National Center for Devices and Radiological Health (FDA contract #223-80-6004), we have applied the National Electrical Manufacturers Association (NEMA) standard specification procedures (*1*) to over 30 scintillation cameras. After analyzing the data obtained from these cameras, we are convinced that the current recommended pulse height analyzer window setting of 20% (or the proposed change to a 15% window setting that is under consideration) does not reflect optimal performance of any given camera. We have noticed a wide range of energy resolution in the cameras we have measured and while testing some of the cameras, we repeated the NEMA standard specifications with a full width at half maximum (FWHM) energy window. Selecting a FWHM window is based both on the early work in rectilinear scanners which indicated that a FWHM window presented a good compromise between sensitivity and scatter rejection and on the notion that a FWHM energy window results in all cameras accepting approximately the same percentage of the unscattered photopeak events. A camera with a better energy resolution can certainly be operated with a narrower window providing better scatter rejection and essentially no loss in image information. A 20% energy window becomes even less appealing when measuring a modern scintillation camera since many of the instruments currently in production provide energy resolution on the order of 10% at FWHM. Therefore, we suggest changing the pulse height analyzer window setting in the NEMA standard test procedures to the FWHM in order to provide a more objective measurement of the imaging performance of modern scintillation cameras.

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Brain Scan: A Useful Tool in Detection of Neurosyphilis

TO THE EDITOR: Recent statistics from the Centers for Disease Control, Atlanta, reflect an increase in cases of primary syphilis, the incidence having risen by more than 25% between 1979 and 1981 (*1*). In Finland, since 1966, the annual incidence of early syphilis has been a steady increase at about four cases per 100,000 (*2*). Because of the extensive preventive measures and the use of antibiotics (*3*), clinical neurosyphilis is seldom seen today. As a result, atypical forms become more common and physicians have forgotten that the disease still exists (*2*). Acute meningovascular syphilis constitute 1–2% of cases of symptomatic neurosyphilis (*1*). Angiographic and computerized tomographic (CT) findings have already been described (*1,3–9*). To our knowledge, scintigraphic changes of meningovascular syphilis have not been reported before. We present a case of meningovascular syphilis with positive brain scan and CT correlation.

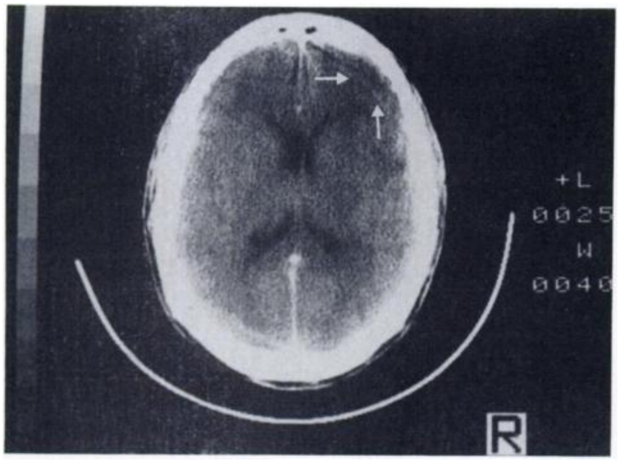

FIGURE 1
CT scan without infusion: Hypodense lesion of white matter in right frontal lobe

A 28-yr-old white male was referred because of a 3-mo history of left unilateral headache and intermittent paresthesia of his mouth and left hand. Neurologic examination showed decreased right plantar cutaneous reflexes. Because of a previous history of treated primary syphilis 5 mo earlier (a papular rash of the palms of the hands and feet, and positive VDRL), a complete workup was done. VDRL remained positive (1/128). On examination of cerebrospinal fluid (CSF), glucose (39 mg/dl) was decreased and proteins (228 mg/dl) increased, chloride (690 mg/dl) was normal. There were 49 white blood cells/mm^3 (five neutro, 44 lympho) and 46 red blood cells/mm^3. Computerized tomographic scan without infusion found a hypodense lesion of the white matter in the right frontal lobe, suggestive of a small vascular infarct (Fig. 1). Brain scan showed abnormal parasagittal, frontal uptake suggestive of cortical or meningeal vascular involvement (Fig. 2). The patient was treated for neurosyphilis and a follow-up brain scan 1 mo later was normal.

Invasion of the central nervous system occurs early and frequently during the course of the disease (4 to 6 mo after infection) (*1*). Neurologic symptoms appear a few months to 12 yr after the primary infection (*10*). About 20% of patients with secondary neurosyphilis will show abnormalities of their CSF with an increase in the number of lymphocytes and in the total protein count, and serologic findings will be abnormal.

