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NEWS

RSNA Press Release

Incidental PET Findings May Reveal Undetected Cancer

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At A Glance

- Incidental positron emission tomography (PET) findings in cancer patients can indicate new malignancies.
- Ninety-two percent of cancerous and precancerous growths found incidentally with PET in a recent study were asymptomatic.
- Follow-up is crucial when PET reveals unsuspected abnormalities.
- PET is rapidly gaining popularity for tumor evaluation and management.

OAK BROOK, Ill. - Incidental abnormalities detected in cancer patients by radiologists using positron emission tomography (PET) may signal new, unrelated malignancies, according to a study appearing in the February issue of the journal *Radiology*.

"The unexpected abnormalities we followed up on were significant," said the study's lead author, Harry Agress Jr., M.D., who is director of nuclear medicine at Hackensack University Medical Center's PET center. "Approximately 71 percent of the lesions that were confirmed with biopsy were either malignant or premalignant. Typically, these cancers were not symptomatic and were unrelated to the primary cancer for which the scan was performed."

The researchers evaluated 1,750 PET scans of known or suspected cancers to determine the importance and malignant potential of additional, unexpected abnormal findings encountered during routine PET evaluation. They identified 58 abnormalities in 53 patients. Most abnormalities were found in the colon, while others were located in the breast, fallopian tube, uterus, gallbladder, larynx, ovary, bone and thyroid.

Forty-five abnormalities were further evaluated with additional computed tomography (CT), magnetic resonance imaging and/or mammography, and 42 were subsequently biopsied. Thirty (71 percent) of the biopsied abnormalities were either malignant or premalignant tumors that were unrelated to the primary tumor already under study.

Follow-up is crucial when the PET evaluation reveals incidental findings. "If we had not pursued the abnormalities disclosed by PET, these patients would only have been treated for their known cancer while another malignancy remained undiagnosed." Dr. Agress said. "Patients reported no symptoms in 92 percent of the incidental findings that we confirmed, and the other 8 percent were symptomatic only in retrospect or had been unsuccessfully

worked up for symptoms prior to the PET scan."

For instance, in one patient with a lung nodule that was proven benign, an incidental PET abnormality was noted in the breast. In a follow-up mammogram and ultrasound with specific attention to the area of PET abnormality, a subtle cancer was identified and proven by biopsy. "If the patient had not received follow-up," Dr. Agress said, "her cancer could have gone undetected until at some time it may have become larger or possibly spread."

Nine abnormalities were benign and three findings were false positives. Of the nine benign lesions, three were considered clinically important due to the potential for local destruction, systemic effects or asymptomatic infection, subsequently requiring surgery or medical therapy.

PET, which identifies areas of abnormal chemical and metabolic action, is rapidly gaining popularity for tumor evaluation and management. According to Dr. Agress, unexpected abnormalities are found with PET because the scans include the entire body, and because PET can frequently identify metabolically active lesions that may not be easily identified as anatomic abnormalities on CT. Abnormal findings on a PET scan can arise from cancer, inflammation or infection. He cautions that PET identifies certain cancers but does not detect all tumors.

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"Detection of Clinically Unexpected Malignant and Premalignant Tumors with Whole-Body FDG PET: Histopathologic Comparison." Benjamin Z. Cooper, M.D., collaborated with Dr. Agress on this study.

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