



# Sensitivity of localization studies performed by various radiologists whom are not precisely experienced in the evaluation parathyroid lesions

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## Objectives

- Preoperatif imaging studies are being commonly used in primary hyperparathyroid patients to increase cure rate of surgery.
- In this study we aimed to correlate the surgical outcomes with localization studies which performed by various radiologists.

Table 1. Results of preoperative localization studies

Test Result	USG (n:155)	MIBI (n:167)
True positive	74	108
False positive	6	8
False negative	87	65
Sensitivity	45.9	62.4
Spesifity	95.9	95

## Methods and Results

- A total of 189 patients with preoperative diagnosis primary hyperparathyroidism were included to the study (162 females, 27 males). In our study the patients' mean age were  $53.2 \pm 12.2$  years.
- Preoperative laboratuary findings mean calcium level was  $11.5 \pm 1.0$  mg/dL (10.2-18.5), parathormone (PTH) level was  $414 \pm 527$  pg/mL.
- A total of 174 patients with primary hyperparathyroidism in which healing of hypercalcemia achieved by parathyroidectomy were evaluated retrospectively. A total of 184 lesions were excised from 174 patients. USG and MIBI localization studies matched in 74 and 108 patients, respectively.
- We calculated very similar results for spesificity of USG and MIBI %95.9 and %95. But sensitivity results were really far from satisfaction with %45.9 for USG and %62.4 for MIBI.
- In our study the size of the glands was not significantly associated with the detection rate of either MIBI parathyroid scintigraphy or ultrasonography in localizing the enlarged parathyroid gland.
- Preoperative serum PTH, calcium levels and 24 hours urine calcium levels showed no significant differences between scintigraphy-positive and -negative and ultrasonography positive and negative patients.

Table 2. Comparison of data in patients with positive and negative USG-MIBI results

Variables	P	USG N	p-values	P	MIBI N	p-values
Gender (M/F)	12/61	14/87	NS	18/87	8/61	NS
Age (years)	$51.9 \pm 12.3$	$53.4 \pm 12.2$	NS	$52.6 \pm 12.0$	$53.0 \pm 12.6$	NS
PTH	$436.6 \pm 448.2$	$342.4 \pm 375.9$	NS	$391 \pm 375$	$367 \pm 458$	NS
Ca	$11.6 \pm 1.2$	$11.3 \pm 1.0$	NS	$11.5 \pm 1.18$	$11.2 \pm 0.92$	NS
P	$2.39 \pm 0.66$	$2.54 \pm 0.53$	NS	$2.41 \pm 0.59$	$2.57 \pm 0.58$	NS
24 h U Ca (n:104)	$386 \pm 196$	$350 \pm 302$	NS	$387 \pm 217$	$333 \pm 320$	NS
Size (mm)	$22.3 \pm 11.1$	$20.3 \pm 9.3$	NS	$22.1 \pm 10.6$	$19.7 \pm 9.1$	NS

NS: Non-significant (p>0.05)

## Conclusions

- Experience of examiner in parathyroid imaging effects primarily sensitivity.
- Parathyroid surgeon should be well practised to perform ultrasonographic evaluation by himself before operation.

