

# The diagnostic value of parathyroid hormone washout after fine-needle aspiration in patients with primary hyperparathyroidism

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## Introduction

- Commonly used pre-operative methods (ultrasonography and sestamibi scan) to localize the culprit parathyroid gland(s) in patients with primary hyperparathyroidism (PHPT), frequently yield false positive or false negative results
- Parathyroid hormone (PTH) washout after fine-needle aspiration (FNA) may allow for a targeted surgical approach.

## Aims

The aim of this study was to test the diagnostic value of preoperative PTH washout after FNA in PHPT patients.

## Methods/design

- Retrospective study conducted at the department of Endocrinology in Hippokration General Hospital (Thessaloniki, Greece), a tertiary referral centre for endocrinology and diabetes.
- Ultrasound-guided FNA was performed if a structure compatible with a parathyroid adenoma was found on cervical ultrasound.
- A PTH washout cut-off value was considered diagnostic if it was higher than the concomitant serum PTH value.

## Results

- 29 patients [2 (6.8%) males, mean age 58.6 ± 9.1 years] were included.
- A single adenoma was identified in 26 (89.7%) patients and a double adenoma in 1 (3.4%).
- 2 (6.9%) patients were harbouring an ectopic parathyroid adenoma (upper mediastinal and intrathyroid).
- 24 patients (82.7%) had elevated PTH washout concentrations
- In 10 out of 12 patients with a negative sestamibi scan, the PTH washout yielded a truly positive result.

Variable	Mean values	Reference range
Pre-operative PTH (pg/mL)	194.2 ± 176.8	10-53
Pre-operative total serum calcium (mg/dL)	11.5 ± 1.4	8.8-10.6
Pre-operative 25(OH)D (ng/mL)	24.1 ± 20.5	>30 (sufficiency)
Post-operative PTH	45.9 ± 26.3	10-53
Post-operative total serum calcium	9.04 ± 0.7	8.8-10.6
PTH washout	2009.5 ± 1417.6	>upper serum levels

Diagnostic value of PTH-washout	
True positive	24
True negative	4
Sensitivity	85.7%
Specificity	100%
Positive predictive value	100%

## Conclusions

Elevated PTH washout concentrations after ultrasound-guided FNA is an highly accurate diagnostic tool in identifying parathyroid adenomas and guiding parathyroid surgery.

## References

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