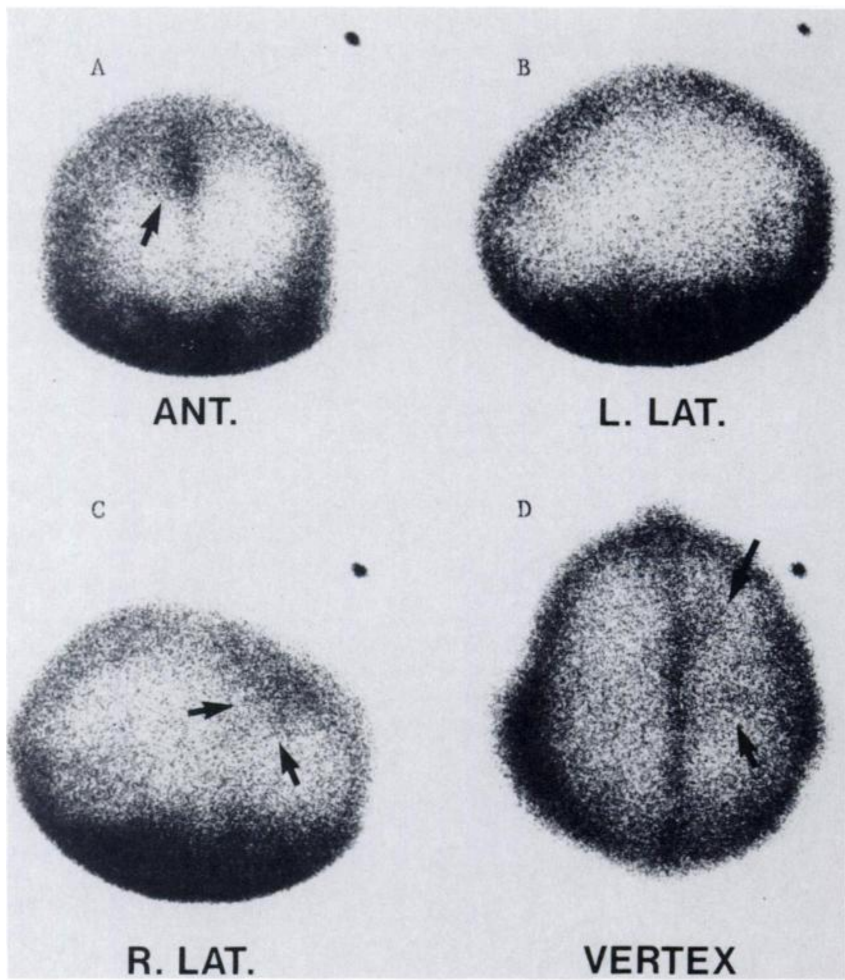

FIGURE 2
Technetium-99m glucoheptonate brain scan demonstrating abnormal, right frontal uptake. A: Anterior view; B: Left lateral view; C: Right lateral view; D: Vertex view

Yet only a few of these patients will develop signs and symptoms of acute meningitis (*3*), usually occuring in those who present maculopapular skin eruptions.

Neurosyphilis appears principally as a basilar meningitis with typical manifestations of headache, stiffness of the neck, and impairment of the third, fourth, sixth, seventh, and eight cranial nerves (ptosis of the eyelids, diplopia, facial paralysis, tinnitus, vertigo, and deafness) (*3*). Male to female ratio with neurosyphilis was 2.5:1.0. The overrepresentation of men may mean that infectious syphilis occurs most frequently in male homosexuals (*2*). Another important point is that 50–60% of patients could not remember when they had an initial infection (*2,11*).

The pathology of meningovascular syphilis has both diffuse and focal features that explain the clinical aspects of a diffuse encephalitic syndrome with superimpose focal signs. In general, there is a diffuse thickening and lymphocytic infiltration of the meninges and the perivascular spaces. Heubner's endarteritis is the most common pathologic finding. The large and medium sized vessels show fibroblastic and collagenous thickening of the intima and thinning of the media. Excess fibrous tissue is found in the adventitia along with lymphocytic and plasma cell infiltration. Areas of decreased density on CT scan may correspond to ischemic infarctions in vascular territories (*5,6,10*). Abnormal uptake seen on brain scan reflects changes in blood-brain barrier secondary to focal inflammatory involvement of the lepto-meninges and/or cortical ischemic vascular insult secondary to syphilitic endarteritis.

This case reminds us that the brain scan is a very sensitive test in detecting inflammatory processes, and when suggestive of a focal meningovascular involvement in a young patient, we should always keep in mind the possible diagnosis of neurosyphilis.

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Scintiangiography of Bypass Grafts

TO THE EDITOR: In their recent paper Shapiro et al. (*1*) state that they are "not aware of the prior use of scintigraphic procedures in evaluating axillofemoral shunts." My colleagues and I have previously reported the use of scintigraphic techniques for the evaluation of a wide spectrum of vascular trauma, vascular disease, and vascular reconstructive procedures. These reports include illustrations of scintiangiograms obtained in patients with axillofemoral (*2,3*) and femorofemoral (*3,4*) bypass grafts. Workers desirous of utilizing scintiangiography for evaluation of axillofemoral and femorofemoral bypass grafts will find details of methodology and interpretation in these reports.

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