

# Combined Sestamibi SPECT and Ultrasound improves adenoma localisation in patients with primary hyperparathyroidism

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## Introduction

- Preoperative adenoma localisation in PHPT may help to minimise intraoperative risk and improve surgical outcomes
- However optimal localisation approach remains subject of debate

## Aim

- To assess the accuracy single and multi-modality imaging on both the correct identification of adenoma location and on the time required for successful excision

## Methodology

- All PHPT patients who underwent successful central neck exploration at our institution between 2010 and 2018, were retrospectively reviewed
- We compared the accuracy of combined Sestamibi SPECT and US imaging, with the individual accuracy of these modalities against a surgical gold standard
- We then assessed the effect of imaging results on operative time
- The gold standard was defined by post-operative histological confirmation of adenoma.
- Accuracy of imaging was defined as correct identification of adenoma location regarding primary site (left/right) and secondary site (upper/middle/lower) of the neck
- 232 patients met inclusion criteria

## Results

Figure 1: Table showing data on USS, SSPECT and combined imaging accuracy

	USS	SSPECT	Combined
Primary site	59.9%	69.8%	85.3%
Secondary site	53.9%	60.3%	78.0%

Figure 2: Table showing the effect of imaging results on operative time

	Primary Site	Secondary Site
USS + SSPECT	-17 mins (p=0.020)	-19 mins (p=0.046)

## Conclusions

- Our results suggest that combined Sestamibi SPECT and US imaging in pre-operative adenoma localisation is superior to the use of single-modality imaging
- Operative time is significantly shorter when agreement between modalities is established
- Therefore we advocate the use of this approach for the localisation of adenoma in PHPT

## Summary

- 232 PHPT patients
- Retrospective study
- SSPECT > USS
- SSPECT + USS = most effective
- Combined imaging approach reduces operative time
- Positive outcomes for patient risk and theatre capacity