

The value of SPECT/CT ^{99m}Tc -Sestamibi Scintigraphy in the Diagnosis of Ectopic Parathyroid Adenoma

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With the advent of fused single-photon emission computed tomography/computed tomography imaging, areas of scintigraphic abnormality can be immediately and unequivocally anatomically localized. We present a case of a 62 year old woman with hypercalcemia and high parathyroid hormone blood levels in whom SPECT/CT ^{99m}Tc -sestamibi scintigraphy (MIBI) images provided information beyond what was available from the planar images in presurgical localization of an ectopic parathyroid adenoma.

Aberrant migration during development may lead to ectopic locations of parathyroid glands. Ectopic locations include the carotid sheath, anterior mediastinum, retropharynx or intrathyroidal locations. SPECT-CT offers the advantage of combining function and anatomy for exact localization and contributes to planning the surgical exploration predominantly in patients with ectopic parathyroid adenomas or who had distorted neck anatomy after previous neck surgery [1,2].

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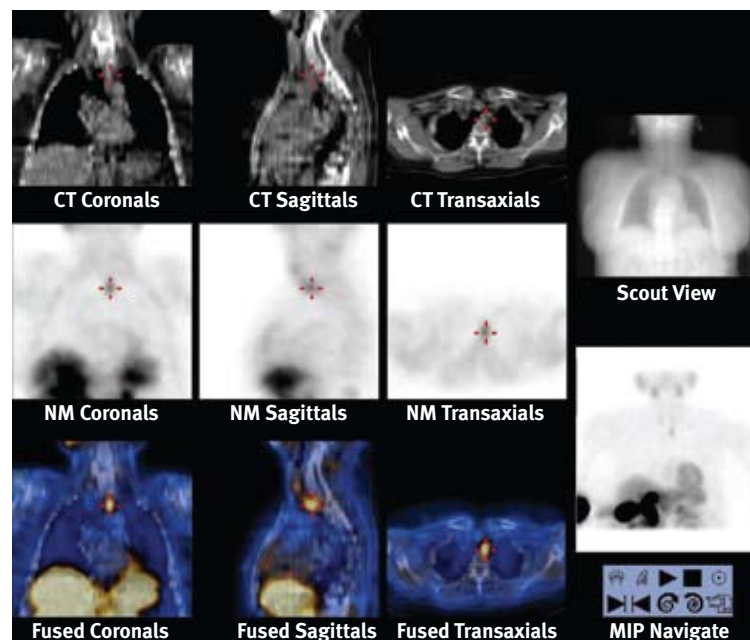
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SPECT/CT = single-photon emission computed tomography/computed tomography

Figure 1. Anterior planar images of the neck and chest were obtained 5 minutes [A] and 180 minutes [B] after the administration of 740 MBq (20 mCi) of MIBI using a high resolution low energy parallel-hole collimator. A focus of abnormal uptake below the lower pole of the left thyroid lobe was identified.



Figure 2. SPECT/CT images were acquired 60 minutes after injection, using a large field-of-view dual-detector gamma-camera with a mounted CT scanner (Hawkeye; General Electric Medical Systems, USA). SPECT and CT images of the same area were obtained over a 360° arc, using 120 frames at 23 sec per frame and 3° angles. An abnormal focus of uptake in a small nodule in the left front of the first thoracic vertebral body (arrow) was found.



References

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