

Ferrara, 26 maggio 2018

Il percorso del paziente con carcinoma differenziato della tiroide nella provincia di Ferrara

Il ruolo dell'ecografia tiroidea e dell'agoaspirato

Dr.ssa Sabrina Lupo

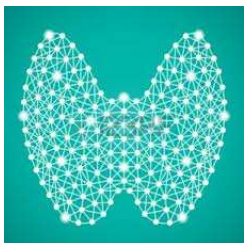
Sezione di Endocrinologia e Medicina Interna

Direttore: Prof. Maria Chiara Zatelli

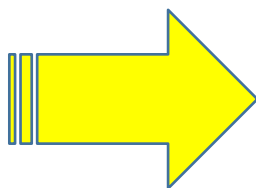
Dipartimento di Scienze Mediche

Università degli Studi di Ferrara

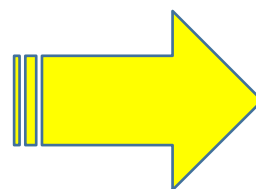




Diagnosi Strumentale

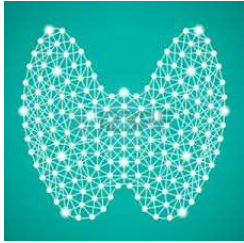


ECOGRAFIA



**AGOASPIRATO
ECOGUIDATO**



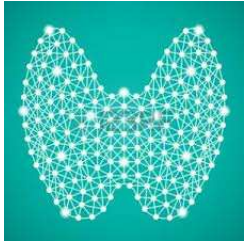


Ecografia

- Semplice
- Ripetibile
- Non utilizza radiazioni ionizzanti
- Consente la stratificazione del rischio di malignità dei noduli tiroidei
- Follow up dei carcinomi differenziati della tiroide

“L’importanza clinica della valutazione del nodulo tiroideo è principalmente legata alla necessità di escludere il cancro tiroideo che si manifesta nel 4-6,6% dei noduli tiroidei “





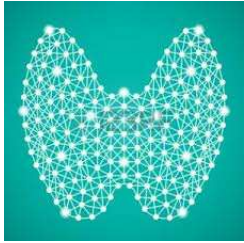
Ecografia

Quando eseguirla?

- Nei pazienti che presentano fattori di rischio per tumori della tiroide
- Nei pazienti con nodulo palpabile o gozzo
- Nei pazienti che presentano linfadenopatie sospette

Non è raccomandata come esame di screening nella popolazione generale o se il paziente ha un esame obiettivo del collo negativo e un basso rischio clinico di patologia tiroidea !



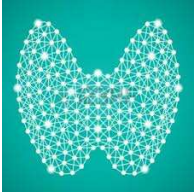


Ecografia: come descriverla?

- Riportare posizione, dimensione, forma, margini, contenuto, ecogenicità, vascolarizzazione dei noduli
- Nei gozzi multinodulari concentrarsi sui noduli con caratteristiche ecografiche maggiormente sospette di malignità piuttosto che descrivere il nodulo maggiore
- Descrivere la localizzazione, il numero, la forma, le dimensioni, i margini, il contenuto, l'ecogenicità, la presenza di ilo e la vascolarizzazione dei linfonodi sospetti

Valutazione conclusiva che stratifichi i noduli della tiroide sulla base del rischio di malignità !

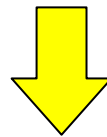




Classificazione Ecografica

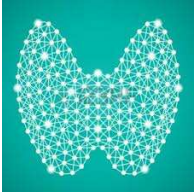
AACE/ACE-AME
1 Low-risk lesion <ul style="list-style-type: none">• Cysts (fluid component >80%)• Mostly cystic nodules with reverberating artifacts and not associated with suspicious US signs• Isoechoic spongiform nodules, either confluent or with regular halo

Tabella modificata da Gharib H et al Endocr Pract. 2016 May;22(5):622-39



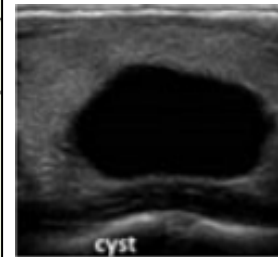
The expected risk of malignancy is about 1%



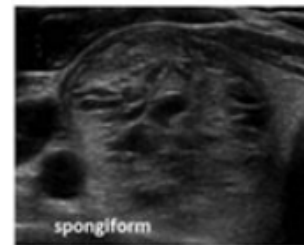


Classificazione Ecografica

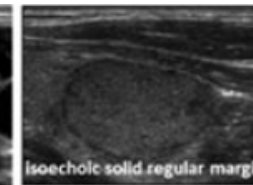
ATA
Benign Purely cystic nodules (no solid component)
Very low suspicion Spongiform or partially cystic nodules without any of the US features described in low-, intermediate- or high-suspicion patterns
Low suspicion Isoechoic or hyperechoic solid nodule, or partially cystic nodule with eccentric solid area <u>without</u> : <ul style="list-style-type: none">• Microcalcifications• Irregular margin• Extrathyroidal extension• Taller than wide shape



<1%



<3%



5-10%

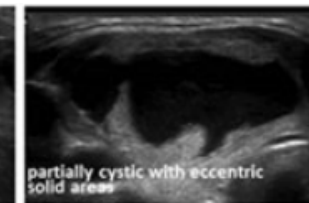
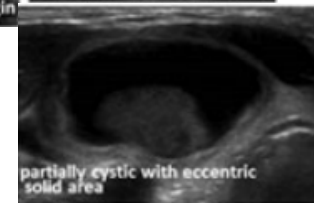
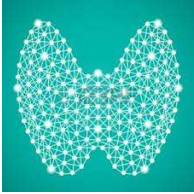


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Tang AL et al, Thyroid. 2017 Aug;27(8):1077-1082

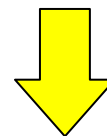




Classificazione Ecografica

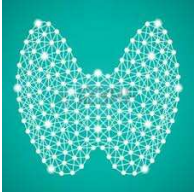
AACE/ACE-AME
2 Intermediate-risk thyroid lesion Slightly hypoechoic (vs. thyroid tissue) or isoechoic nodules, with ovoid-to-round shape, smooth or ill-defined margins May be present: <ul style="list-style-type: none">• Intranodular vascularization• Elevated stiffness at elastography,• Macro or continuous rim calcifications• Indeterminate hyperechoic spots

Tabella modificata da Gharib H et al Endocr Pract. 2016 May;22(5):622-39



The expected risk of malignancy is 5 to 15%.





