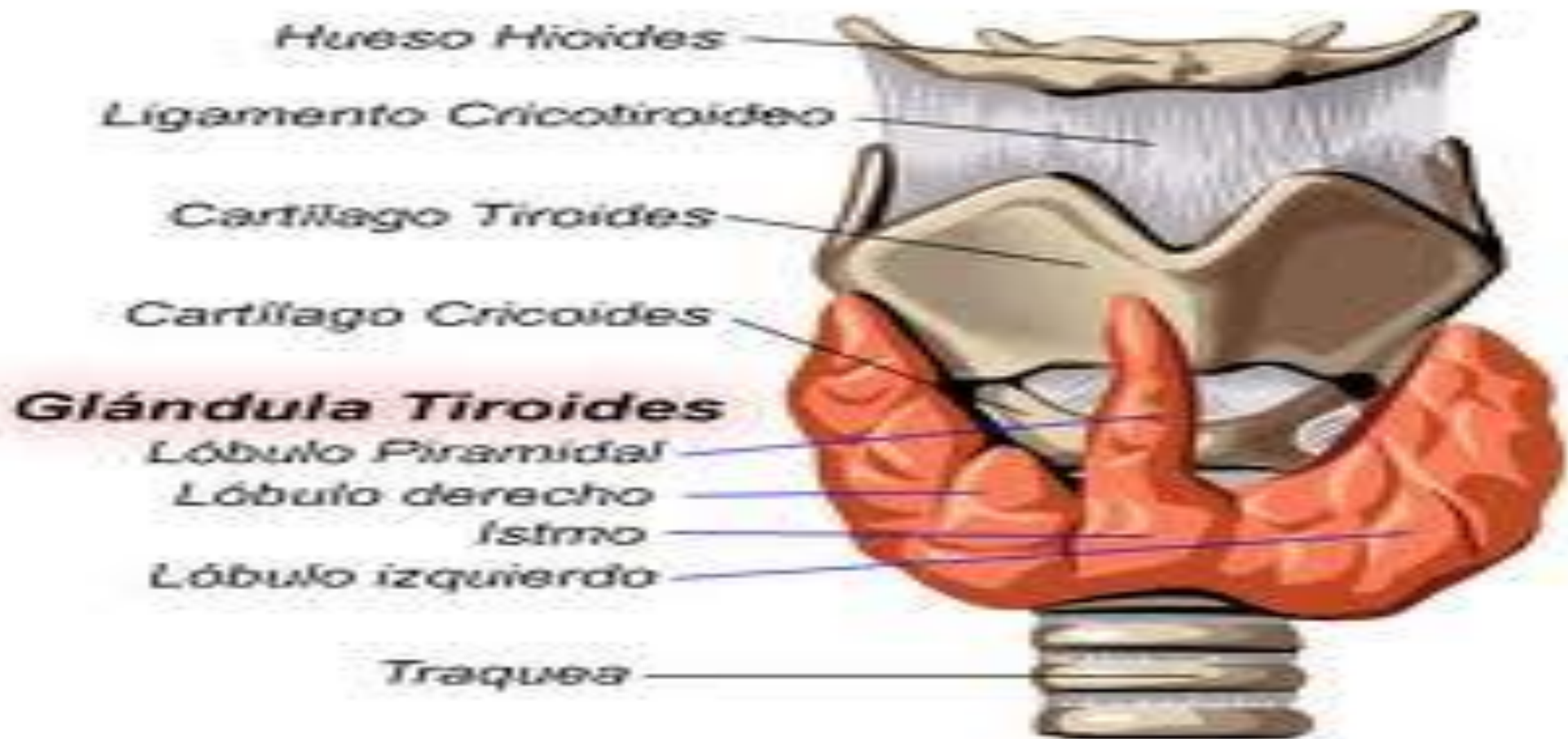


# MASAS TIROIDEAS

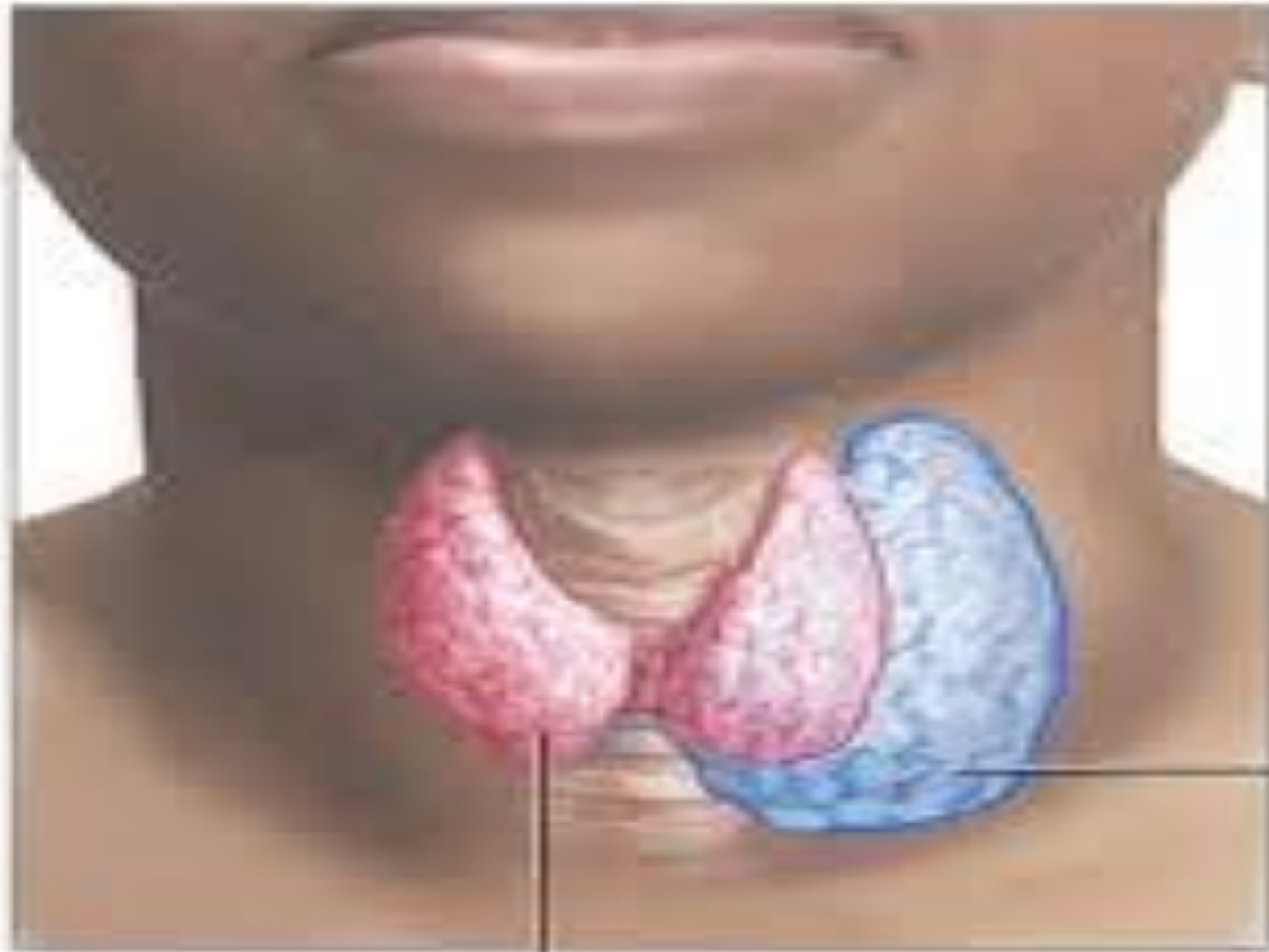
CARLOS ENRIQUE RAMÍREZ ISAZA

CIRUJANO GENERAL

# ANATOMÍA



# BOCIO

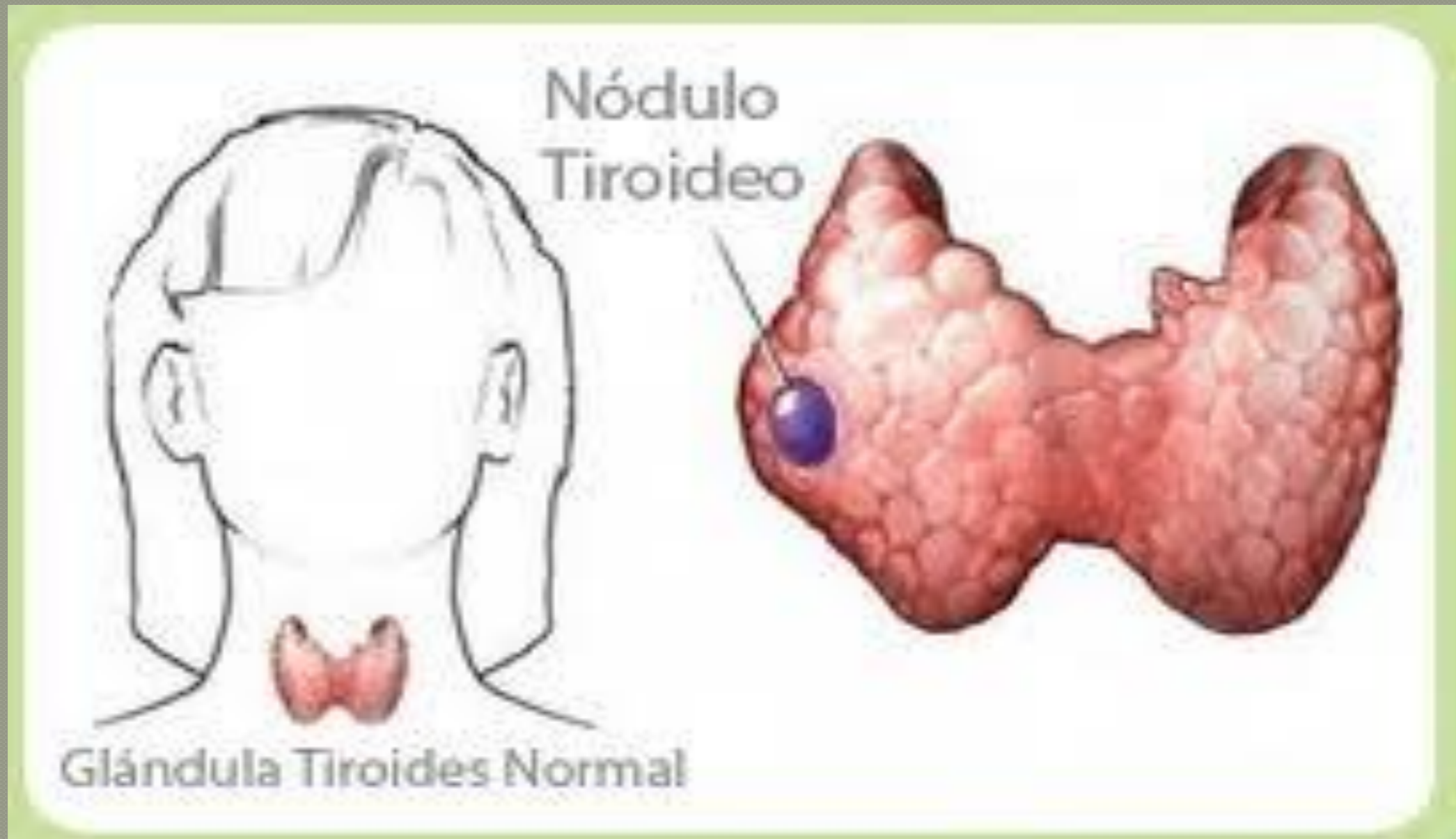


Glándula tiroidea



Bocio  
(glándula tiroidea  
visiblemente  
agrandada)

# NÓDULO TIROIDEO



# NÓDULO TIROIDEO

---



# NÓDULOS TIROIDEOS

---

• Nódulo tiroideo es una lesión dentro de la glándula tiroides que es radiológicamente diferente del resto de la glándula que la rodea.

# NÓDULOS TIROIDEOS

---

- -La mayoría son benignos
- -Ecografía y la biopsia guiada por ecografía definen la posibilidad de ser benignos o malignos
- -Riesgos de cáncer es 14 % cuando el reporte informa atipia o indeterminado; 25% cuando se reporta neoplasia folicular

# NÓDULOS TIROIDEOS

---

- -Si no hay crecimiento o si no es sospechoso por ecografía, o si la patología es benigna, se puede observar.
- -Si la biopsia reporta sospecha de malignidad o maligna, se debe hacer tiroidectomía.



