Sensitivity of preoperative imaging modalities in diagnosing parathyroid adenoma: 2 year results within a single surgical centre

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Background:

Primary hyperparathyroidism is routinely investigated with sonography and technetium tc 99m sestamibi single-photon emission computed tomography (SPECT), to facilitate localisation.

Additional imaging was arranged in cases with two negative scans.

Objectives:

To evaluate the diagnostic accuracy of various imaging modalities for parathyroid adenoma localisation.

Methods:

Retrospective correlation of imaging and pathology reports for all patients with primary hyperparathyroidism patients who underwent parathyroidectomy in a single surgical centre.

Results:

48 operations were performed over a two year period. All patients had sonography and SPECT imaging.

Sensitivity for localising parathyroid adenoma was 89% for sonography and 60% for SPECT.

Sonography positively identified multi-gland disease in our only patient with bilateral adenomas.

2 patients with negative sonography had disease identified on SPECT.

Some patients had additional triple-phase CT (N=15), PET-CT (N=4) or MRI (N=4). Sensitivity was 40%, 50% and 0% respectively.

Conclusions:

Sonography, performed by a designated head and neck radiologist, should be considered the principal localisation study in primary hyperparathyroidism.

At our centre, SPECT, PET-CT, MRI and triple-phase CT were shown to be less reliable.

References:

Usefulness of the combination of ultrasonography and 99mTc-sestamibi scintigraphy in the preoperative evaluation of uremic secondary hyperparathyroidism. [Vulpio C1](#), [Bossola M](#), [De Gaetano A](#), et al. Head Neck. 2010 Sep;32(9):1226-35. doi: 10.1002/hed.21320.

Localization of parathyroid adenomas by sonography and technetium tc 99m sestamibi single-photon emission computed tomography before minimally invasive parathyroidectomy: are both studies really needed? [Tublin ME](#), [Pryma DA](#), [Yim JH](#), et al. J Ultrasound Med. 2009 Feb;28(2):183-90.

Parathyroid adenoma screening efficacies of different imaging tools and factors affecting the success rates. [Cakal E](#), [Cakir E](#), [Dilli A](#), et al. Clin Imaging. 2012 Nov-Dec;36(6):688-94. doi: 10.1016/j.clinimag.2012.01.038.