Classificazione Ecografica

ATA
Intermediate suspicion Hypoechoic solid nodule with smooth margins <u>without</u> : <ul style="list-style-type: none">• Microcalcifications• Extrathyroidal extension• Or taller than wide shape

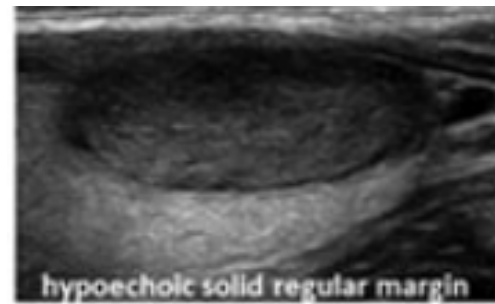
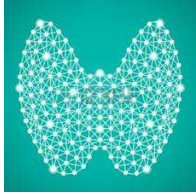


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The expected risk of malignancy is 10-20 %

Tang AL et al, Thyroid. 2017 Aug;27(8):1077-1082





Classificazione Ecografica

AACE/ACE-AME

3 High-risk thyroid lesion (50-90%)

Nodules with at least 1 of the following features:

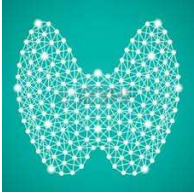
- Marked hypoechogenicity (vs. prethyroid muscles)
- Spiculated or lobulated margins
- Microcalcifications
- Taller-than-wide shape (AP>TR)
- Extrathyroidal growth
- Pathologic adenopathy

Expected risk of malignancy in accordance with the presence of 1 or more suspicious findings.

Tabella modificata da Gharib H et al Endocr Pract. 2016 May;22(5):622-39

The expected risk of malignancy is 50 to 90% in accordance with the presence of 1 or more suspicious findings





Classificazione Ecografica

ATA

High suspicion

Solid hypoechoic nodule or solid hypoechoic component of partially cystic nodule with 1 or more of the following features:

- Irregular margins (infiltrative, microlobulated)
- Microcalcifications
- Taller than wide shape
- Rim calcifications with small extrusive soft tissue component
- Evidence of extrathyroidal extension

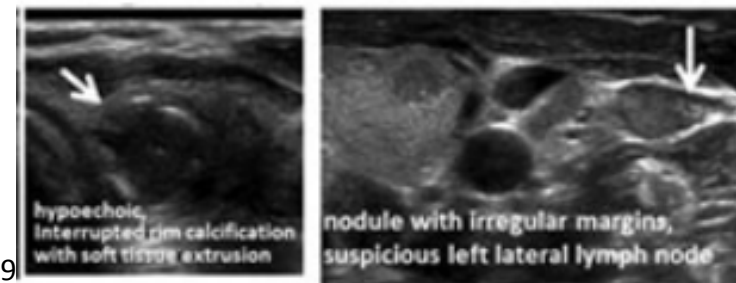
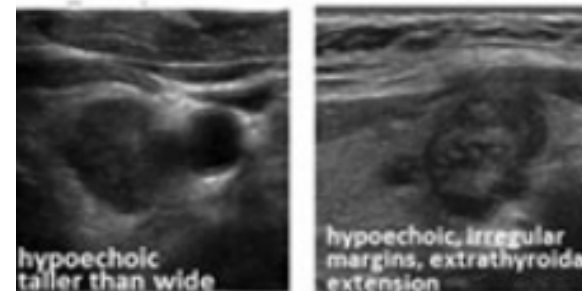
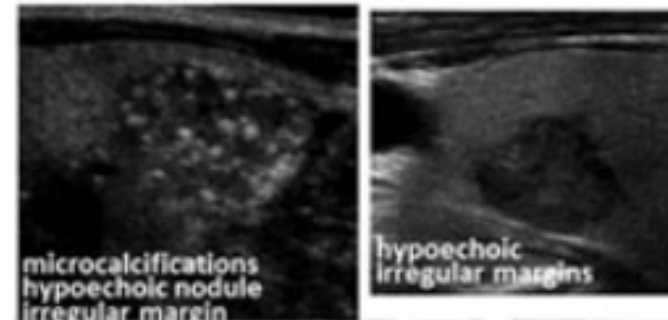


Tabella modificata da Gharib H et al Endocr Pract. 2016 May;22(5):622-39

The expected risk of malignancy is 70-90 %



DIAGNOSIS IN ENDOCRINOLOGY

Quantification of cancer risk of each clinical and ultrasonographic suspicious feature of thyroid nodules: a systematic review and meta-analysis

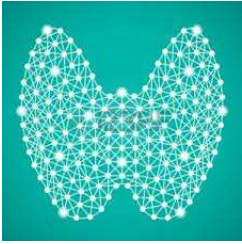
Paolo Campanella*, Francesca Ianni*, Carlo Antonio Rota, Salvatore Maria Corsello and Alfredo Pontecorvi

Correspondence should be addressed

Table 1 Results of the meta-analysis of TN clinical and US features associated with an increased risk of thyroid cancer.