# CAUSAS BENIGNAS DE NÓDULOS TIROIDEOS

---

- .Nódulo coloide
- .Tiroiditis de Hashimoto
- .Quiste hemorrágico o simple
- .Adenoma folicular
- .Tiroiditis subaguda

# NÓDULOS TIROIDEOS ALTAMENTE PROBABLES DE SER MALIGNOS

---

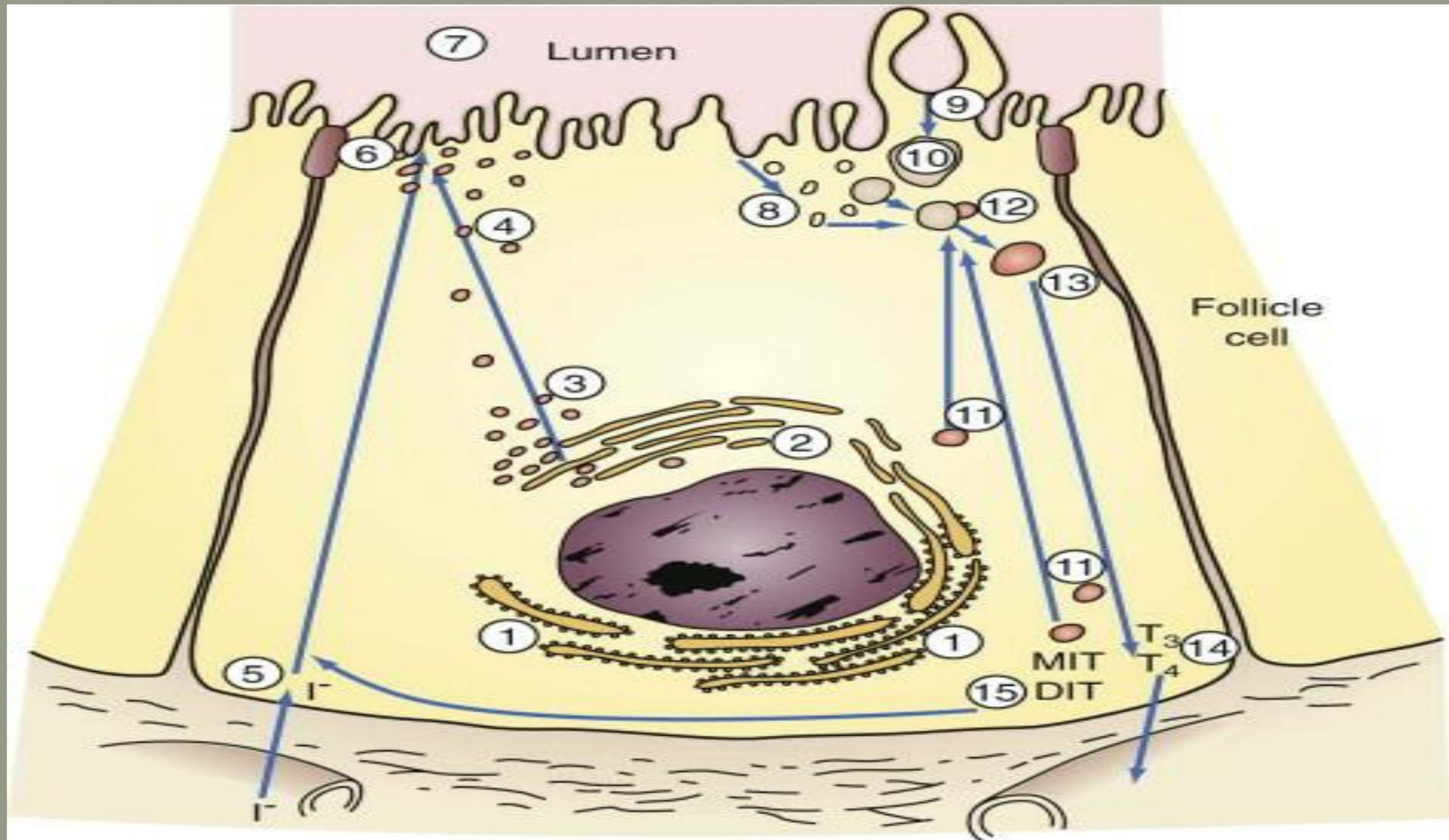
- -Historia familiar de carcinoma papilar
- -Historia de exposición a radiación
- -Historia de cáncer de tiroides en cirugía previa de hemitiroidectomía
- -Nódulos tiroideos positivos en el PET SCAN

# FACTORES DE RIESGO DE MALIGNIDAD EN LOS NÓDULOS TIROIDEOS

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- -Historia de irradiación en la cabeza y cuello en la infancia
- -Historia familiar de CA papilar, folicular o de MEN tipo 2.
- -Menor de 20 años o mayor de 70 años
- -Masculino
- -Presencia de adenopatías cervicales
- -Nódulo fijo
- -Parálisis de la cuerda vocal

# CÉLULA TIROIDEA



# CAUSAS MALIGNAS DE NÓDULOS TIROIDEOS

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## · PRIMARIAS

### Carcinomas derivados de las células foliculares

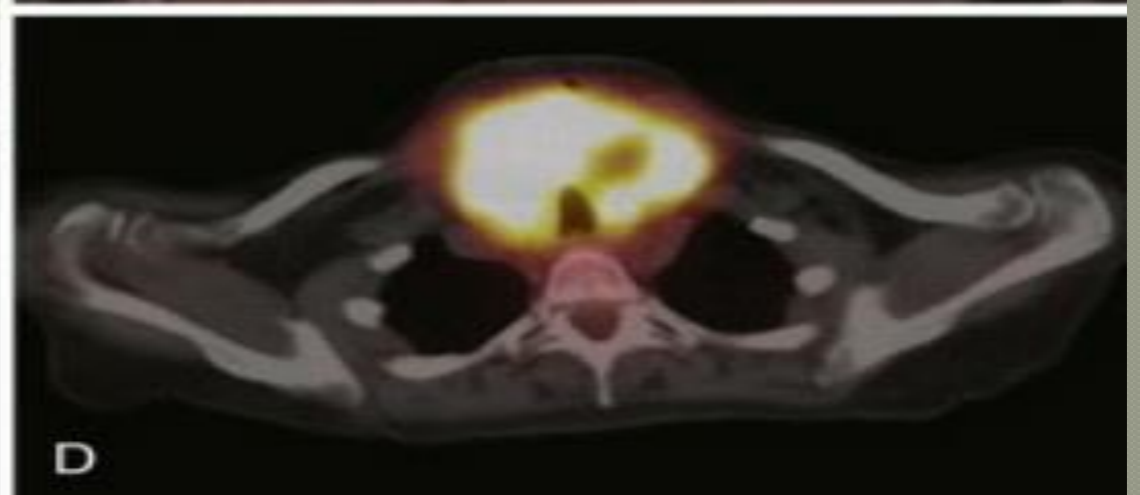
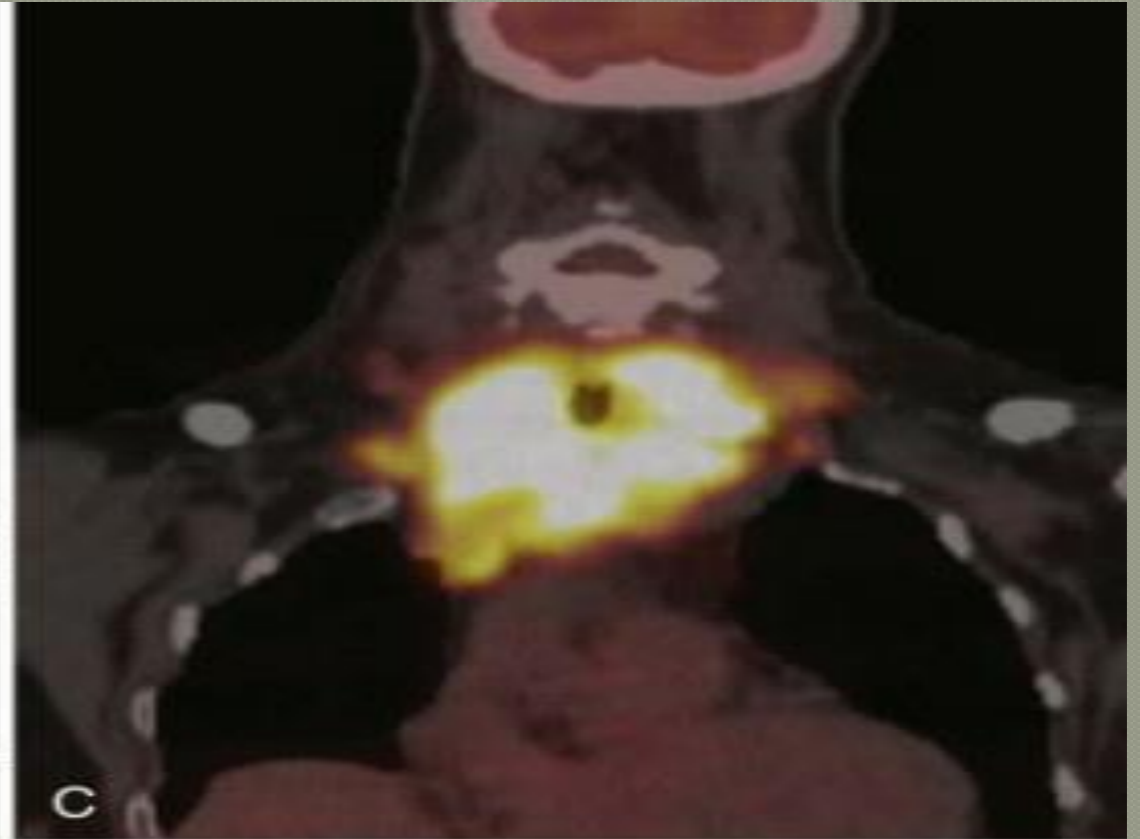
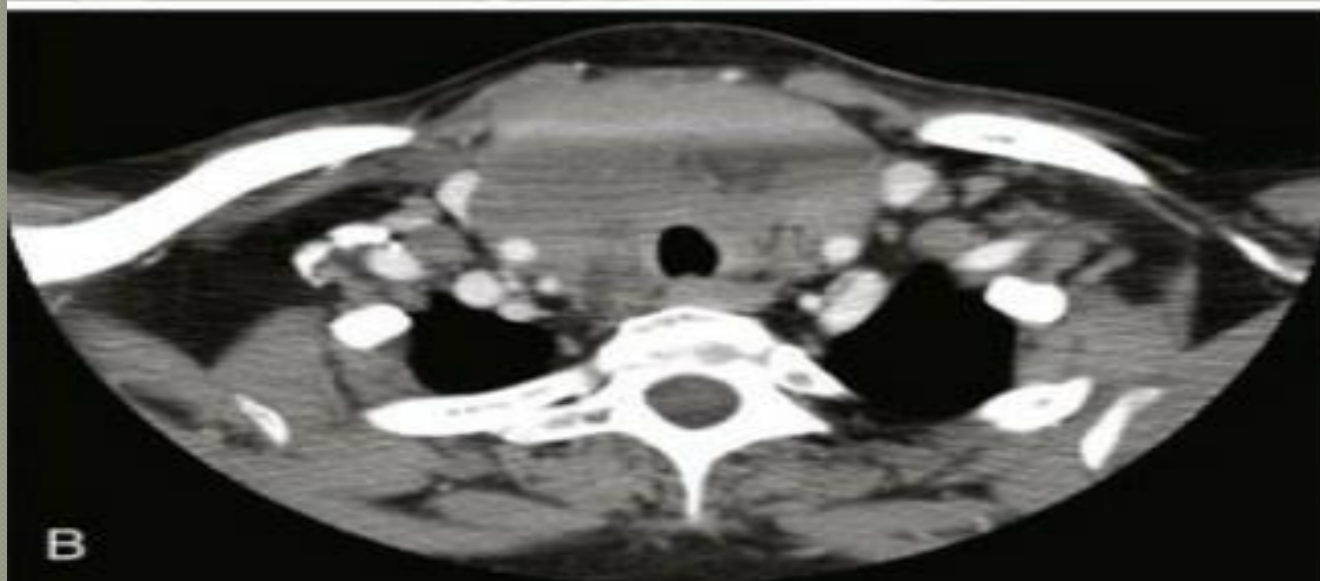
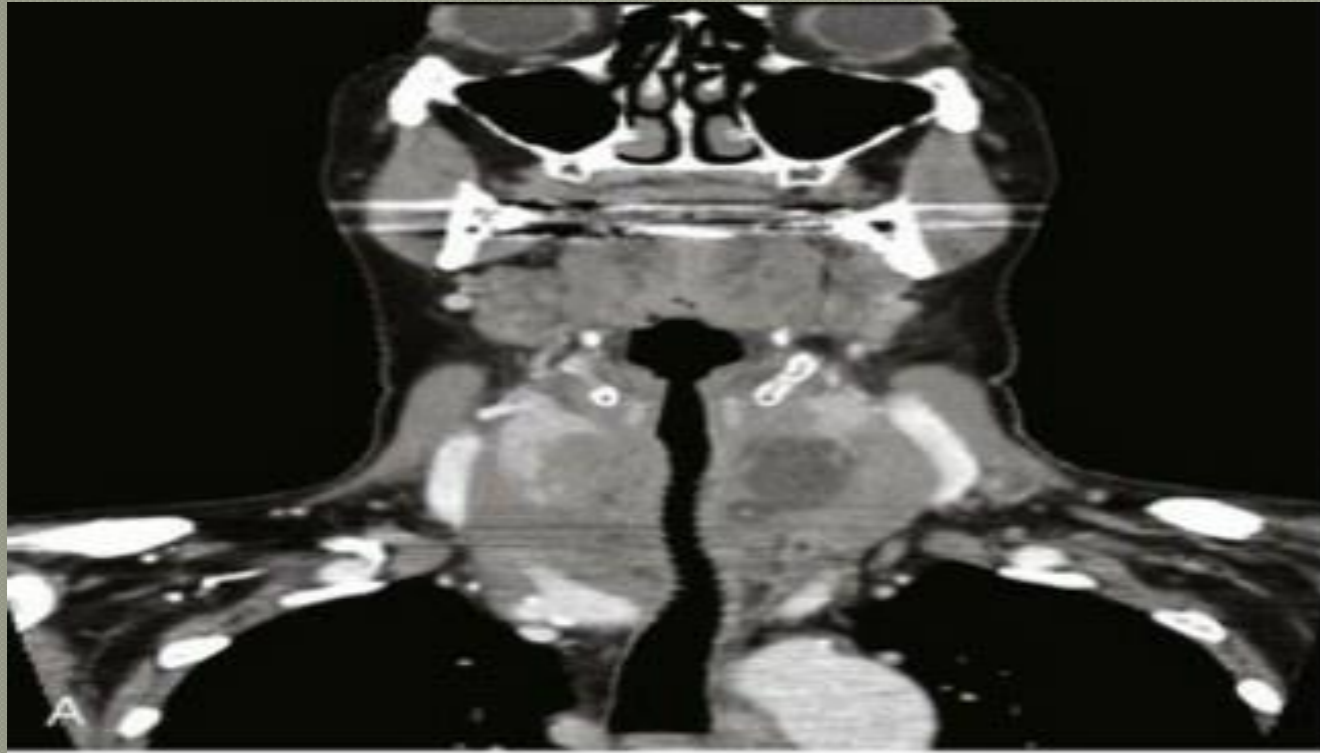
- Carcinoma papilar
- Carcinoma folicular
- Carcinoma anaplásico

