

Cevdet AYDIN¹, Sefika Burcak POLAT¹, Fatma Dilek DELLAL¹, Cafer KAYA¹, Seyda TURKOLMEZ², Mehmet KILIC³, Reyhan ERSOY¹, Bekir CAKIR¹

¹Yildirim Beyazıt University, Ataturk Education and Research Hospital, Endocrinology and Metabolism Department, Ankara, Turkey

²Yildirim Beyazıt University, Ataturk Education and Research Hospital, Nuclear Medicine Department

³Yildirim Beyazıt University, Ataturk Education and Research Hospital, General Surgery Department

OBJECTIVES

- Primary Hyperparathyroidism (pHPT) is a common endocrine disease mainly caused by single or multiple hyperfunctioning parathyroid lesions.
- The identification of hyperfunctioning gland is an important step to plan surgery, which represents the definitive therapeutic approach of pHPT
- In 2% to 7% of cases, surgery is not curative at first operation and reoperation is required.
- Ultrasonography and sestamibi scan are the most widely used methods for identification of the culprit parathyroid gland
- MIBI scan is able to localize the adenoma in pHPT patients with high sensitivity (71–93%) and specificity (90%) and, for this reason, it has been used as the technique of choice to guide minimal invasive surgery.
- However, small dimension of the adenoma, oxyphil cell content, and various degree of apoptosis or necrosis may reduce MIBI uptake causing false negative results.
- In addition to that, MIBI retention is not parathyroid specific and is also observed in hypermetabolic thyroid nodules (TNs) such as oncocytic tumors and autonomous thyroid adenomas that can cause false positive results.
- Herein we aimed to search the diagnostic value of measurement of parathyroid hormone (PTH) concentration in the needle washout of suspicious lesions suggestive for parathyroid adenoma with negative or unequivocal MIBI results.

METHODS

- Our endocrine database was searched retrospectively for the patients with PHPT who underwent PTH washout.
- There were 100 lesions of 70 patients. Among them, 21 lesions in 16 patients were operated and data of these lesions were analyzed.

- All patients had at least one suspicious parathyroid lesion detected by ultrasonography and all patients were evaluated by 99mTc-MIBI.

Table 1. Demographic and clinical data of the patients

Female / Male (%)	%87.5/12.5
Mean age (years)	53.3±10.6
Preoperative mean Ca (mg/dl)	11.04±0.33
Preoperative median PTH (pg/ml)	140 (min-max: 55 - 371)
Median PTH washout (pg/ml)	3316 (min-max:13-5000)

RESULTS

- The mean age of the patients was 53.3±10.6 years with the majority of them being female (87.5%).
- The mean preoperative serum calcium level was 11.04±0.33 mg/dl.
- The median serum PTH level was 140 pg/ml (ranging from 55 to 371) and the median serum PTH washout level was 3316 pg/ml ranging from (13 to 5000).
- Preoperatively 99mTc-MIBI scan was negative or unequivocal in 15 of 21 operated lesions while it was positive in 6.
- For the lesions that the MIBI failed to localize, the sensitivity of PTH washout was 91% and the specificity was 66%.

CONCLUSION

- PTH washouts can contribute significantly in establishing the parathyroid nature of cervical lesions that has conflicting preoperative sestamibi results and also might help the surgeon to perform a more successful operation.