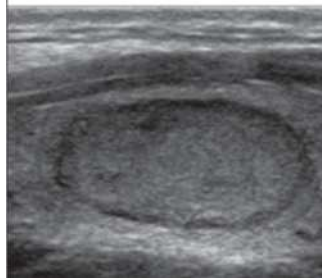
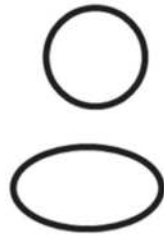
	OR (95% CI)	P value	Heterogeneity		Pub bias (Egger test)
			Q test	I ² (%)	
Clinical features					
Family history of thyroid carcinoma	2.29 (1.45–3.64)	<0.001	0.30	18	0.90
Prior head or neck irradiation	1.29 (1.02–1.64)	0.03	0.36	9	0.33
Gender (male)	1.22 (1.01–1.47)	0.04	0.01	68	0.28
Age (years)					
< 18	1.33 (0.70–2.50)	0.37	0.25	28	0.15
> 65	1.15 (0.70–1.89)	0.58	0.06	49	0.34
TSH > 2.5 mU/l	1.05 (0.45–2.45)	0.90	0.01	73	0.16
Ultrasonographic features					
Nodule height greater than width	10.15 (6.72–15.33)	<0.001	<0.001	86	0.89
Absent halo sign	7.14 (3.71–13.71)	0.004	0.27	24	0.43
Microcalcifications	6.76 (4.72–9.69)	<0.001	<0.001	89	0.96
Irregular margins	6.12 (3.12–12.02)	<0.001	<0.001	95	0.80
Hypoechoogenicity	5.07 (3.47–7.43)	<0.001	0.004	74	0.88
Solid nodule structure	4.69 (2.63–8.36)	<0.001	<0.001	86	0.80
Intranodular vascularization 'trim and fill' adjusted	3.76 (2.04–6.95)	<0.001	<0.001	92	0.01
	3.31 (1.81–6.06)	<0.001			
Nodule size ≥ 4 cm	1.63 (1.04–2.55)	0.03	0.03	61	0.58
Single nodule	1.43 (1.09–1.88)	0.01	0.006	70	0.22



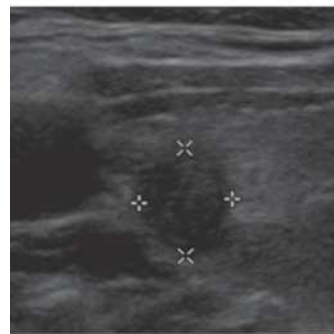


Forma

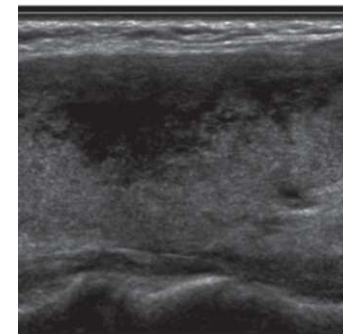
Oval to round



Taller than wide



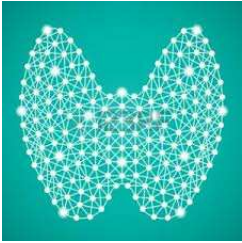
Irregular



- rapporto tra il diametro antero-posteriore e quello trasverso >1
- diametro antero-posteriore maggiore rispetto a quello trasverso se misurati in un piano longitudinale

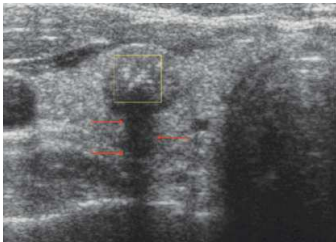
Altamente suggestiva di malignità (alta specificità, bassa sensibilità FN circa 40 %)





Calcificazioni

✓ Microcalcificazioni



- Corrispondono generalmente ai corpi psammomatosi e sono suggestive di PTC
- Hanno elevata specificità per malignità ma bassa sensibilità

✓ Macrocalcificazioni



- Sono dovute frequentemente a cambiamenti regressivi o necrotici e si riscontrano nei gozzi multinodulari benigni
- Quando si riscontrano in noduli solitari potrebbero essere considerate segno potenziale di malignità

✓ Periferiche o rima calcifica



- Presente nei noduli iperplastici di lunga data

Elastografia

Ultrasound Sensitivity for Thyroid Malignancy Is Increased by Real-Time Elastography: A Prospective Multicenter Study

Pierpaolo Trimboli, Rinaldo Guglielmi, Salvatore Monti, Irene Misischi, Filomena Graziano, Naim Nasrollah, Stefano Amendola, Sara Nazzarena Morgante, Maria Grazia Deiana, Stefano Valabrega, Vincenzo Toscano, and Enrico Papini

Elastography consists of real-time evaluation [real time elastography (RTE)] of an area of interest during the application of an external force by the echographic probe. A software tracks the tissue displacement that is displayed by a color scale in accordance with nodular and extranodular hardness. Thyroid cancer usually appears as a hard and

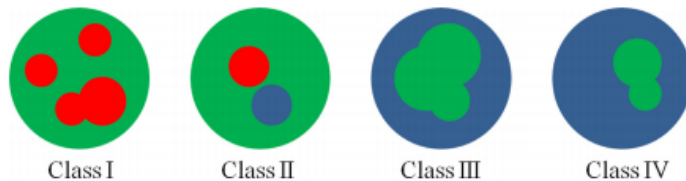
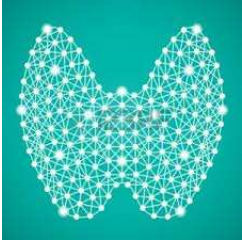