### Carcinoma derivado de las células C generadas en la cresta neural, productoras de calcitonina

- Carcinoma medular

### Linfoma tiroideo

# LINFOMA



# CAUSAS MALIGNAS DE NÓDULOS TIROIDEOS

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- **SECUNDARIAS**

- Carcinoma metastásico

# CARCINOMA PAPILAR DE TIROIDES

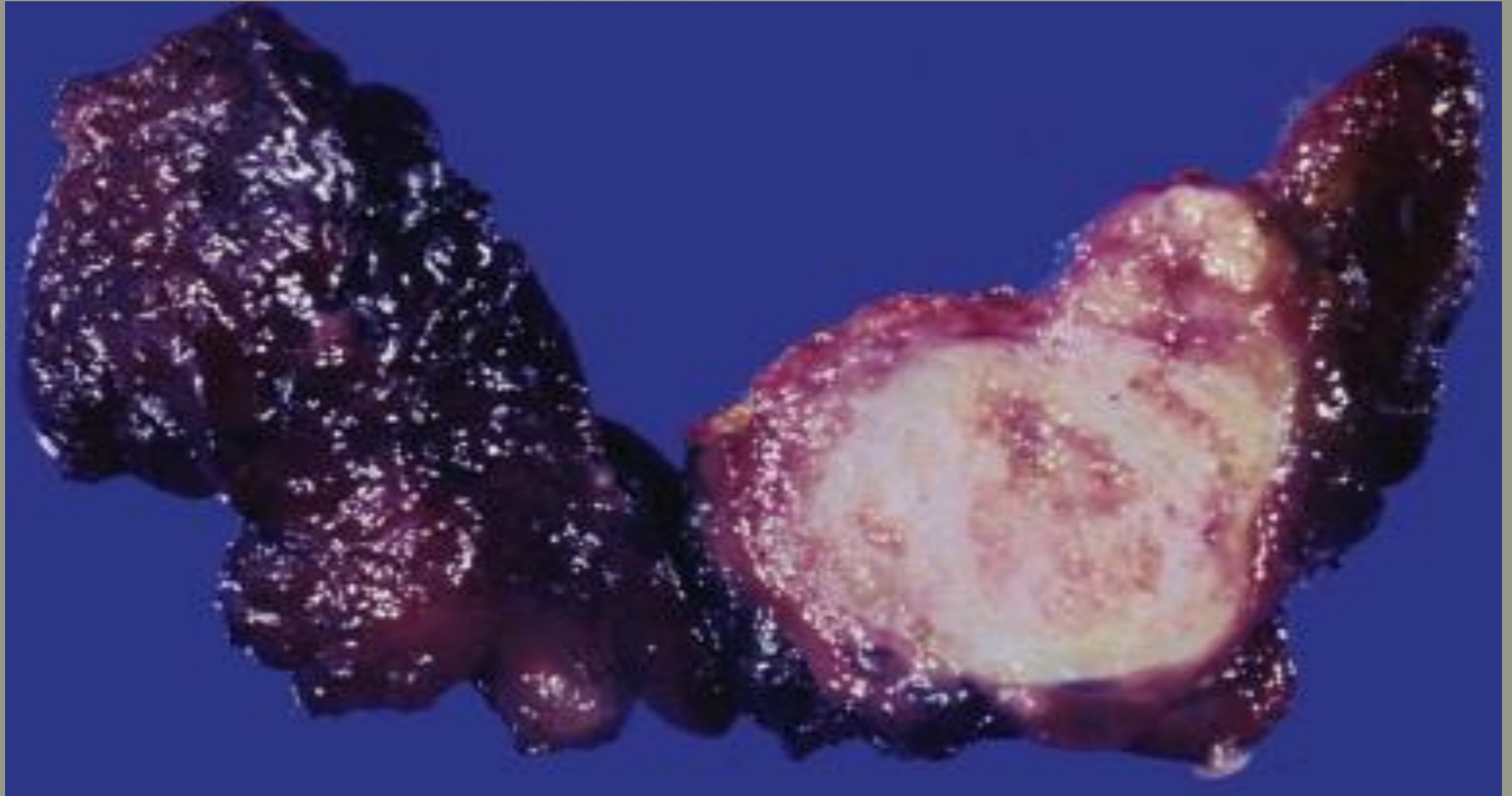
---

- -Neoplasia tiroidea más frecuente
- -Tres veces mayor en mujeres
- -Formación de papilas
- -Vidrio esmerilado del núcleo, inclusiones intranucleares.
- -Crecimiento lento
- -Tiende a invadir la cápsula
- -Suele acompañarse de focos múltiples en el mismo lado

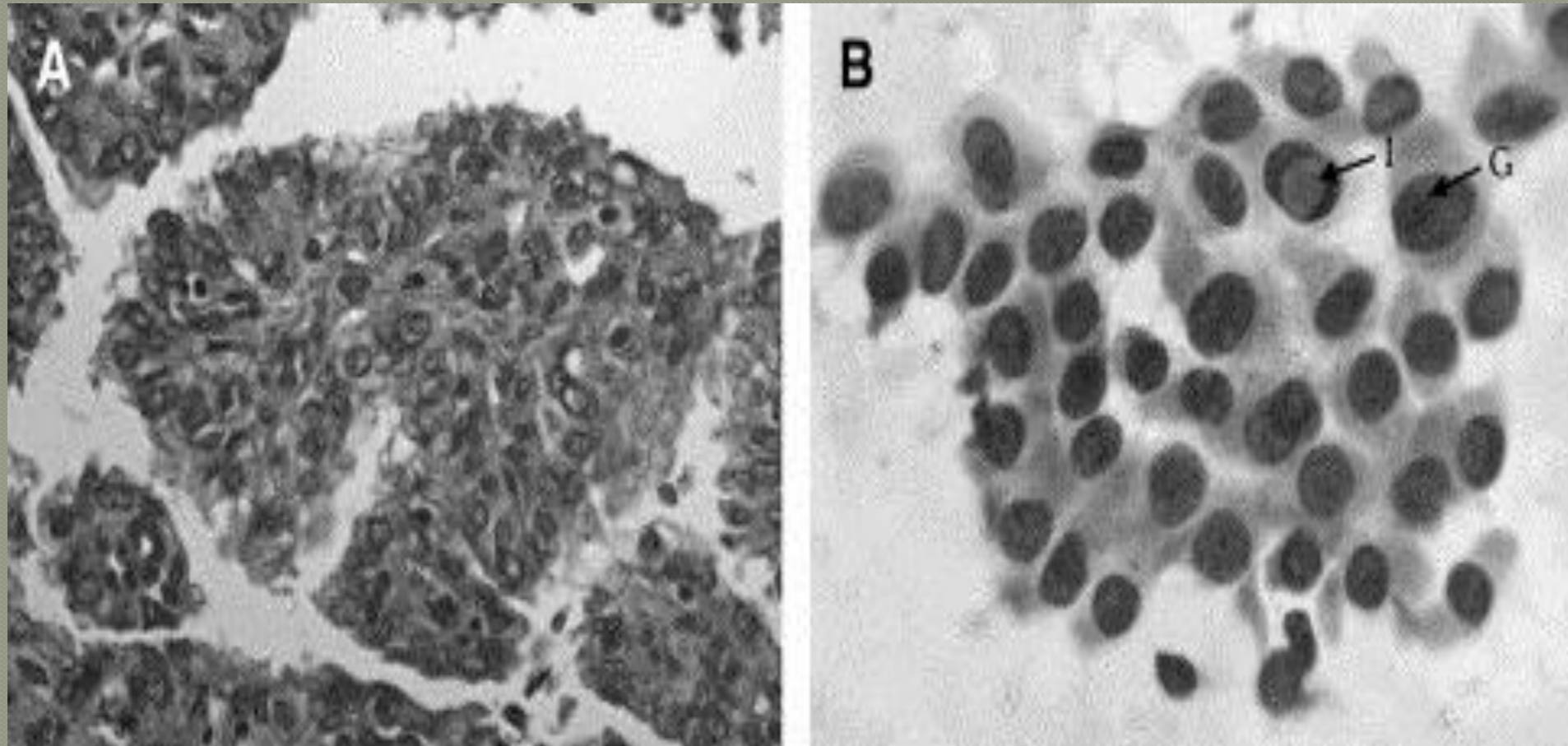


# CARCINOMA PAPILAR DE TIROIDES

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# INCLUSIONES Y HENDIDURAS NUCLEARES EN CARCINOMA PAPILAR DE TIROIDES



