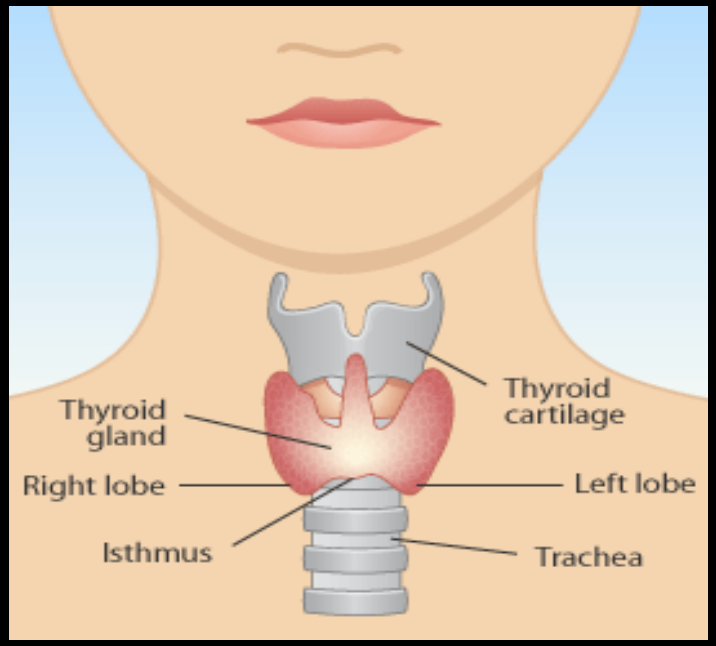
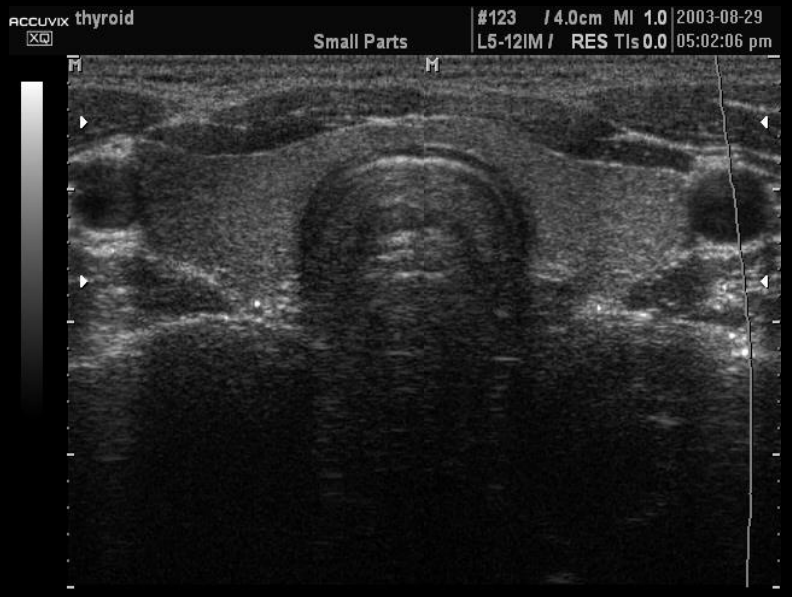
A pajzsmirigy patológiája