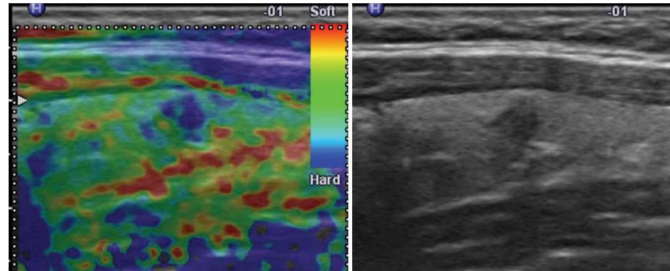
TABLE 2. Predictivity for malignancy and association with thyroid cancer of the US, CFD, and RTE suspicious features

Parameter	Se	Sp	PPV	NPV	Acc	P	OR (95% CI)
Hypoechoogenicity	72	60	38	87	63	<0.0001	3.9 (2.5–6.2)
Microcalcifications	31	98	87	81	81	<0.0001	27.3 (11.2–66.6)
Irregular margins	25	99	86	80	80	<0.0001	24.9 (9.4–65.8)
Intranodular vascularization	37	88	52	81	75	<0.0001	4.4 (2.7–7.1)
More tall than wide	14	99	82	77	78	<0.0001	15.3 (5.1–46.2)
At least one of five US-CFD	85	54	38	91	62	<0.0001	6.6 (3.9–11.2)
RTE III or IV	81	62	42	91	67	<0.0001	6.9 (4.2–11.3)
At least one of six US-CFD-RTE	97	34	33	97	50	<0.0001	15.8 (5.7–43.8)





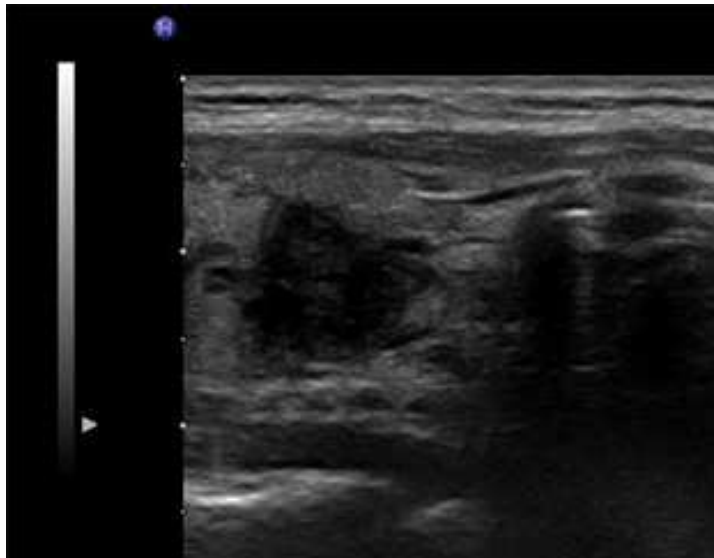
Elastografia: Limiti



- Operatore dipendente
- Manca di un metodo standardizzato di refertazione
- Non consente valutazione adeguata di noduli cistici e con capsula calcifica
- Valuta con difficoltà noduli nel contesto di gozzi multinodulari, tiroidite cronica o microcarcinomi



Malignant or not malignant?



Esperienza dell'operatore !



EFE2018

Evaluating the Degree of Conformity of Papillary Carcinoma and Follicular Carcinoma to the Reported Ultrasonographic Findings of Malignant Thyroid Tumor

Table 2. Ultrasonographic Findings of Papillary and Follicular Thyroid Carcinomas

Sonographic Findings	Papillary Carcinoma	Follicular Carcinoma	<i>P</i> -value
Round/tall	94/127 (74.0%)	6/23 (26.1%)	$p < 0.001$
Hypoechoogenicity	92/127 (72.4%)	8/23 (34.8%)	$p < 0.001$
Irregular margin	118/127 (92.9%)	14/23 (60.9%)	$p < 0.001$
Fine calcification	43/127 (33.9%)	0/23 (0%)	$p < 0.001$
No hypoechoic rim	94/127 (74.0%)	3/23 (13.0%)	$p < 0.001$
No cystic change	125/127(98.4%)	9/23(82.6%)	$p < 0.001$

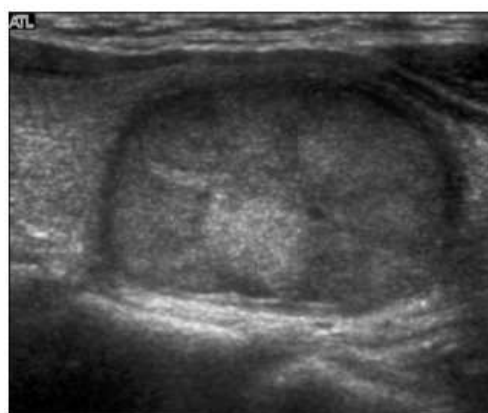


Fig. 1. Sonography of a 54-year-old female with follicular carcinoma.

