

## POSTER 56

**COMPARISON OF DIFFERENT STRATEGIES IN PARATHYROID SCINTIGRAPHY IMAGING IN THE SETTING OF MULTI-GLAND HYPERPARATHYROIDISM**

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Medical records of 140 patients, diagnosed with multigland primary, secondary or tertiary hyperparathyroidism were reviewed. Of those, 56 patients had complete preoperative parathyroid scintigraphy with subsequent surgical resection of abnormal glands. Parathyroid scintigraphy at our institution utilizes  $^{99m}\text{Tc}$  sestamibi (MIBI) and  $^{123}\text{I}$ , and consists of early and delayed pinhole MIBI images of the neck, MIBI- $^{123}\text{I}$  subtraction imaging, and MIBI single photon computed tomography (SPECT). Four experienced nuclear medicine physician, 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). The location of the abnormal parathyroid glands was recorded and compared with the embryologic designation of the abnormal glands assigned at the time of surgery.

**Results:** A total of 159 parathyroid lesions were removed from the 56 patients. The accuracy of ALL imaging for correct localization of the abnormal parathyroid gland was 86%, 76%, 76%, and 76% for each reader. For all four readers, the accuracy of Early, Delayed, E-D, SUB, SPECT and PLANAR imaging in diagnosing the correct location of the abnormal parathyroid was not statistically significant from ALL.

**Conclusion:** Reviewing pinhole Early, Delayed, E-D, SUB, SPECT and PLANAR images is as accurate as ALL images for localizing the offending glands in multi-gland disease.