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Fine needle aspiration with cytology analysis and thyroglobulin level of the aspirated biopsy (FNAB-Tg), is an important tool to assess metastasis to cervical lymph nodes (CLN) in patients with papillary thyroid cancer (PTC) who have suspicious lymph node features on ultrasound. Despite the great diagnostic accuracy of the FNAB-Tg, studies failed to define the best cutoff value for FNAB-Tg. In our study, we describe a novel way in performing the Tg washout and process it locally at our laboratory (tertiary care center). We used the FNAB-Tg to serum thyroglobulin level (FNAB-Tg/ Tg serum) ratio to help overcome the heterogeneity in both cutoff values and the assays used to detect thyroglobulin level. We conducted a retrospective analysis of 22 PTC or suspected PTC patients, who have suspicious cervical lymph nodes on ultrasound. All patients underwent fine-needle aspiration, with cytology analysis and FNAB-Tg from the suspicious CLNs. FNAB-Tg was obtained in all subjects using the following method: Blood samples are drawn from the patient's peripheral vein and placed in two yellow top tubes (3 ml of blood in each tube). 1 ml of normal saline (NS) is added to Tube # 1 (Tg Serum tube). The suspected lymph node aspirate is obtained via US-guided FNA. It is washed in 1 ml of NS and added to tube #2 (FNAB-Tg washout tube). Both tubes are sent to our local laboratory for Tg assay. The FNAB-Tg/ Tg serum ratio is calculated. If FNAB-Tg/Serum-Tg ratio>3, this is suggestive of CNL metastasis. We compared our results to the histopathology reports after neck dissection.59% (13/22) patients had cytology results consistent with metastatic PTC. 12 out of these 13 patients had an FNAB-Tg/serum Tg ratio >3 and one had FNAB-Tg/serum TG ratio < 3, though the FNAB-Tg was 4474 ng/ml and serum Tg was 2444 ng/ml. Metastatic PTC to these CLNs was confirmed on pathology report from total thyroidectomy or neck dissection. Six patients of the 22 studied (27%) had negative cytology with FNAB-Tg/serum Tg ratio > 3. 5 of these patients underwent neck dissection in our institute and confirmed to have metastatic PTC to these CLNs. One patient elected to have surgery in his home country and the pathology report is not available at this time. Three patients of the 22 studied (14%) had negative cytology and FNAB-Tg/serum Tg ratio <3. 2 of them underwent thyroid surgery or neck dissection and the final pathology report was concordant with the FNAB-Tg results. The FNAB-Tg/ serum Tg ratio is a novel method to overcome the differences in cutoff values and assays used to measure the Tg level both in serum and FNAB. An FNAB–Tg/serum Tg ratio >3 is more accurate than cytology in detecting cervical lymph node metastasis in patients with papillary thyroid cancer (PTC). In our study, 27% of CLN metastasis would have been missed if FNAB cytology was used alone. This will help to optimize the surgical approach in patients with PTC before initial surgery or for suspected recurrence.

Thyroid
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Trabecular Bone Score in Women With Differentiated Thyroid Cancer

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Introduction: Thyrotropin stimulating hormone (TSH) suppression in patients with differentiated thyroid cancer (DTC) aims to decrease the growth and proliferation of thyroid cancer cells. However, the effect of TSH suppressive therapy on bone microarchitecture remains undefined. **Methods:** Cross-sectional study including 43 women with DTC undergoing TSH suppressive therapy (sTSH) compared to 20 women also on levothyroxine therapy but with TSH in the low-normal range (nTSH) since the thyroid surgery. Bone mineral density (BMD) was measured by dual-energy X-ray absorptiometry (DXA), and trabecular bone score (TBS) was evaluated using the TBS iNsigth software. The relationship between suppressive therapy-related parameters and bone parameters was investigated. **Results:** The TBS mean values were not significantly different in the sTSH and nTSH groups (1.273 ± 0.12 vs 1.307 ± 0.14, p = 0.7197). In both groups, postmenopausal women had degraded microarchitecture (TBS 1.216 ± 0.11 vs 1.213 ± 0.09, p = 0.9333), while premenopausal women had normal microarchitecture (1.328 ± 0.11 vs 1.401 ± 0.12, p = 0.195). The percentage of all postmenopausal women with degraded TBS was 54.7%, while the percentage of osteoporosis diagnoses was 16.1%. Body mass index (BMI) and menopausal status were the only variables associated with TBS and BMD. **Conclusion:** Long-term TSH suppressive therapy does not seem to be associated with deterioration of the trabecular microarchitecture in premenopausal women. However, lower TBS values were observed in postmenopausal women of both groups, even in those with nonsuppressive therapy. These data show that treatment with thyroid hormone in DTC can be detrimental to bone quality in postmenopausal women, regardless of whether TSH levels are maintained chronically suppressed or in the low-normal range.

Thyroid
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Ultrasensitive Detection of BRAF Mutations in Circulating Tumor DNA of Patients With Metastatic Thyroid Cancer

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Background: Liquid biopsy is a promising technology that can offer various advantages for molecular testing over tissue-based approaches. Most studies trying to address the utility of liquid biopsy in thyroid cancer have failed so far to