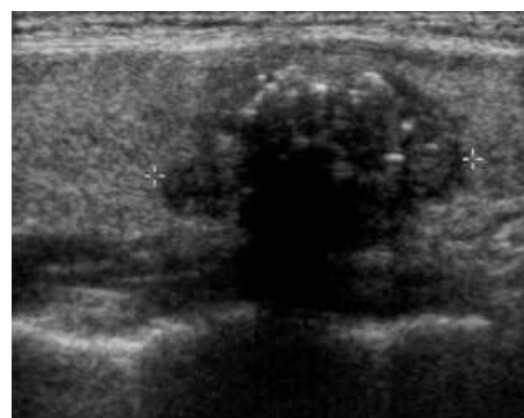
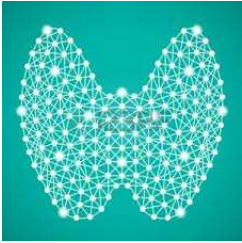
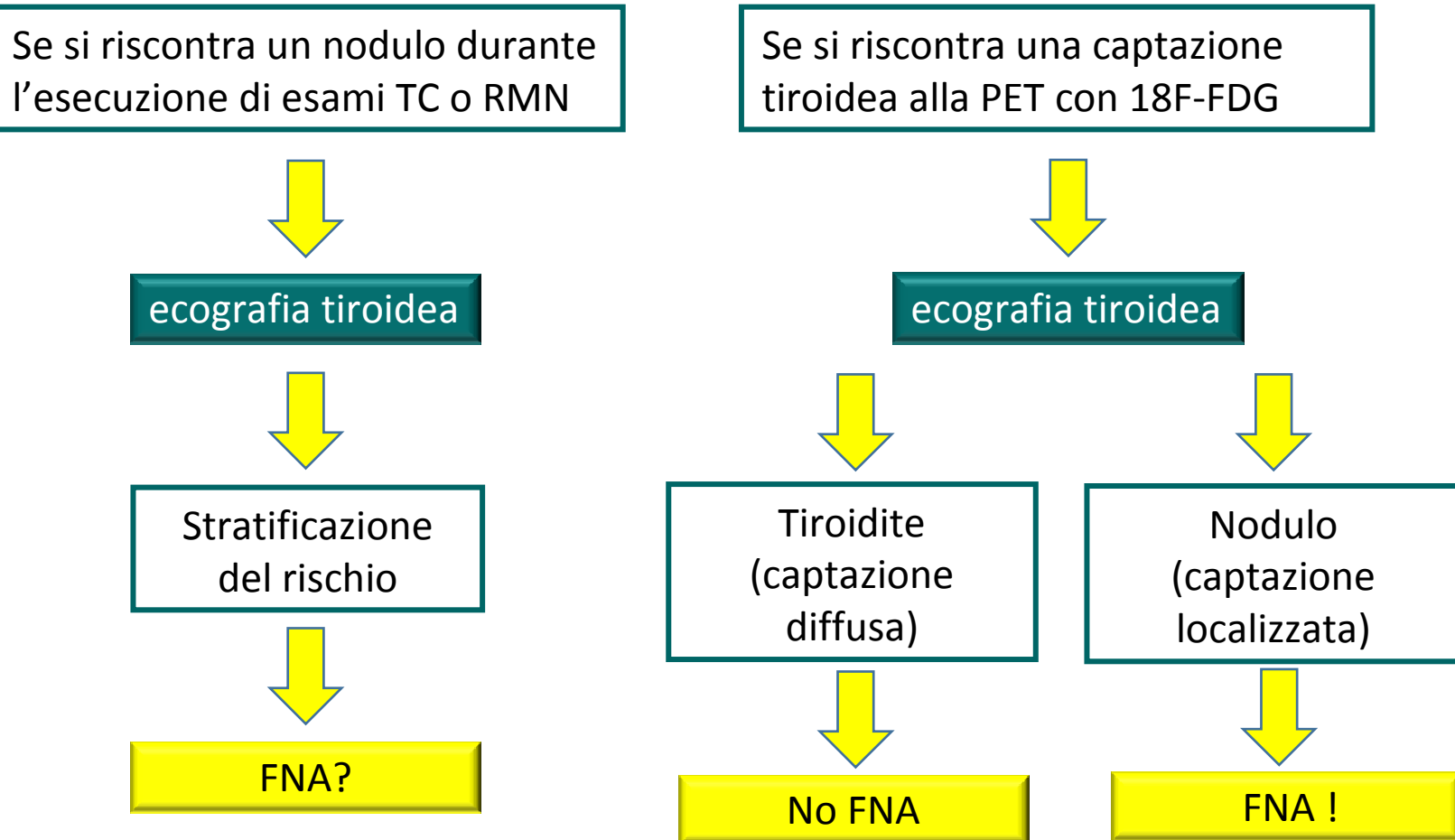


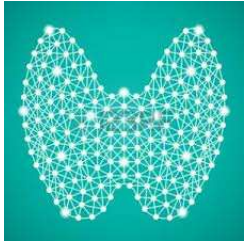
Fig. 2. Sonography of a 35-year-old female with papillary carcinoma.



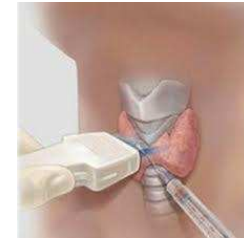


Incidentalomi tiroidei





Agoaspirato ecoguidato



Test diagnostico:

- Accurato
- Sicuro
- Rapido

Può essere eseguito su

- Noduli tiroidei
- Linfonodi sospetti

Consente di ottenere materiale per:

- Esame citologico
- Esame genetico-molecolare
- Dosaggio tireoglobulina sul liquido di lavaggio