# CA PAPILAR DE TIROIDES MULTIFOCALIDAD



# CARCINOMA PAPILAR DE TIROIDES

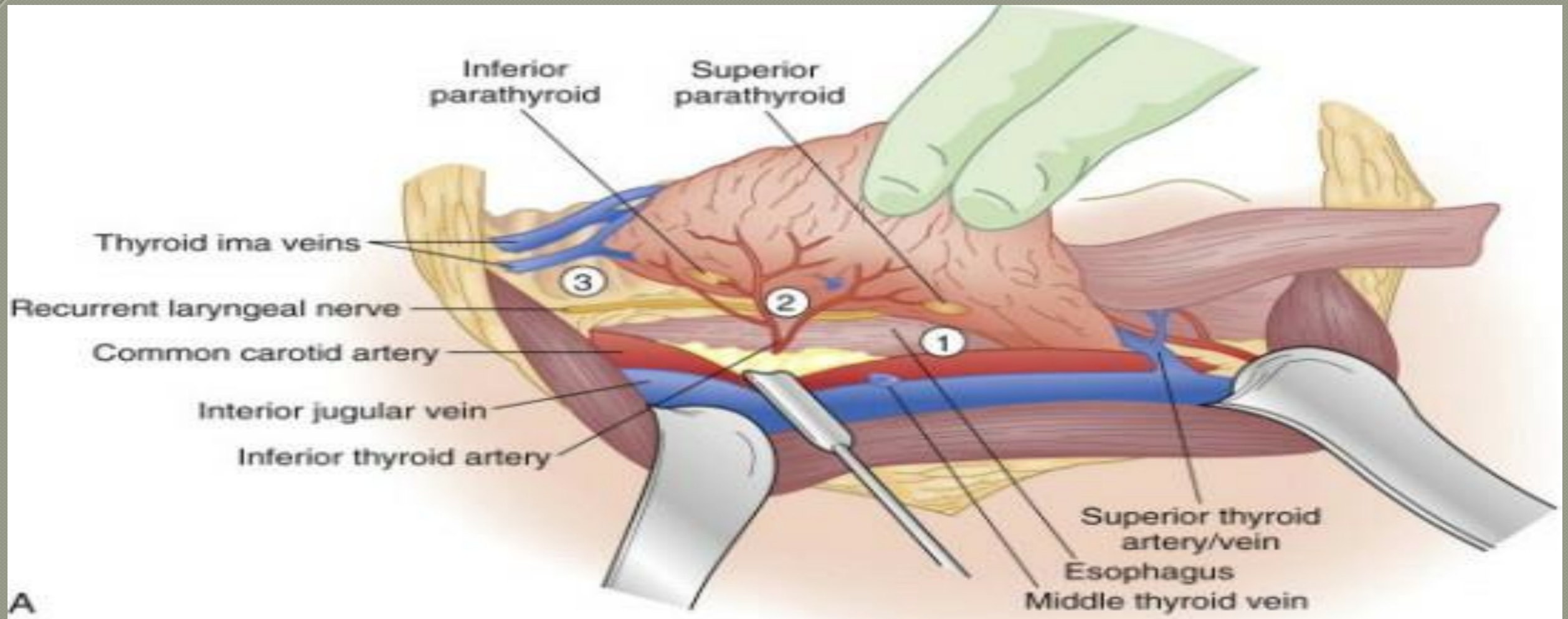
---

- Hace metástasis a ganglios linfáticos
- Diseminación hematológica es infrecuente.
- Tratamiento
  - Cirugía sobre el tumor primario y las metástasis ganglionares
  - Tiroidectomía total: elimina neoplasias multicéntricas, escisión completa del tejido tiroideo, facilidad de vigilar a los pacientes mediante cuantificación de tiroglobulina.

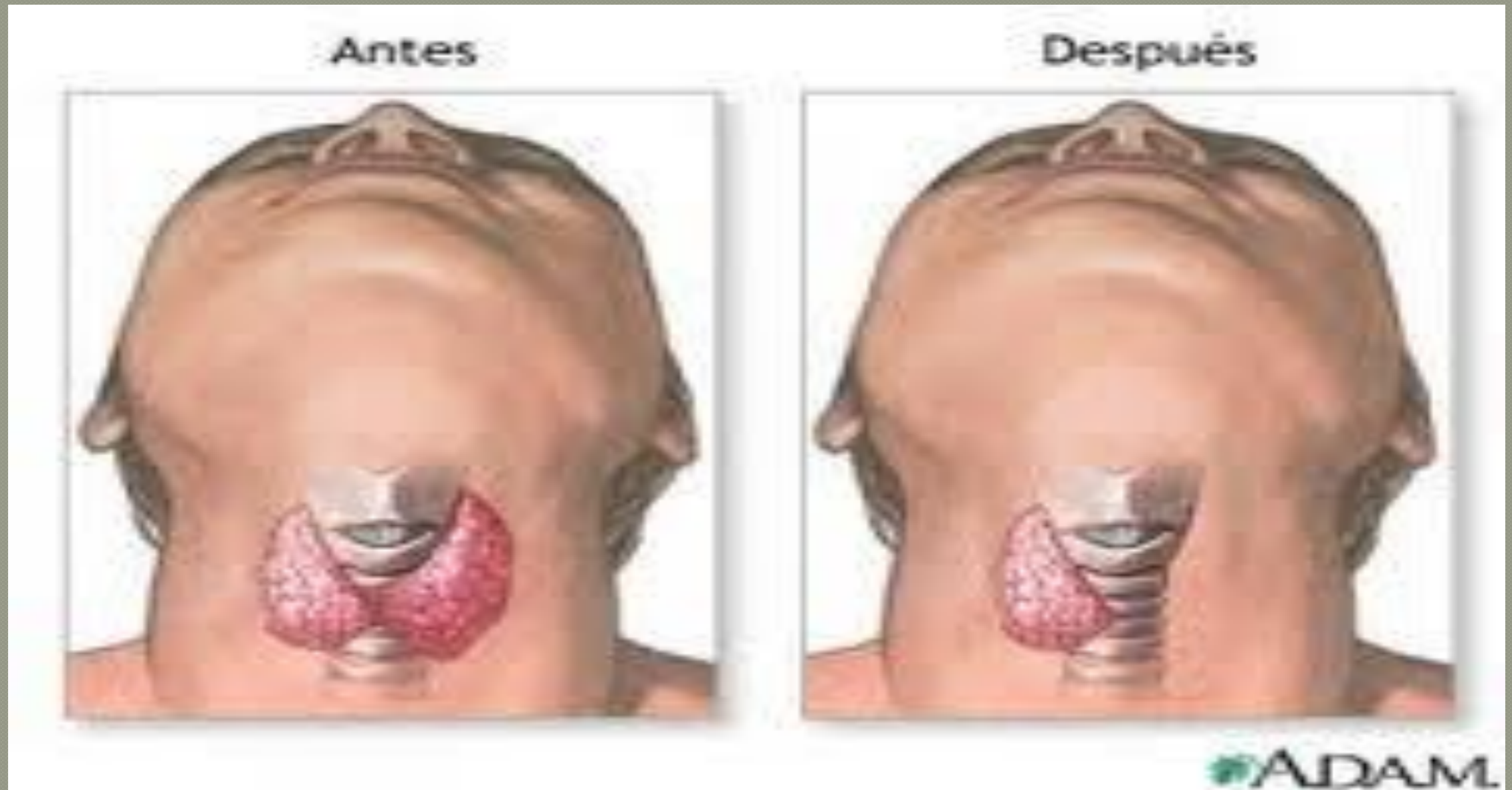
# CARCINOMA PAPILAR DE TIROIDES

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- -Riesgos de tiroidectomía total: hipoparatiroidismo, lesión del nervio recurrente.
- -CA papilar menor de 1 cm. (microscópico), la lobectomía tiene los mismos efectos que la tiroidectomía total.
- -Segunda fase del tratamiento incluye administración de yodo 131, terapia ablativa. Previamente se hace rastreo.



# HEMITIROIDECTOMÍA



# NERVIO LARINGEO RECURRENTE

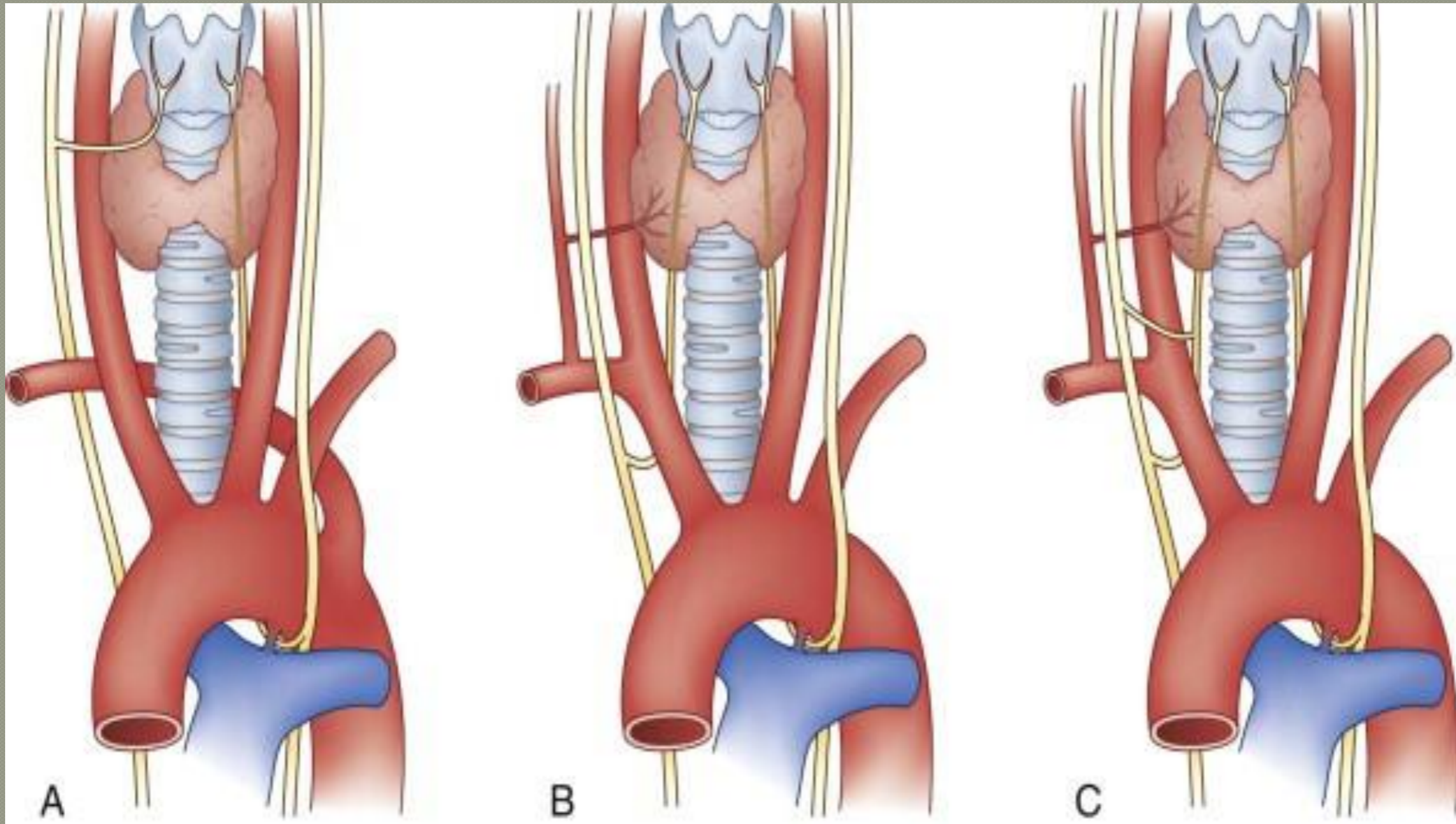




Table 1 -- American Joint Committee on Cancer stage grouping for papillary thyroid carcinoma

---

Stage T N M

**Under 45 years**

Stage I Any T Any N M0  
Stage II Any T Any N M1

**45 Years and older**

Stage I T1 N0 M0  
Stage II T2 N0 M0  
Stage III T3 N0 M0  
T1 N1a M0  
T2 N1a M0  
T3 N1a M0  
Stage IVA T4a N0 M0  
T4a N1a M0  
T1 N1b M0  
T2 N1b M0  
T3 N1b M0  
T4a N1b M0  
Stage IVB T4b Any N M0  
Stage IVC Any T Any N M1

# Table 38-4 Prognostic Risk Classification for Patients With Well-Differentiated Thyroid Cancer (AMES or AGES)

PARAMETER	Risk	
	LOW	HIGH
Age (yr)	<40	>40
Gender	Female	Male
Extent	No local extension, intrathyroidal, no capsular invasion	Capsular invasion, extrathyroidal extension
Metastasis	None	Regional or distant
Size	<2 cm	>4 cm
Grade	Well differentiated	Poorly differentiated

*AGES*, **A**ge, **p**athologic grade of tumor, **e**xtent and **s**ize of the primary tumor; *AMES*, **a**ge, distant **m**etastasis, **e**xtent of primary tumor, **s**ize of primary tumor.