Thyroid gland
Thyroid cartilage
Right lobe
Left lobe
Isthmus
Trachea

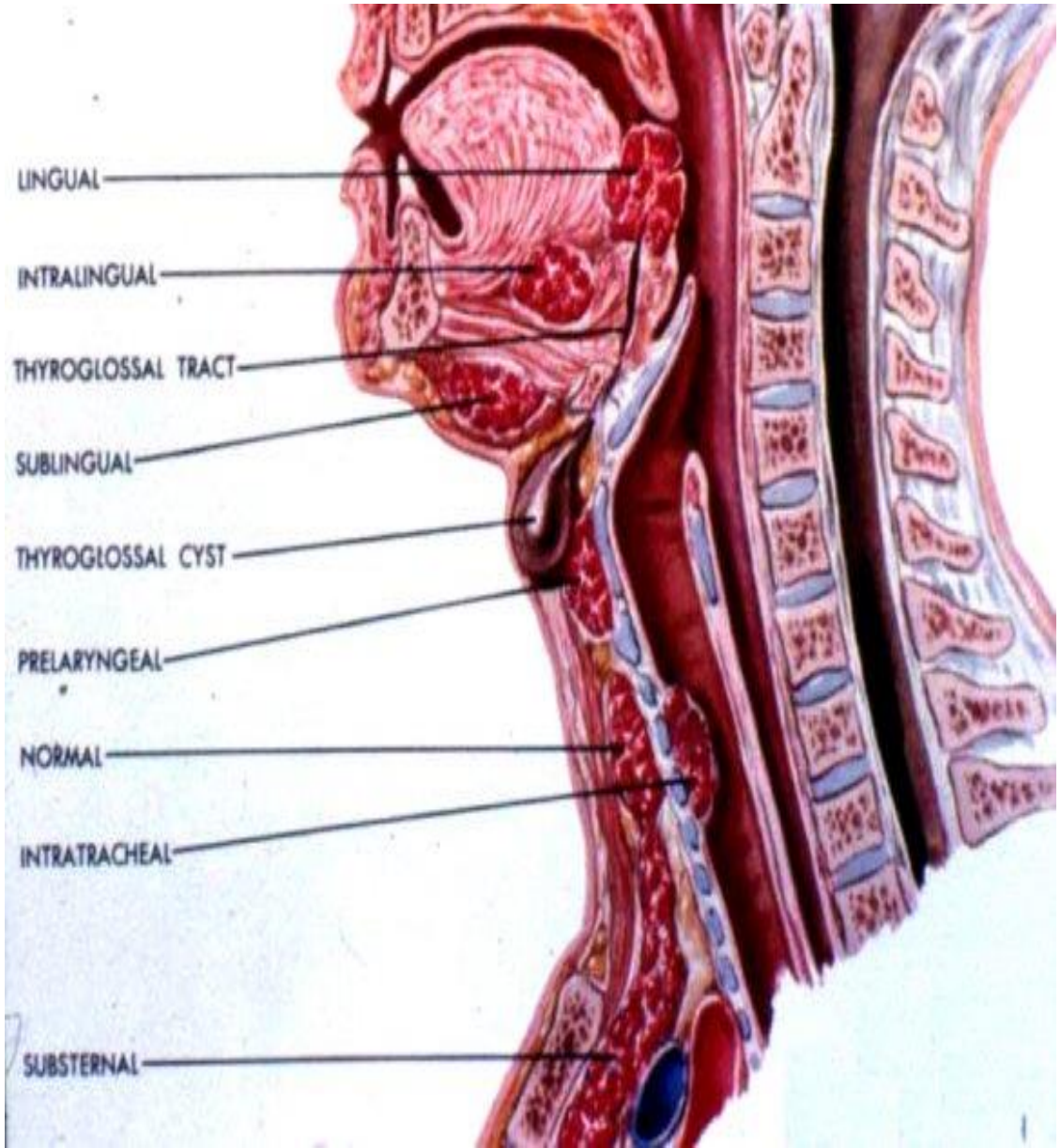

ACCUVIX thyroid
XQ
Small Parts
#123 / 4.0cm MI 1.0
L5-12IM / RES TIs 0.0
2003-08-29
05:02:06 pm