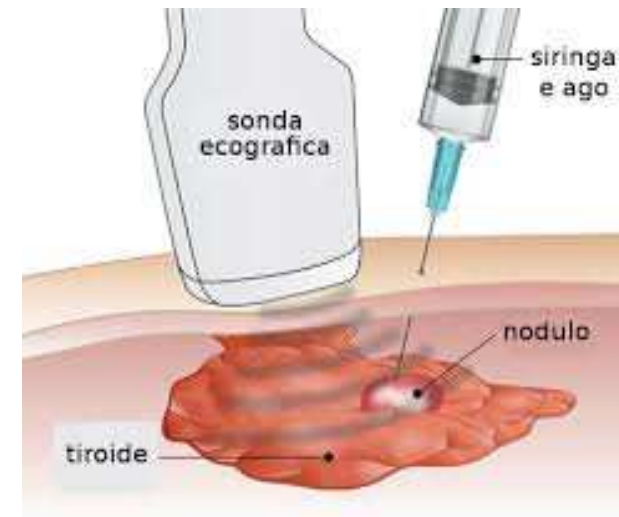
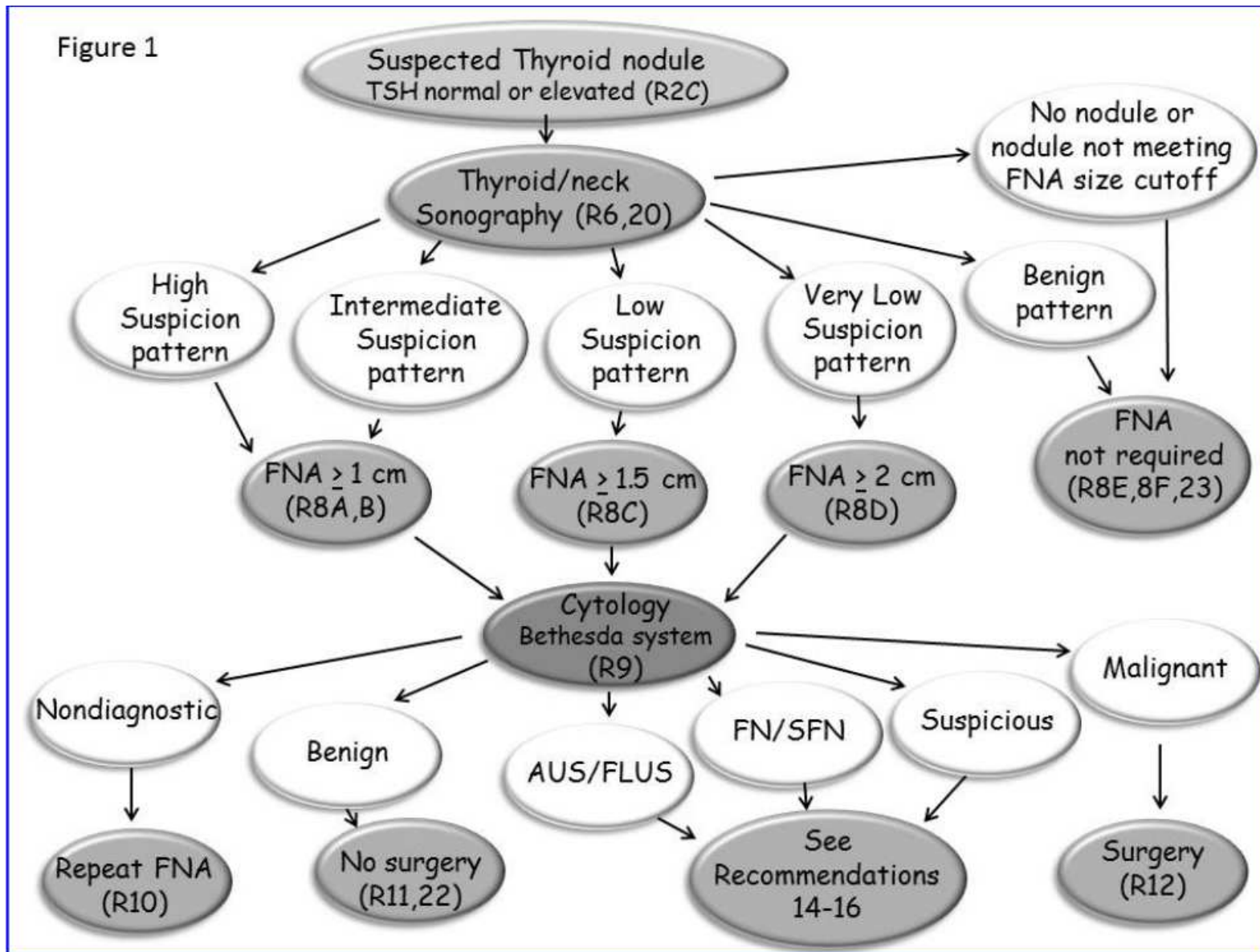
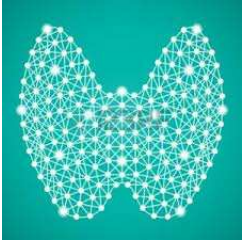
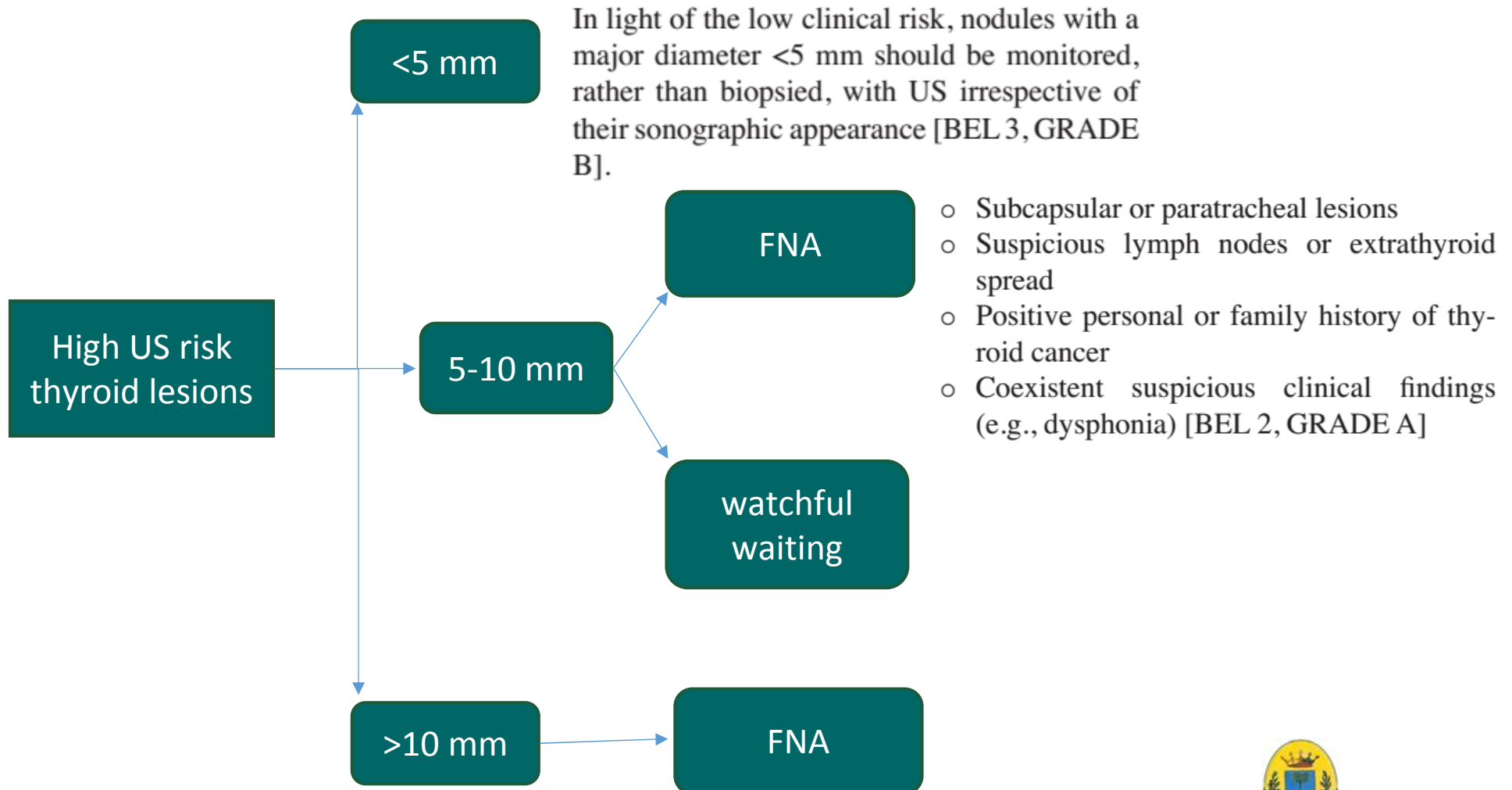


