

THYROID NODULES THE DARK HORSE OF PARATHYROID IMAGING

Ntanganedzeni Muambadzi, L Louw and MDTHW Vangu

Chris Hani Baragwanath Academic Hospital, University of the Witwatersrand

Background: Pre-operative localization of hyperfunctioning parathyroid lesions with dual phase ^{99m}Tc -Sestamibi imaging is a reliable and accurate method, with variable, but high reported sensitivity and specificity for single adenomas. The most common cause of a false positive finding is co-existent nodular thyroid disease. Other causes of false positive findings include the presence of thyroid carcinoma, parathyroid carcinoma, lymphadenopathy, sarcoidosis and other tumours. In order to plan the optimal surgical approach and minimize patient morbidity, it is of vital importance to minimize false positive reports.

Aim: To demonstrate the importance of combined ^{99m}Tc -sestamibi and ^{99m}Tc -pertechnetate thyroid imaging in the pre-operative localization of suspected parathyroid lesions.

Methodology: We present a female patient, aged 38 years, with primary hyperparathyroidism. She was referred to the nuclear medicine department for pre-operative localization of parathyroid adenoma with ^{99m}Tc -sestamibi scan.

Results: On the early images of the dual phase ^{99m}Tc -Sestamibi scan focal tracer accumulation was seen in the superior pole of the left thyroid lobe, which increased in intensity on the delayed images. Single photon emission computed tomography (SPECT) reconstructed images confirmed the location within the left thyroid lobe. Subsequent ^{99m}Tc -pertechnetate thyroid images demonstrated a hot nodule in the superior pole of the left thyroid lobe; in the same location as seen on the ^{99m}Tc -sestamibi scan. The patient was referred for a thyroid ultrasound, which confirmed a benign spongiform nodule in the same location. No suspicious parathyroid lesions were seen on ultrasound. Thyroid function tests revealed subclinical hyperthyroidism.

Conclusion: Coexisting solid thyroid nodules may contribute to false positive localization of parathyroid lesion. Furthermore, the intensity of uptake in these thyroid nodules can potentially result in failure to visualize and locate the suspected hyperfunctioning parathyroid lesion. Dual tracer imaging with ^{99m}Tc -sestamibi and ^{99m}Tc -pertechnetate should always be considered in cases with apparent intrathyroidal tracer accumulation on ^{99m}Tc -sestamibi scan to increase the specificity by minimizing false positive findings. The highest sensitivity and specificity for accurate parathyroid lesion localization will be achieved by the combination of dual tracer subtraction and thyroid ultrasound. These instructions give you guidelines for preparing papers.

nmuambadzi@yahoo.com