# CARCINOMA FOLICULAR DE TIROIDES

---

- Segundo en frecuencia
- Macroscópicamente es indistinguible del adenoma, a menos que haya infiltración evidente.
- Microscópicamente es un tumor compuesto por folículos de diferentes tamaños.
- Una variedad es el CA de células de Hürtle
- Diseminación por vía hematógena

# CARCINOMA FOLICULAR DE TIROIDES

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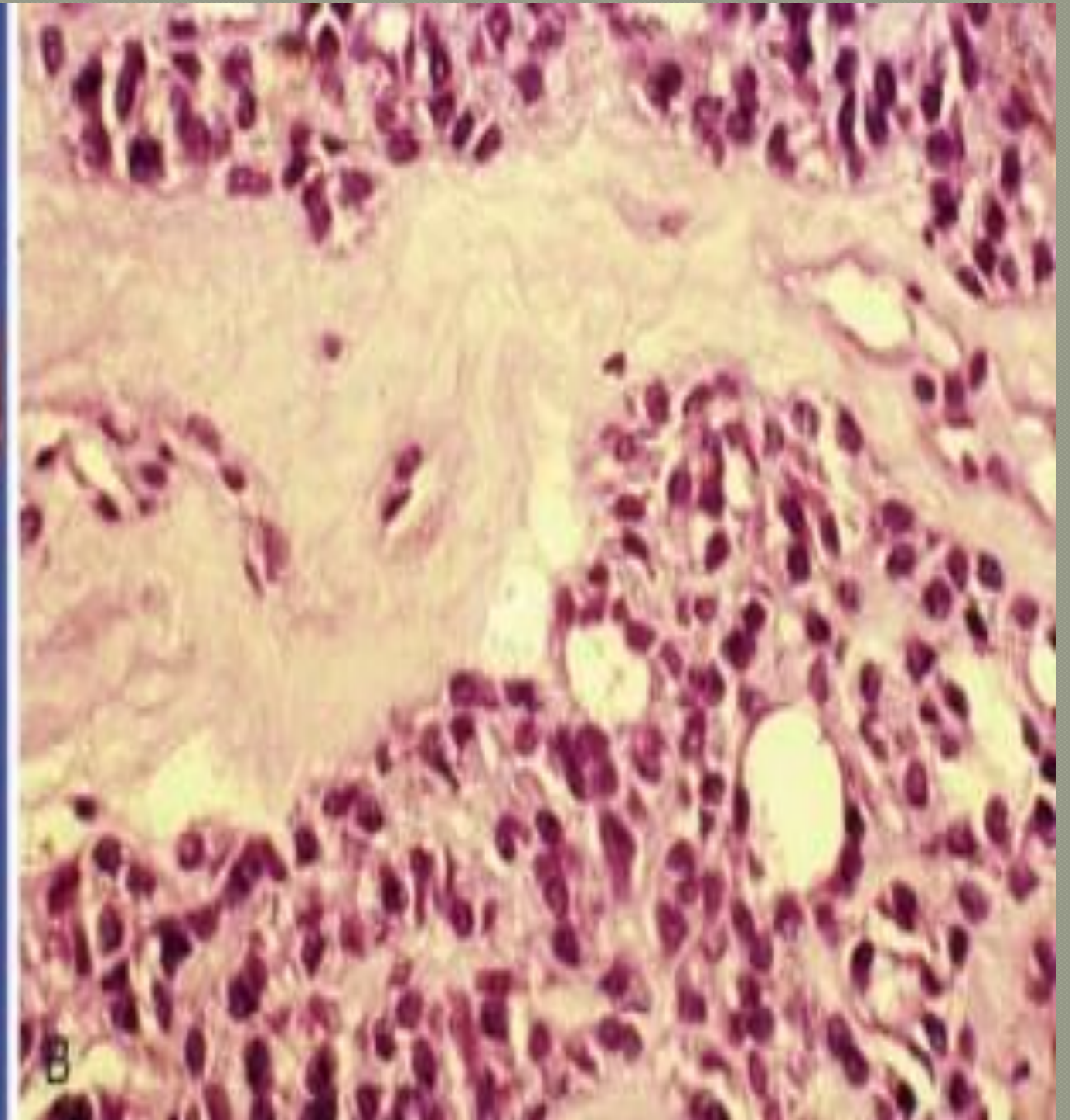
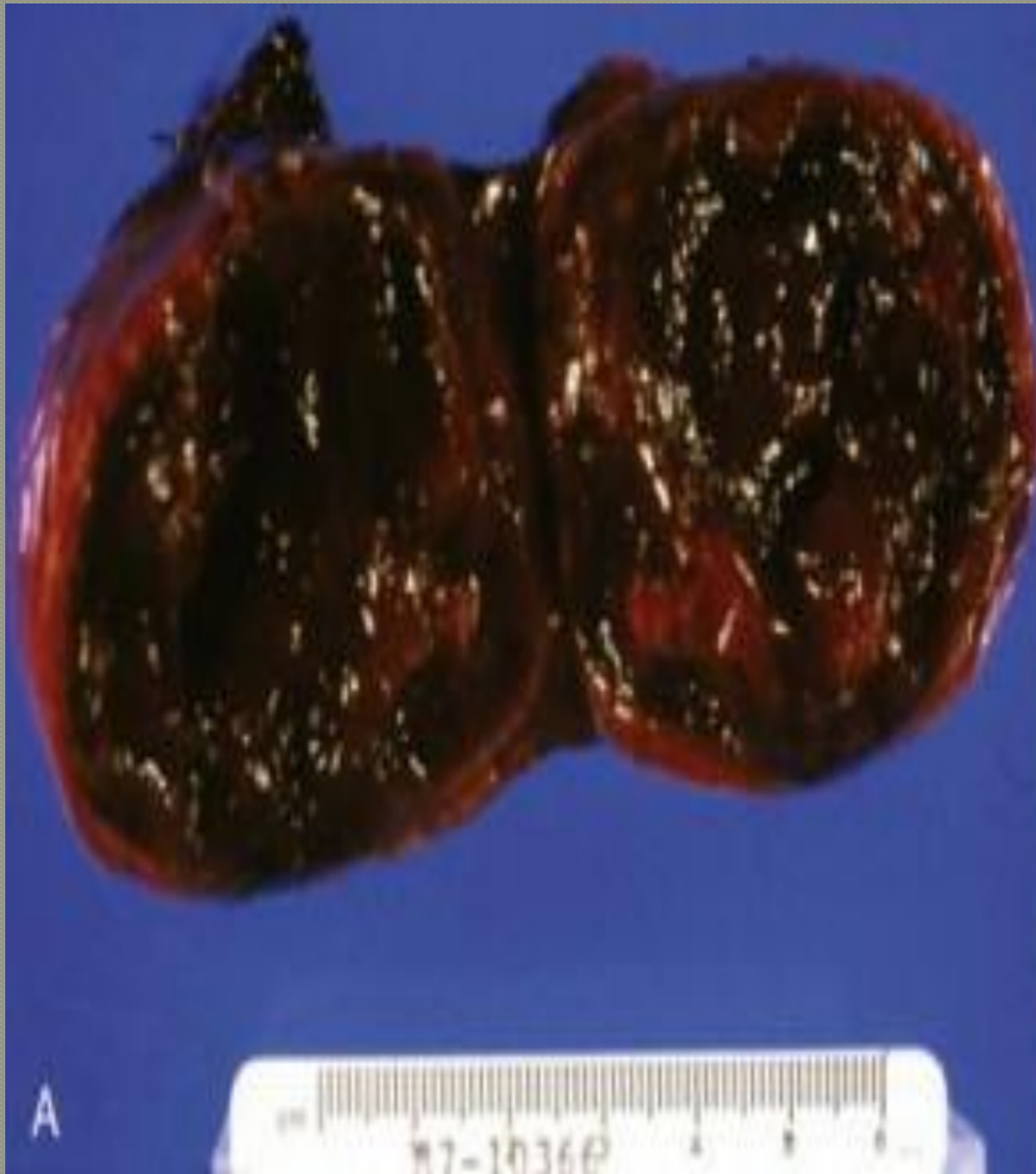
- Tratamiento idéntico al de CA papilar
- Por ser más agresivo se debe hacer tiroidectomía total en todos los casos

# CARCINOMA MEDULAR DE TIROIDES

---

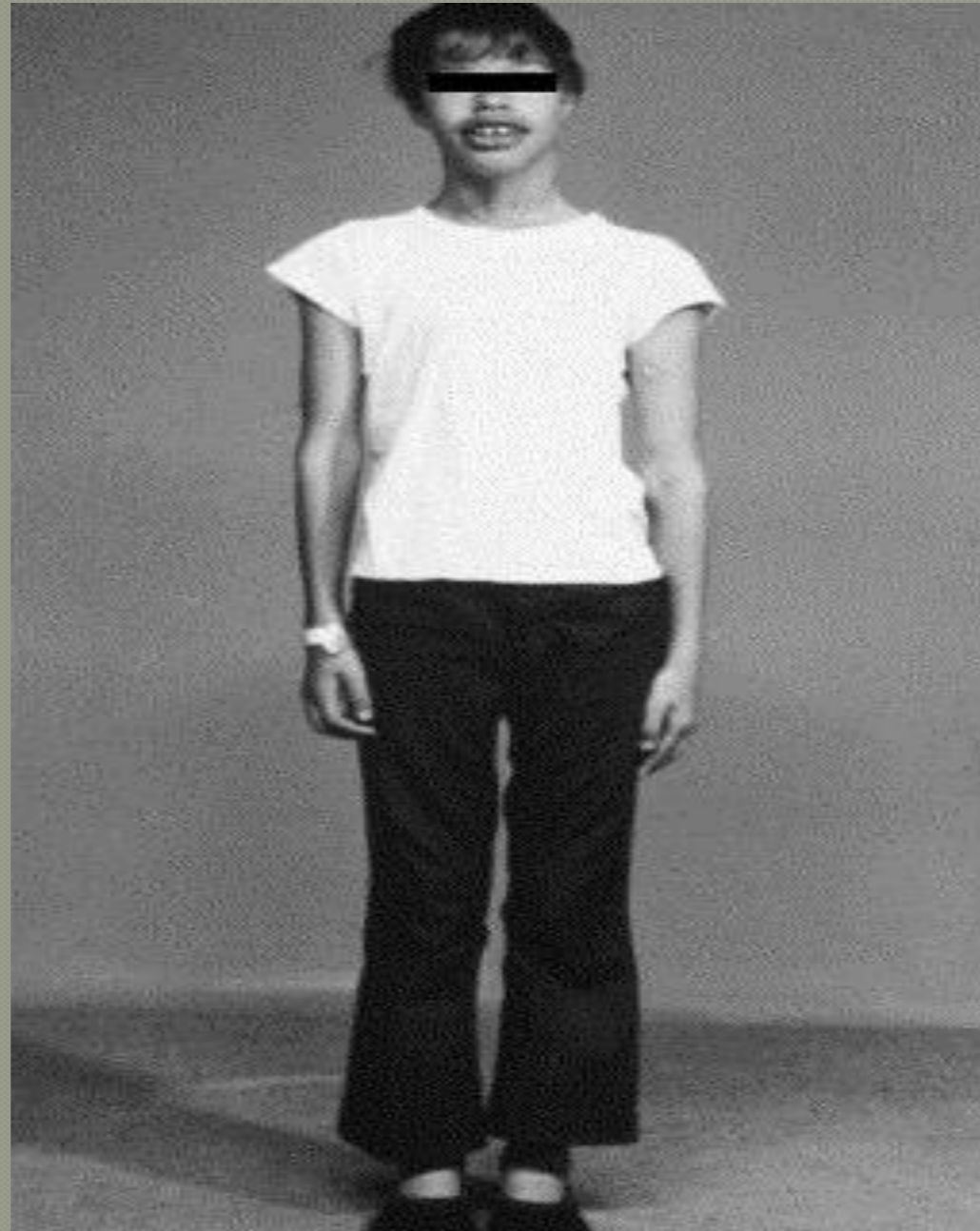
- -Carcinoma medular de tiroides representa 10 al 15 % de todos los CA de tiroides.
- -25% de los CA medular son hereditarios que incluyen: CA medular familiar, MEN 2A Y MEN 2B.
- -Ocurren por mutaciones en protooncogen RET.
- -Tumor no sensible al yodo, t/to quirúrgico.

