

# MALIGNANCY RISK STRATIFICATION OF THYROID NODULES BY TIRADS. CORRELATION WITH CYTOLOGICAL RESULTS

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**INTRODUCTION:** Only a minority of thyroid nodules are malignant, therefore is a need to establish some basic criteria to select nodules for FNAB to achieve a more rational use of resources. It has been proposed a system to stratify risk malignancy depending on sonographic characteristics: TIRADS. An evolution of TIRADS system is used in the British Thyroid Cancer Guide (BTA).

**OBJECTIVE:** The main objective is to determine whether an adequate correlation is present between the risk category of TIRADS / BTA system and cytological results.

**MATERIAL AND METHODS:** Retrospective, observational study in which 230 thyroid nodules are analyzed during 2014. All nodules are studied by the same professional, experienced in US guided FNAB, who provides a risk category from the BTA clinical guide to each nodule. Afterwards we correlate it with cytological results, which are expressed with Bethesda classification.

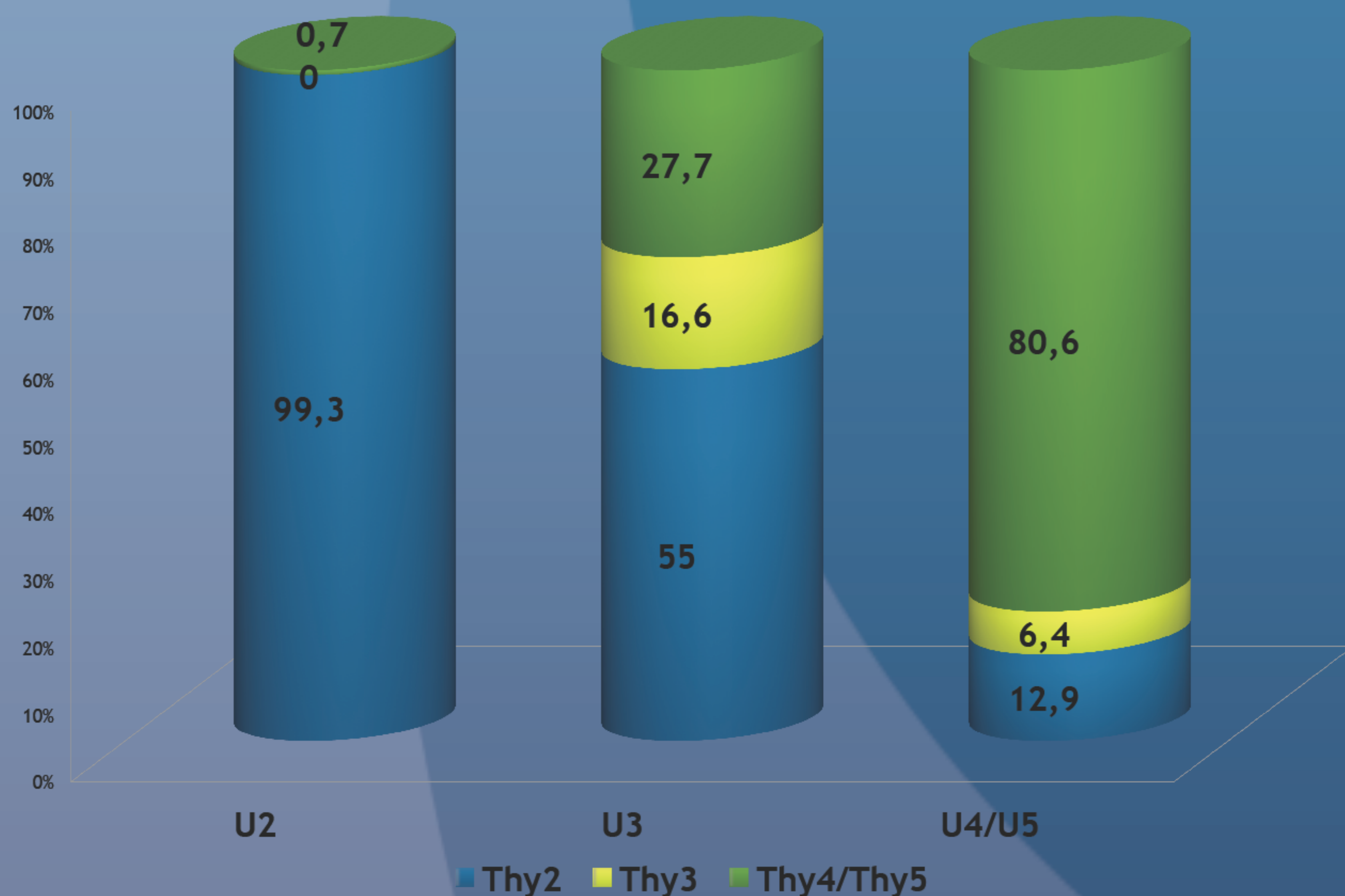
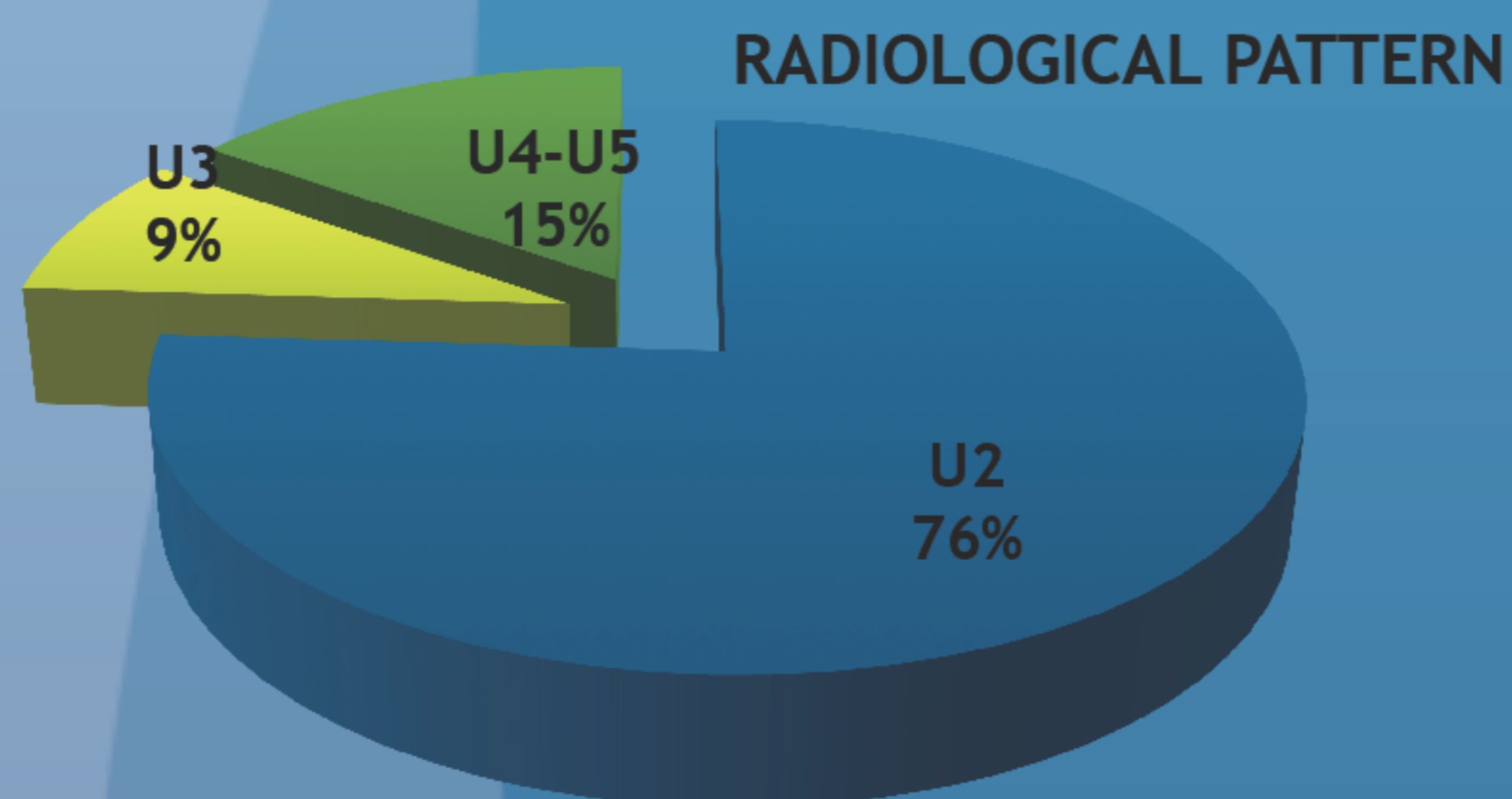
## RESULTS:

- Mean age of the sample was 59.2 ±5.6 years. 71.3% were women and 28.7% men.
- 204 valid cases are analyzed. Nodules are organized into 3 groups according to the radiological characteristics: Benign pattern (U2), probably benign (U3) and suspect / probably malignant (U4/U5).
- Cytological results are grouped into three categories for the statistical analysis (Benign (Thy 2), AUS/FLUS (Thy 3) and Suspicious for malignancy/malignant (Thy 4/Thy 5).

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**Thyroid nodules – Ultrasound (U) classification**

**U1. NORMAL**  
**U2. BENIGN**  
 (a) Halo, hyper-/iso-echoic  
 (b) cystic change +/- ring down sign (colloid)  
 (c) micro-cystic/spongiform  
 (d & e) peripheral egg shell calcification  
 (f) peripheral vascularity  
**U3. INDETERMINATE/EQUIVOCAL**  
 (a) Homogeneous, iso-hyperechoic, solid, halo (follicular lesion)  
 (b) hypo-echoic, equivocal echogenic foci, cystic change  
 (c) mixed/central vascularity  
**U4. SUSPICIOUS**  
 (a) solid, hypo-echoic ((cf thyroid)  
 (b) solid, very hypo-echoic (cf strap muscle)  
 (c) disrupted peripheral calcification, hypo-echoic  
 (d) lobulated outline  
**U5. MALIGNANT**  
 (a) solid, hypo-echoic, lobulated/irregular outline, micro-calcification  
 (? Papillary carcinoma)  
 (b) solid, hypo-echoic, lobulated/irregular outline, globular calcification  
 (? Medullary carcinoma)  
 (c) Intranodular vascularity  
 (d) shape (Taller > wide)  
 (e) Characteristic associated lymphadenopathy.



STATISTICS	
SENSITIVITY	75% (95% CI: 79-87.85%)
SPECIFICITY	97.62% (95% CI: 94.01-99.3%)
PPV	87.1% (95% CI: 70.15-96.29%)
NPV	94.8% (95% CI: 90.35-97.59%)
INTRAOBSERVER KAPPA COEFFICIENT	0.69 (p < 0.000)

## CONCLUSIONS:

The risk stratification system TIRADS / BTA is a useful tool to improve the characterization of nodules and decide which of them must be submitted to FNAB, avoiding unnecessary procedures.

