

3D 電腦斷層結合核子醫學掃描：一種加強準確定位副甲狀腺瘤的工具

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Three-Dimensional Metabolic and Radiologic Gathered Evaluation: A Novel Tool to Enhance Accuracy in the Localization of Parathyroid Adenomas

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Purpose:

The aim of this study was to assess the accuracy of a novel imaging modality 3 D-Computed-tomography together with 99mTc-sestamibi single emission computed tomography (MIBI-SPECT) image fusion allows virtual exploration of the neck in patients with primary hyperparathyroidism.

Materials and Methods:

Consecutive patient presenting with primary hyperparathyroidism who underwent both thin-slice cervical Computed-tomography (CT) and 99mTc-sestamibi scanning were included. 3D-CT reconstruction was obtained using VR-RENDER, which was used to performed 3D virtual neck exploration . The MIBI scan was then fused with the 3D –CT reconstruction. Sensitivity, specificity and accuracy were assessed. The predicted position were correlated with the intraoperative findings and pathology.

Results:

3D CT-MIBI-SPECT image fusion was able to predict the exact position of the abnormal glands in 9 (90% of the patients); 10 patients underwent minimally invasive surgery, namely in 9 patients with unilaterally focused approach and in 1 patient with a bilateral approach (two of these underwent simultaneous thyroid resection). Sensitivity for 3D-CT-MIBI-SPECT image fusion was 90%, specificity for 3D CT-MIBI-SPECT image fusion was 100%. Overall accuracy for 3D-CT-MIBI-SPECT image fusion was 90%.

Conclusion:

3D-CT-MIBI-SPECT showed easy to understand the exactly location of abnormal parathyroid glands and high accuracy for localization of parathyroid adenomas.