# CARCINOMA MEDULAR



# MEN 2 B

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# CARCINOMA ANAPLÁSICO

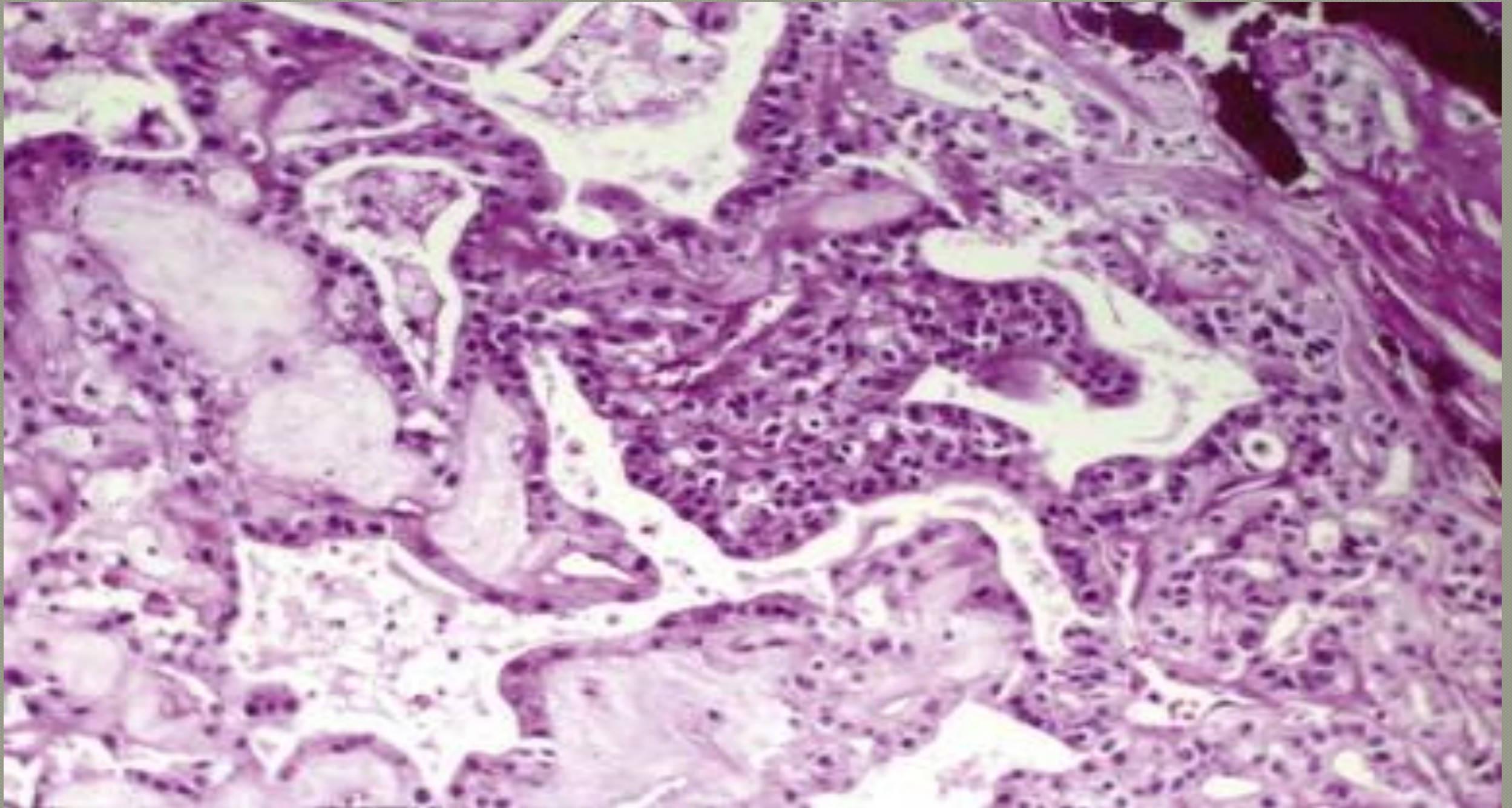
---

- -Menos del 5% de los CA de tiroides
- -Mayores de 50 años
- -Células fusiformes o gigantes con gran pleomorfismo y mitosis
- -Muy agresivo, ocasiona muerte a corto plazo.
- -Infiltra intensa a tejidos adyacentes, a veces solo se puede hacer traqueostomía.



# CARCINOMA ANAPLÁSICO

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# CARCINOMA ANAPLÁSICO

---



# ECOGRAFÍA TIROIDEA

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· Ecografía tiroidea se debe hacer en todos los pacientes con sospecha de nódulos tiroideos y en casos de nódulos conocidos cuando se hace control.

· RECOMENDACIÓN GRADO A

# CARACTERÍSTICAS ECOGRÁFICAS DE MALIGNIDAD

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- -Nódulo hipoecogénico
- -Aumento de la vascularidad intranodal
- -Márgenes irregulares e infiltrantes
- -Presencia de microcalcificaciones
- -Halo ausente
- -Composición predominantemente sólida

**Table 38-1 Ultrasonographic Features of Thyroid Cancer**

IMAGING FEATURE	SENSITIVITY (%)	SPECIFICITY (%)	Predictive Value (%)	
			POSITIVE	NEGATIVE
Microcalcifications	26-59	86-95	24-71	42-94
Hypoechoogenicity	27-87	43-94	11-68	74-94
Irregular margins or no halo	17-78	39-85	9-60	39-98
Solid	69-75	53-56	16-27	88-92
Intranodular vascularity	54-74	79-81	24-42	86-97
More tall than wide	33	93	67	75

Data from Frates MC, Benson CB, Charboneau JW, et al: Management of thyroid nodules detected at US: Society of Radiologists in Ultrasound consensus conference statement. *Radiology* 237:794-800, 2005.

having a shape that is taller than its width on transverse view (Table 38-1).<sup>15</sup>

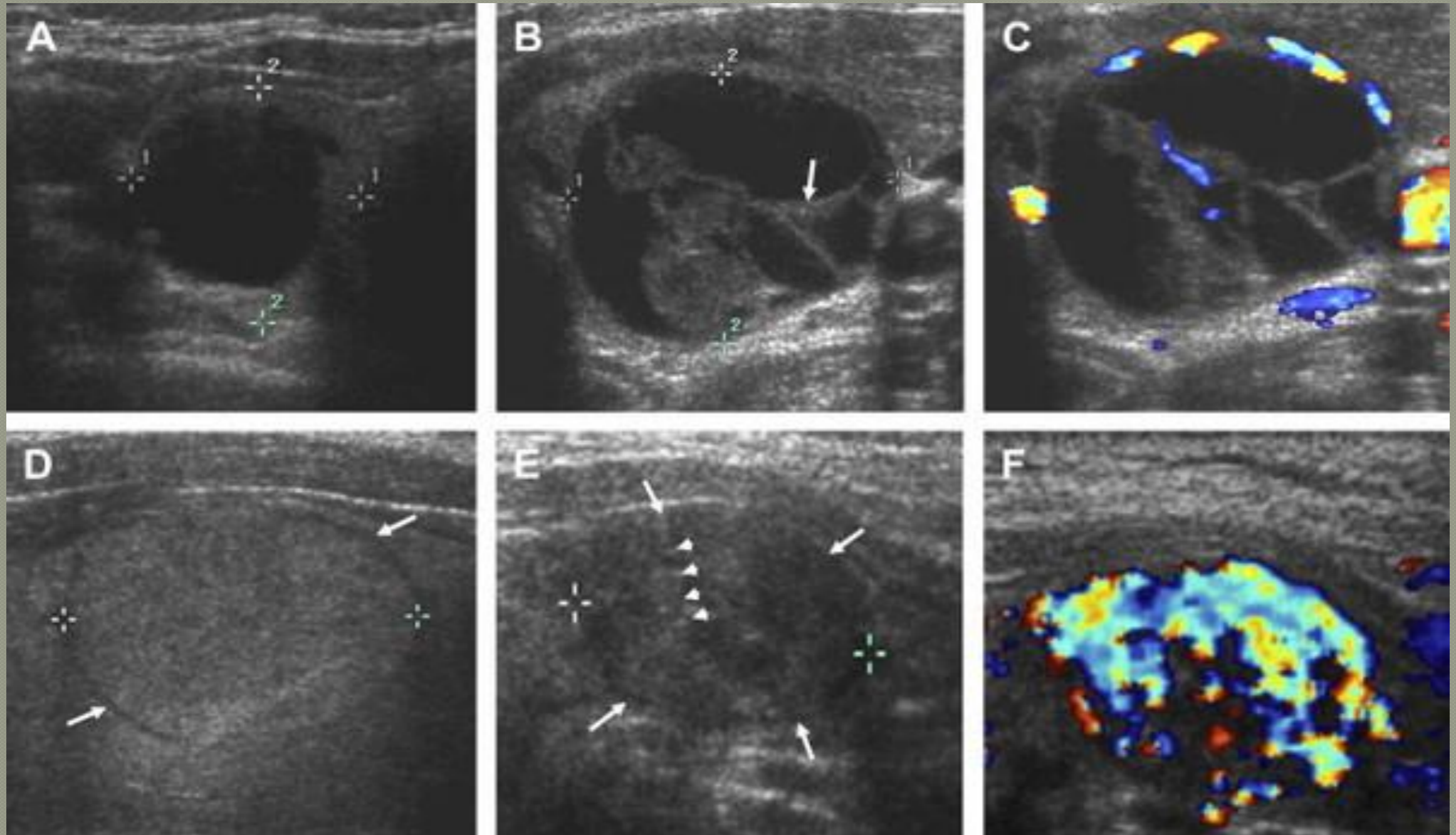
The size of a nodule on ultrasound is important in determining the need for further evaluation, such as needle biopsy. In general nodules that are smaller than 1 cm in greatest dimension are not further evaluated (see Fig. 38-8). Further workup of nodules smaller than 1 cm may be indicated for nodules such as those with suspicious characteristics on ultrasound and those associated with suspicious lymphadenopathy by ultrasound or clinical examination, patients with a family history of papillary thyroid cancer, history of radiation exposure, prior personal history of thyroid cancer, and <sup>18</sup>F-fluorodeoxyglucose (FDG)/positron emission tomography (PET)-positive lesions.

PET with <sup>18</sup>F-fluorodeoxyglucose can be used to provide three-dimensional reconstruction images. There has been increasing enthusiasm for its use in detecting primary and metastatic thyroid cancer. Interestingly, 1% to 2% of PET scans identify so-called thyroid incidentalomas when evaluating other solid malignancies. Although most PET-avid incidentalomas in the thyroid are benign, the incidence of malignancy in those that have progressed to resection has been reported to be as high as 33%.<sup>16</sup> The appropriateness of PET in the workup or follow-up of thyroid nodules remains debatable.

### Computed Tomography and Magnetic Resonance Imaging

It is fairly well agreed that CT and MRI do not add significantly to the workup of uncomplicated thyroid nodules that are oth-

# ECOGRAFÍA DE TIROIDES



# ULTRASONIDO DE TIROIDES

---

## NO INDICADO

- Como tamizaje en la población general
- Pacientes con bajo riesgo de cáncer tiroideo y con palpación normal de la tiroides

## SÍ INDICADO

- Nódulo palpable
- Historia de irradiación en cabeza y cuello
- Historia familiar de carcinoma de tiroides o MEN 2
- Adenopatía cervical inexplicada

# BACAF DE TIROIDES

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- BIOPSIA POR ASPIRACIÓN CON AGUJA FINA (BACAF) ES EL MÉTODO MÁS EXACTO Y COSTO EFECTIVO PARA EVALUAR NÓDULOS TIROIDEOS.
- SE PREFIERE SI ES TOMADA GUIADA POR ECOGRAFÍA



## The recommended diagnostic categories as proposed by the Bethesda System for Reporting Thyroid Cytopathology<sup>31</sup>

### I. Non-diagnostic or unsatisfactory

Cyst fluid only

Virtually acellular specimen

Other (obscuring blood, clotting artefact, etc)

### II. Benign

Consistent with a benign follicular nodule (includes adenomatoid nodule, colloid nodule, etc)

Consistent with lymphocytic (Hashimoto) thyroiditis in the proper clinical context

Consistent with granulomatous (subacute) thyroiditis

Other

### III. Atypia of undetermined significance or follicular lesion of undetermined significance

### IV. Follicular neoplasm or suspicious for a follicular neoplasm

Specify if Hürthle cell (oncocytic) type

### V. Suspicious for malignancy

Suspicious for papillary carcinoma

Suspicious for medullary carcinoma

Suspicious for metastatic carcinoma

Suspicious for lymphoma

Other

### VI. Malignant

Papillary thyroid carcinoma

Poorly differentiated carcinoma

Medullary thyroid carcinoma

Undifferentiated (anaplastic) carcinoma

Squamous cell carcinoma

Carcinoma with mixed features (specify)

Metastatic carcinoma

Non-Hodgkin lymphoma

Other

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### Diagno

- Carcinoma with mixed features (specify)
- Metastatic carcinoma
- Non-Hodgkin lymphoma
- Other

per group, this is similar to criteria that have been suggested by others. One exception to this adequacy rule is the colloid nodule. For samples consisting of abundant colloid only, without sufficient groups of 10 or more cells, these cases can be diagnosed as benign.

