

The added benefit of a dedicated neck F-18 FDG PET-CT imaging protocol in patients with suspected recurrent differentiated thyroid carcinoma

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Purpose

To retrospectively analyze whether adding a delayed high-resolution dedicated neck F-18 FDG positron emission tomography-computerized tomographic (PET-CT) imaging protocol in patients with recurrent differentiated thyroid cancer increases the number of abnormal foci within the neck.

Materials and Methods

Seventeen PET-CT studies from a total of 10 patients with suspected recurrent differentiated thyroid cancer between March 2003 and June 2004 were retrospectively reviewed. Each study included a whole body acquisition (WBA), followed by higher resolution dedicated neck acquisition (DNA). Two board-certified nuclear medicine physicians reviewed either the DNA or WBA for each study and recorded the number of abnormal foci, along with presence or absence of a soft tissue abnormality, and maximum standardized uptake value for each foci. Consensus review was used for all discrepancies. Statistical analysis was performed to determine whether there was a statistically significant increase in the number of studies demonstrating new abnormal foci with the addition of a DNA.

Results

Five of 17 studies demonstrated an increase in the number of abnormal foci with the addition of the DNA ($P < 0.04$). A total of 8 abnormal foci were noted on the WBA, 4 of which were within the neck. Eleven additional abnormal foci were seen on the DNA. All abnormal foci within the neck had corresponding soft tissue abnormalities except for one.

Conclusion

Adding a higher resolution delayed DNA to the WBA for patients undergoing PET-CT imaging to detect recurrent thyroid cancer increases the number of abnormal sites of FDG accumulation.