

POSTER 53

COMPARISON OF DIFFERENT STRATEGIES IN PARATHYROID SCINTIGRAPHY IMAGING

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Purpose: To retrospectively compare the various scintigraphic methods to discover the most accurate protocol for preoperative localization of single-gland disease.

Materials and Methods: Medical records of 710 patients, diagnosed with primary were reviewed. 293 patients had complete preoperative parathyroid scintigraphy with subsequent surgical resection of a single abnormal gland. Parathyroid scintigraphy at our institution utilizes ^{99m}Tc sestamibi (MIBI) and ^{123}I , and consists of early and delayed pinhole MIBI images of the neck, including MIBI- ^{123}I subtraction imaging, as well as MIBI single photon emission computed tomography (SPECT) of the neck and chest. Four experienced nuclear medicine physicians, without knowledge of clinical or laboratory results or final diagnosis, reviewed seven different imaging variations in separate sessions. The imaging variations were early MIBI only (EARLY), delayed MIBI only (DELAYED), comparison of early and delayed MIBI (E-D), subtraction (SUB), all planar (PLANAR), SPECT only (SPECT), and all images (ALL).

Results: The accuracy of ALL imaging for correct localization of the abnormal parathyroid gland was 96%, 93%, 94%, and 94% for each reader. For all four readers, the accuracy of E-D, SUB, and PLANAR imaging in diagnosing the correct location of the abnormal parathyroid was not statistically significant from ALL. For all readers, the accuracy of ALL was significantly better than DELAYED and SPECT ($P < 0.001$). Accuracy of ALL was significantly better than EARLY for 3 out of 4 readers ($P < 0.05$).

Conclusion: Reviewing pinhole E-D, SUB, and PLANAR images is as accurate as ALL images for localizing the offending gland in SGD.