**Diagnostic categories**

The six-tiered diagnostic categories of TBSRTC provide a logical framework for the reporting of thyroid FNAs based upon an evaluation of the epithelial, inflammatory, and colloid components present. The following is an overview of the diagnostic categories of TBSRTC:

**Table 2**

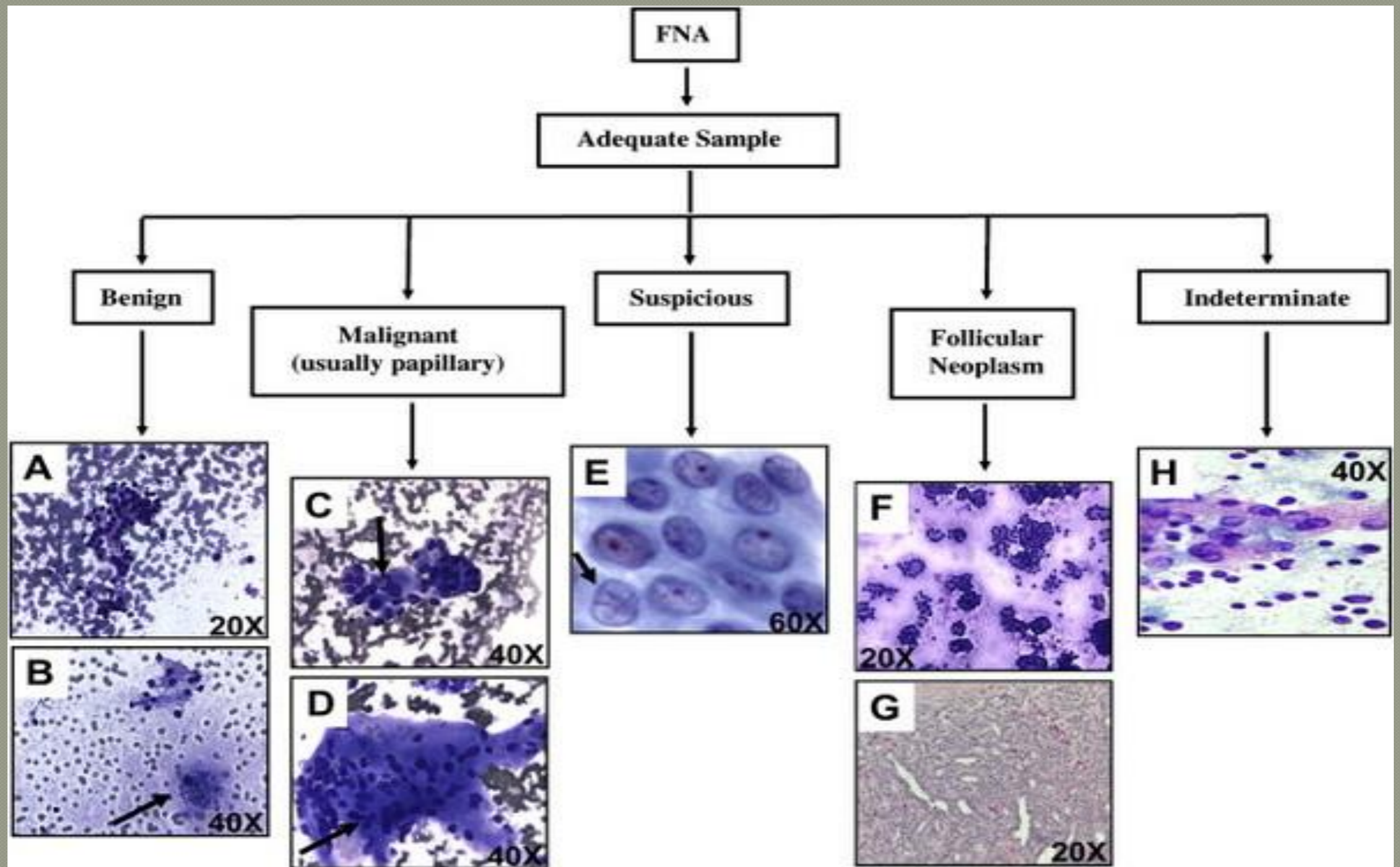
classification system. Where evidence was lacking or fragmentary, decisions were based on the consensus of the participants. The six-tiered system consists of a unified, stratified, and clear categorization of diagnoses.

**Implied risk of malignancy and recommended clinical management according to The Bethesda System for Reporting Thyroid Cytopathology<sup>31</sup>**

Diagnostic category	Risk of malignancy (%)	Usual management
Non-diagnostic or unsatisfactory	1–4	Repeat FNA with ultrasound guidance
Benign	0–3	Clinical follow-up
Atypia of undetermined significance or follicular lesion of undetermined significance	5–15	Repeat FNA
Follicular neoplasm or suspicious for a follicular neoplasm	15–30	Surgical lobectomy
Suspicious for malignancy	60–75	Near-total thyroidectomy or surgical lobectomy
Malignant	97–99	Near-total thyroidectomy

