

in order to characterize echographic and cytological features useful to identified aggressive variants among TIR4-5 nodules and malignant lesions among TIR3B nodules. Of the 566 PTC, 18.7% were TIR3A, 20.7% TIR 3B and 51.6% TIR4-5, while of 50 FTC 42.0% were TIR3A, 42.0% TIR3B and 6.0% TIR4-5. Of the 11 PDTC 54.5% had been diagnosed as TIR 3B. Of the 249 classic variant of PTC, 0.8% had resulted TIR3A, 14.1% TIR3B and 79.9% TIR4-5. Among 49 tall cell variant, none had resulted TIR3A, 2% had been diagnosed as TIR3B and 95.9% as TIR4-5. Of the 219 follicular variant of PTC 42.0% had resulted TIR3A, 39.7% TIR3B and 12,3% TIR4-5. Among 34 SV-PTC, 32.4% had been diagnosed as TIR3A, 41.2% TIR3B and 0.6% TIR4-5. Blurred margins were the only feature associated with malignancy ($p=0.034$) in TIR3B nodules. The coexistence of hypoechoogenicity and blurred margins in absence of microcalcifications were more common in tall cell variant (7/28) compared to classic variant (10/120) of PTC ($p= 0.021$). A significant number of PDTC and SV-PTC were diagnosed as TIR3. Among TIR3B nodules, irregular margins correlate with malignancy. Coexistence of irregular margins with a hypochoic pattern in absence of microcalcifications is helpful in identifying TIR4/TIR5 nodule which turn out TC-PTC. In conclusion, among TIR3B, TIR4 and TIR5 nodules, ultrasound helps to identify aggressive variants and therefore to choose the extent of surgical treatment and, when <1 cm, to confidently advise active surveillance.

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Thyroid

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Characterization of Ultrasound and Cytological Features Identifying Thyroid Nodules with Aggressive Behavior: From Histology to Clinic

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Fine-Needle Aspiration Biopsy (FNAB) guides surgical treatment of thyroid nodules which, according to the Italian classification, are classified as TIR 1/1C, TIR 2, TIR 3A, TIR3B, TIR4 or TIR5, which correspond to Thy I, Thy II, Thy III, Thy IV, Thy V and Thy VI categories of the Bethesda System. TIR 3 identifies the follicular pattern, which is typical of both benign and malignant lesions. Surgery is usually recommended for TIR 3B, TIR 4 and TIR 5 nodules. The latest histopathological classifications of thyroid cancers have introduced significant changes. While the follicular (FV-PTC) and classical variants (CV-PTC) of papillary thyroid carcinoma and the minimally invasive follicular thyroid carcinoma (FTC) are characterized by a good prognosis and require a less aggressive treatment, the poorly differentiated thyroid carcinoma (PDTC), the anaplastic thyroid carcinoma (ATC), the tall cell (TC-PTC) and the solid variants (SV-PTC) and other variants have a worse prognosis. In addition, thyroid ultrasound often identifies thyroid nodules <1 cm, which are usually characterized by an indolent behavior and active surveillance may be advised. We retrospectively analyzed consecutive histopathological records of 1117 patients (for a total of 1668 nodules, of which 650 malignant) who underwent surgery in 2017, and who had previously undergone FNAB and thyroid ultrasound (available for 390 nodules),