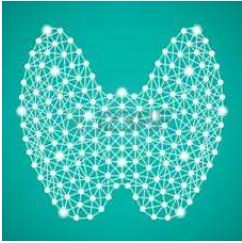
Figure 1



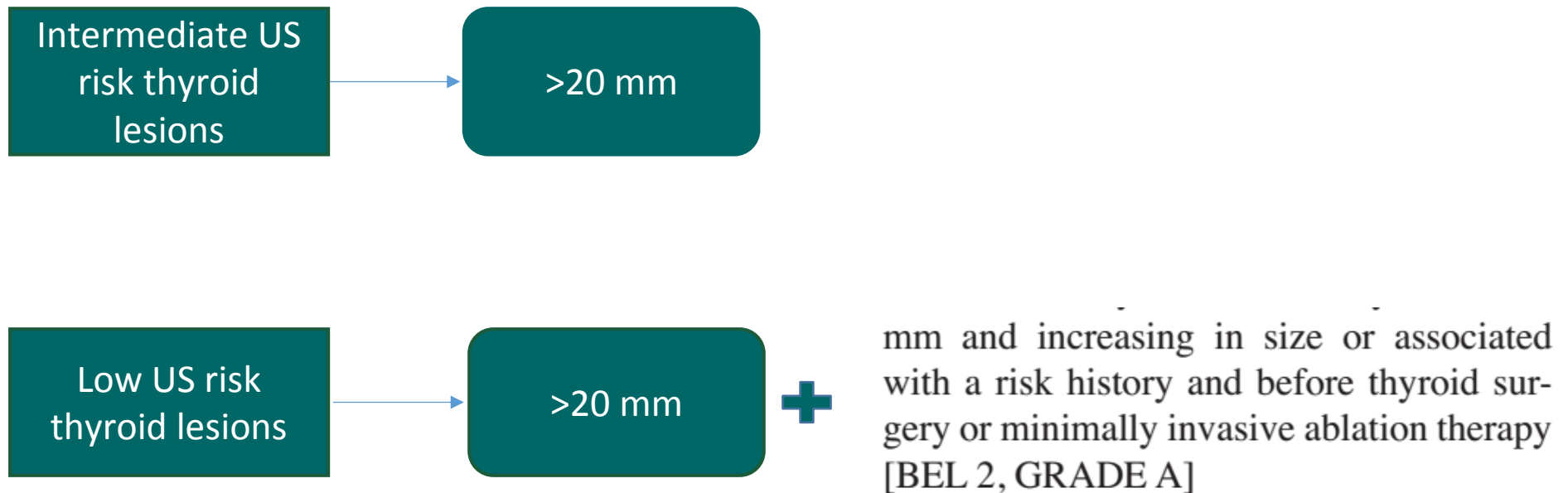


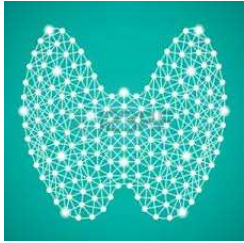
FNA: Indicazioni





FNA: Indicazioni





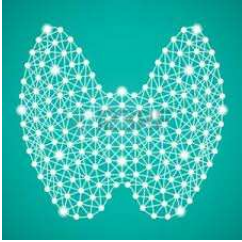
FNA: Diagnosi Citologica

Table 2
Comparison of the Italian AME Consensus, BSRTC, and UK-RCPPath Systems for Classification and Reporting of Thyroid Cytologic Results