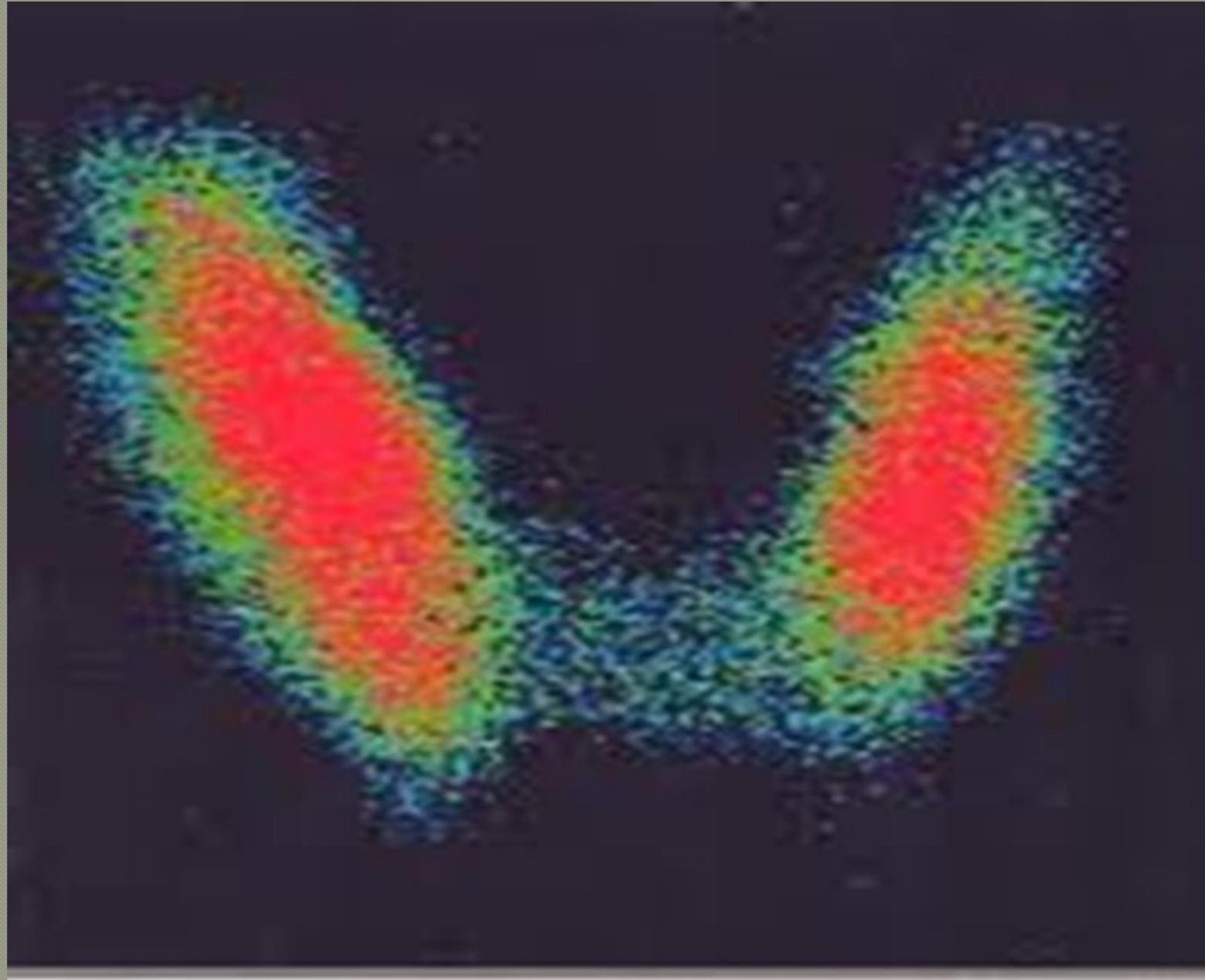
**Table 3**

# REPORTE DE CITOLOGÍA



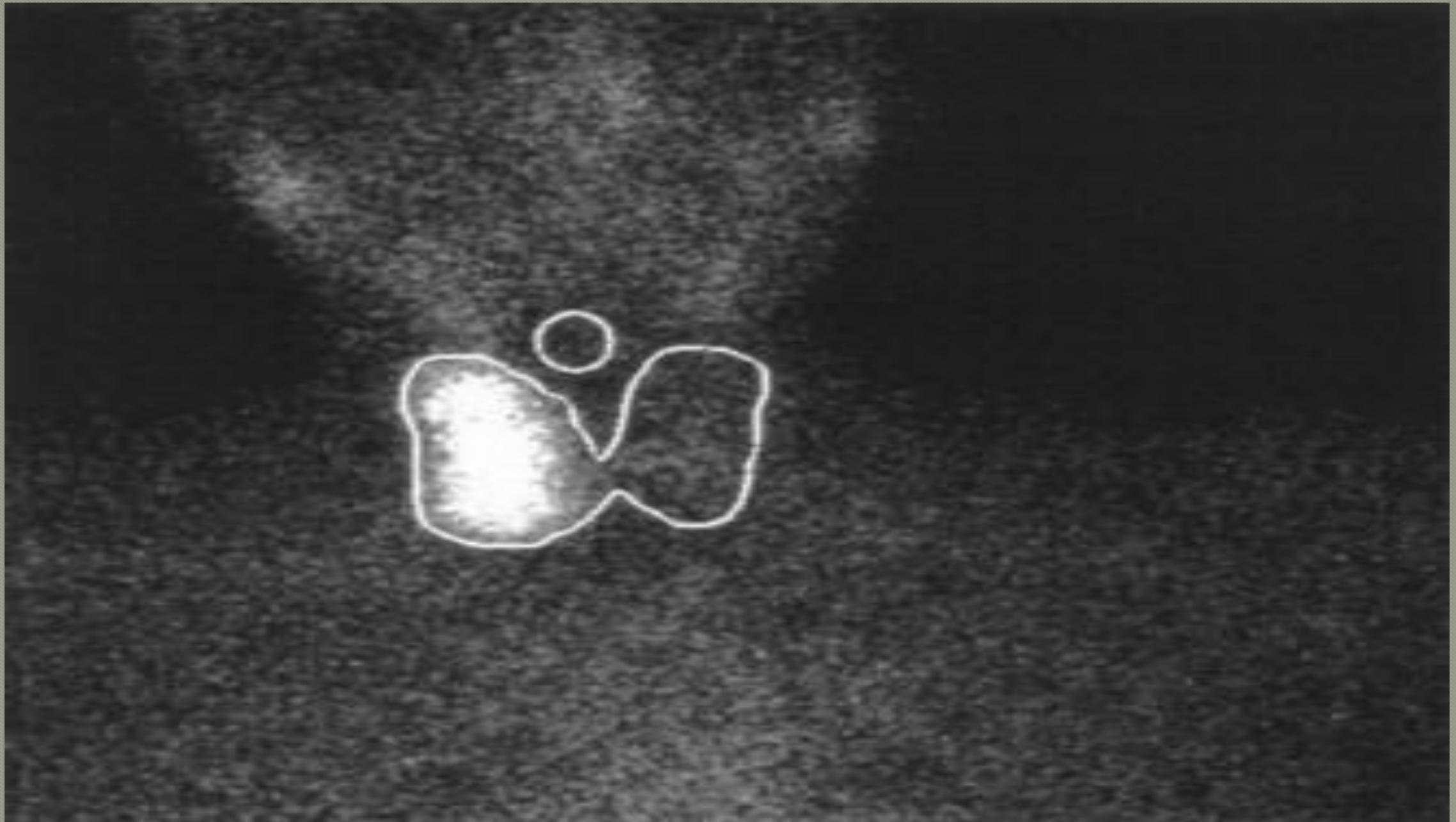
# GAMMAGRAFÍA

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# GAMMAGRAFÍA

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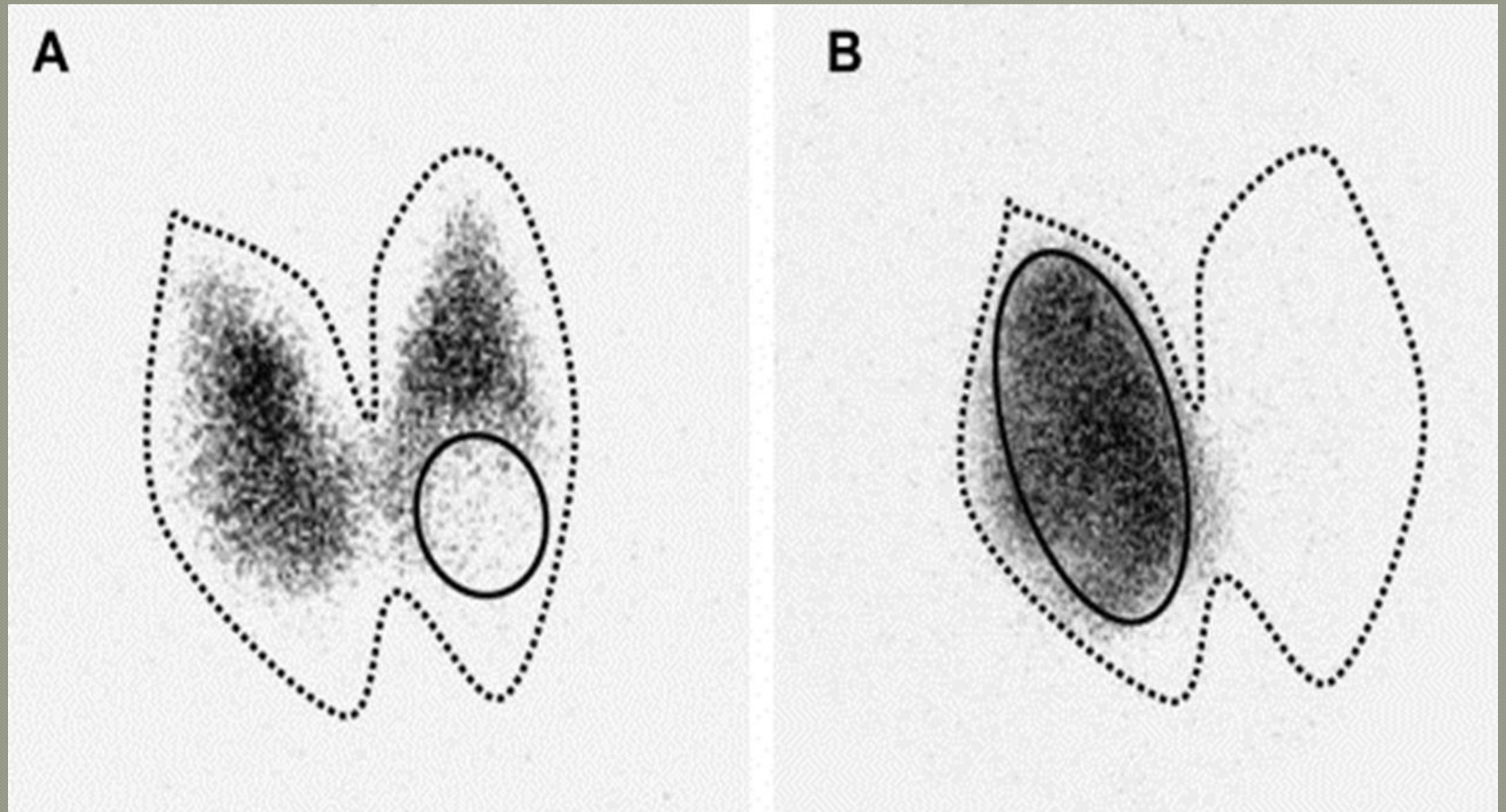


# GAMMAGRAFÍA TIROIDES

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- Se ha observado malignidad entre 15 a 20% de los nódulos fríos; y entre 5 a 9 % de los nódulos tibios o calientes.
- La malignidad de un nódulo no puede ser confirmada ni excluida, basado en gammagrafía.
- Lesiones < 1 cm no se ven. No es útil como estudio diagnóstico inicial.

# GAMMAGRAFÍA TIROIDEA



# INDICACIÓN DE GAMMAGRAFÍA

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Medición de TSH en la evaluación inicial de pacientes con un nódulo tiroideo. Si TSH está por debajo de lo normal se debe hacer gammagrafía con Tc 99 o con I 131.

RECOMENDACIÓN TIPO A

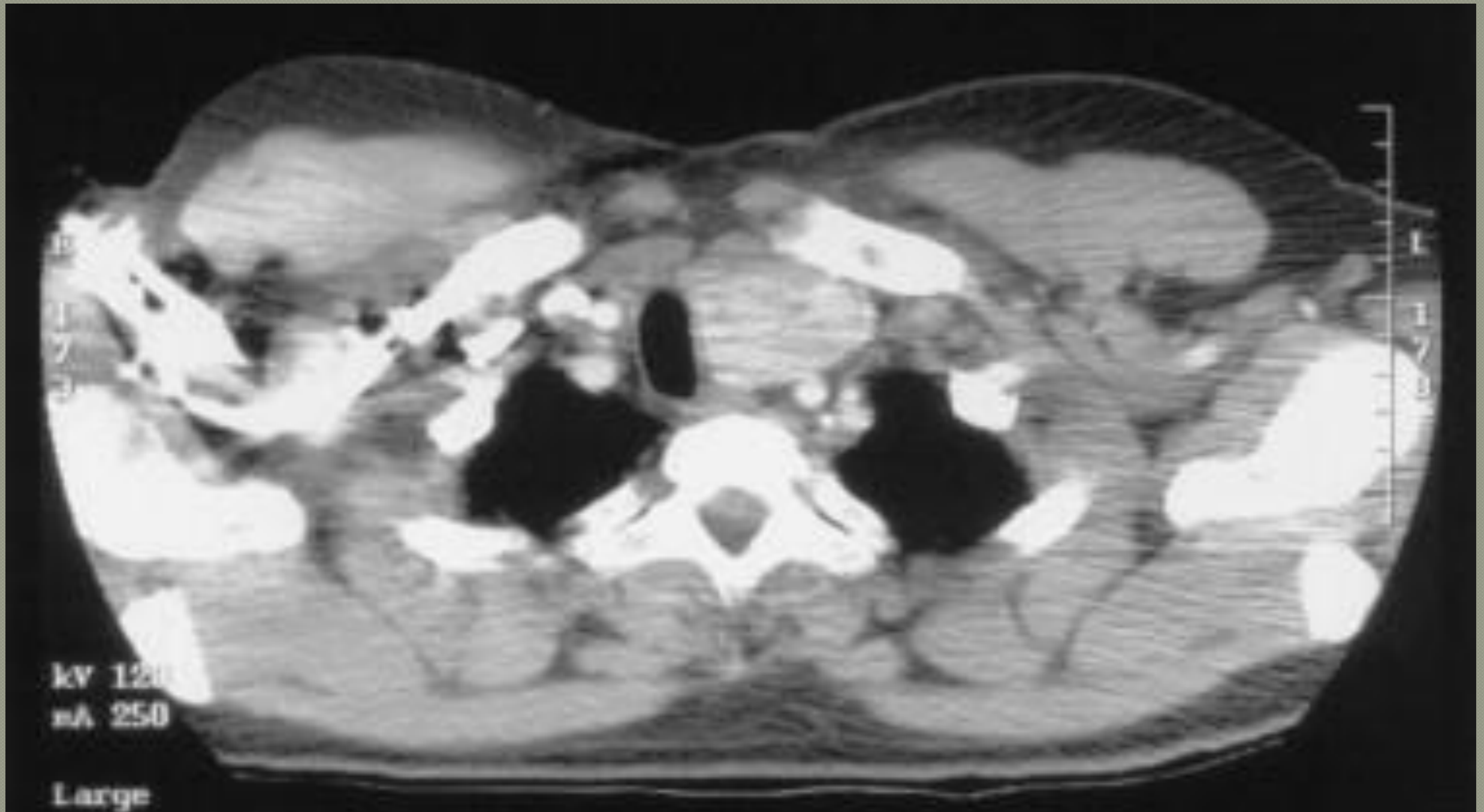


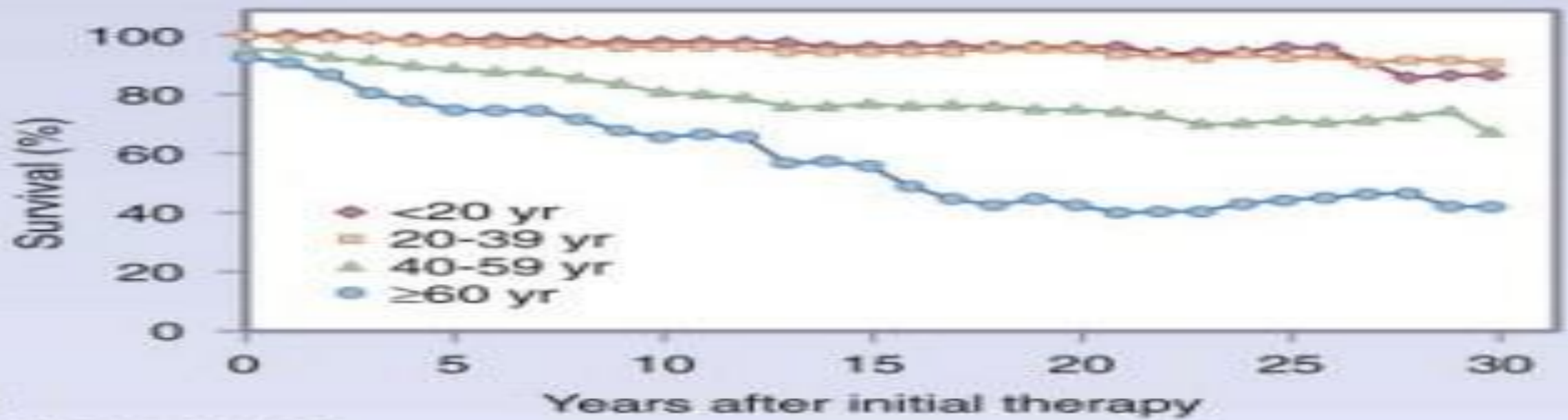
# TOMOGRAFÍA DE TIROIDES

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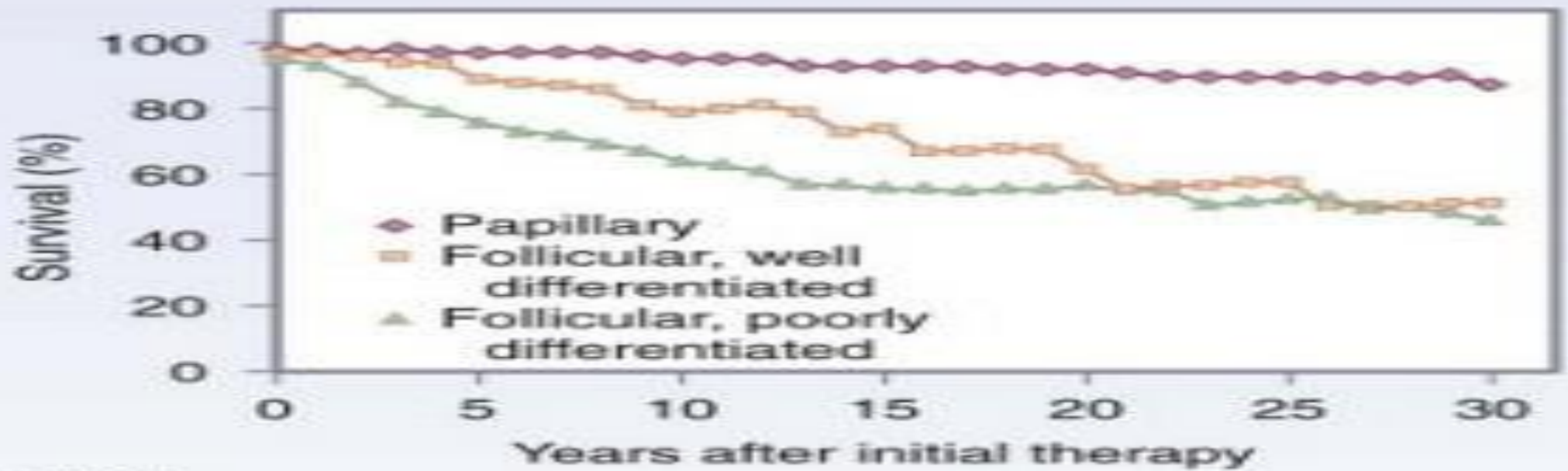
# TAC (CA PAPILAR)





Patients at risk

<20 yr	142	110	92	73	55	30	15
20-39 yr	659	391	232	133	84	45	29
40-59 yr	672	471	304	199	128	81	43
≥60 yr	228	101	51	27	14	11	9



Patients at risk

Papillary	1261	802	518	339	221	130	74
Follicular, well differentiated	97	64	36	21	11	7	4
Follicular, poorly differentiated	343	207	125	72	49	30	18