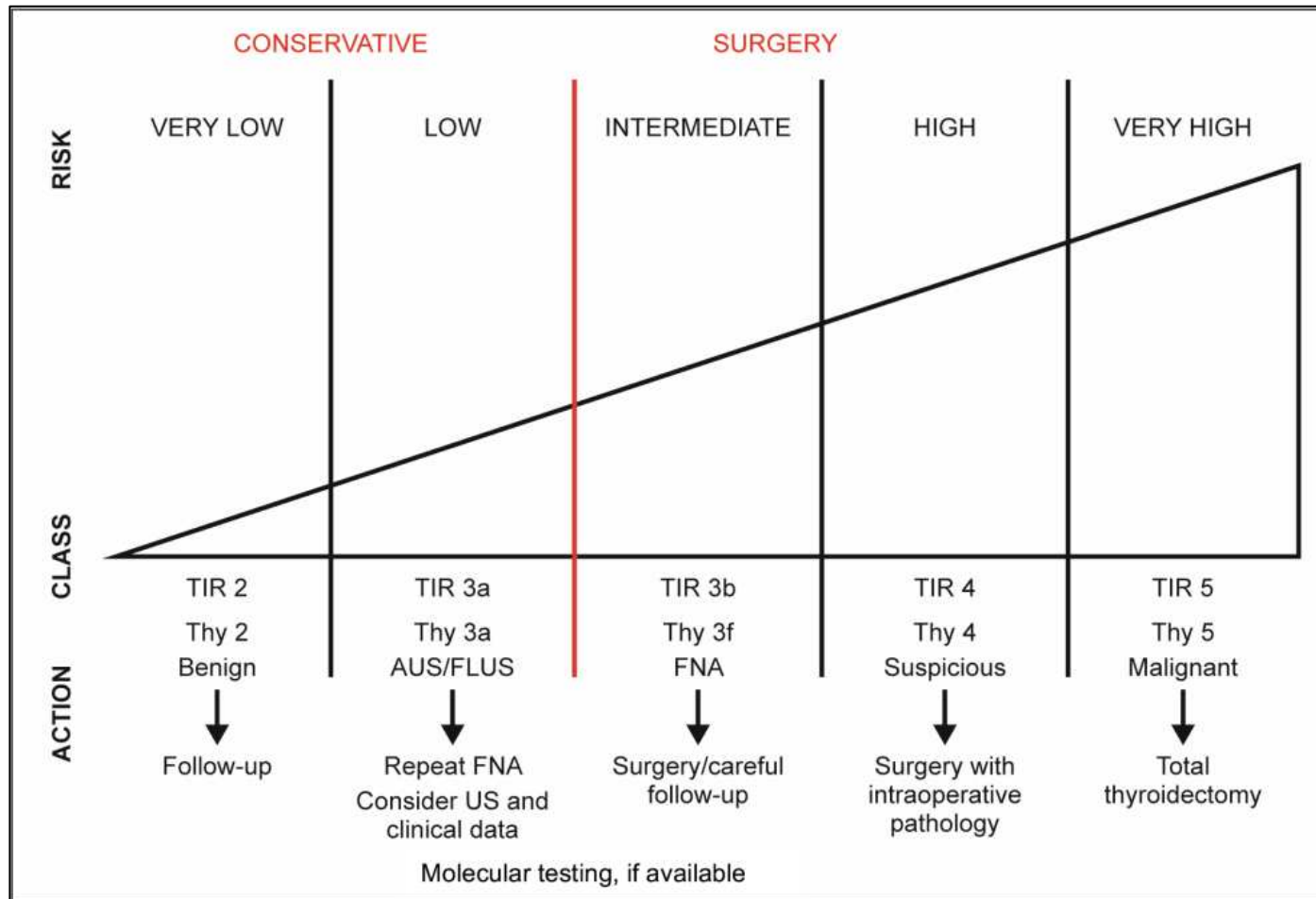
Italian Consensus, 2014	BSRTC	UK-RCPPath
TIR 1. Nondiagnostic	I. Nondiagnostic	Thy 1. Nondiagnostic
TIR 1c. Nondiagnostic cystic	I. Cystic fluid only	Thy 1c. Unsatisfactory, consistent with cyst
TIR 2. Nonmalignant	II. Benign	Thy 2/Thy 2c. Nonneoplastic
TIR 3A. Low-risk indeterminate lesion	III. AUS/FLUS atypia or follicular lesion of undetermined significance	Thy 3a. Neoplasm possible: atypia/nondiagnostic
TIR 3B. High-risk indeterminate lesion	IV. Follicular neoplasm or suspicious for follicular neoplasm	Thy 3f. Neoplasm possible: suggestive of follicular neoplasm
TIR 4. Suspicious for malignancy	V. Suspicious for malignancy	Thy 4. Suspicious for malignancy
TIR 5. Malignant	VI. Malignant	Thy 5. Malignant

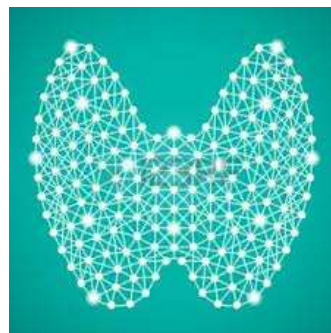
Abbreviations: AME = Associazione Medici Endocrinologi; AUS/FLUS = follicular lesion/atypia of undetermined significance; BSRTC = Bethesda System for Reporting Thyroid Cytopathology; TIR = Thyroid Imaging Reporting; Thy = thyroid; UK-RCPPath = UK Royal College of Pathologists.





FNA: Diagnosi Citologica





*Grazie per
l'attenzione!*



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