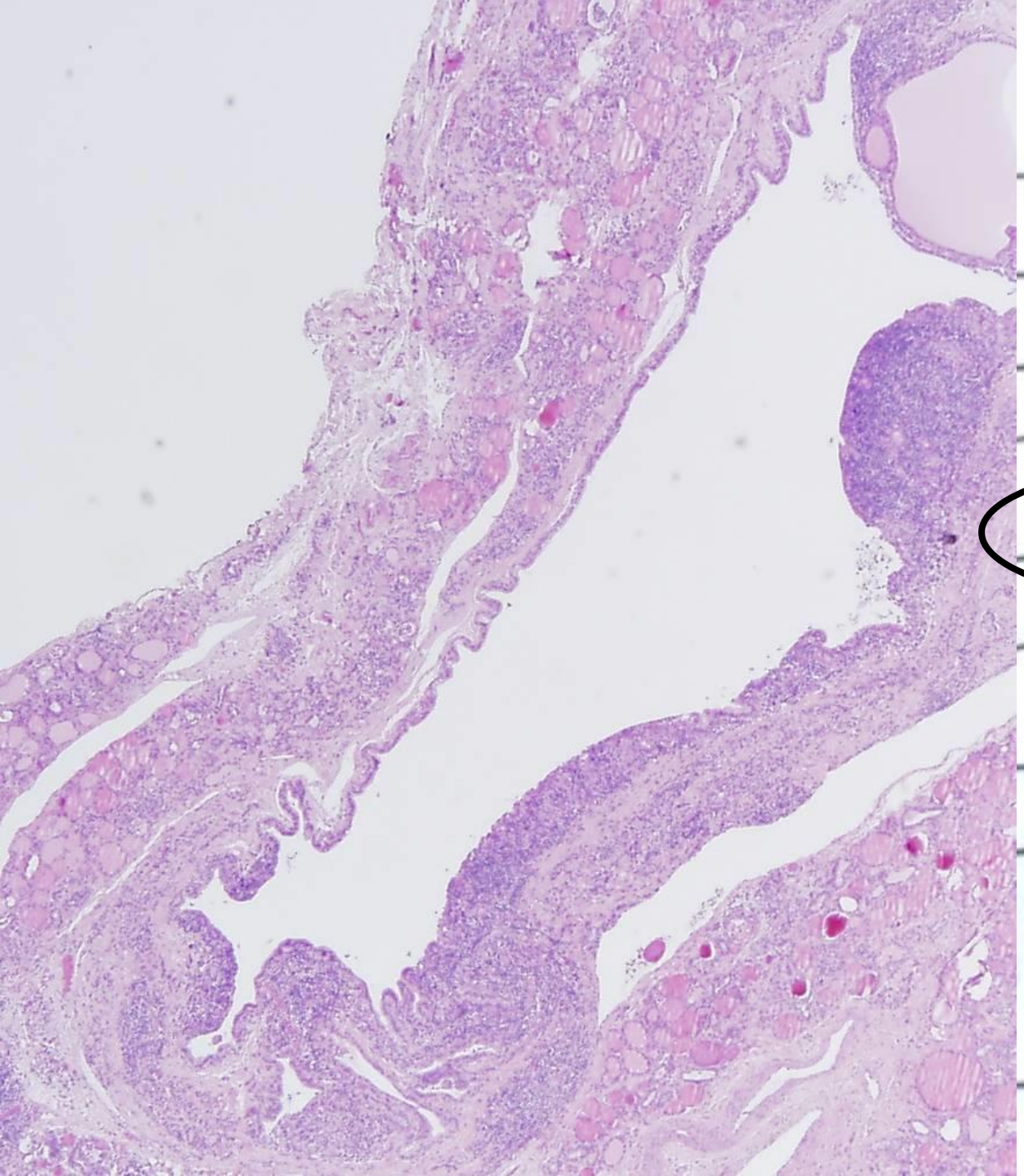
Fejlődés

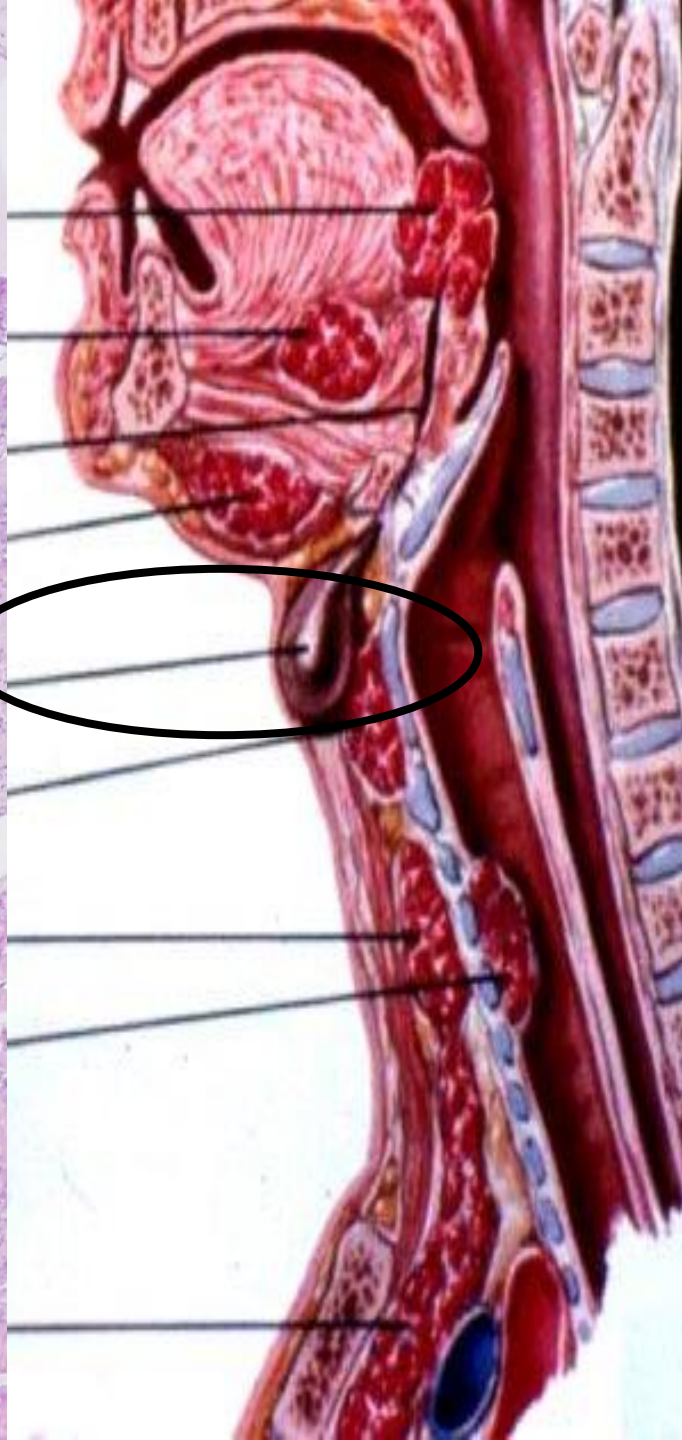
Pharyngealis epithel
kiboltosulás (nyelvgyök)
(foramen cecum)
(Struma lingualis)

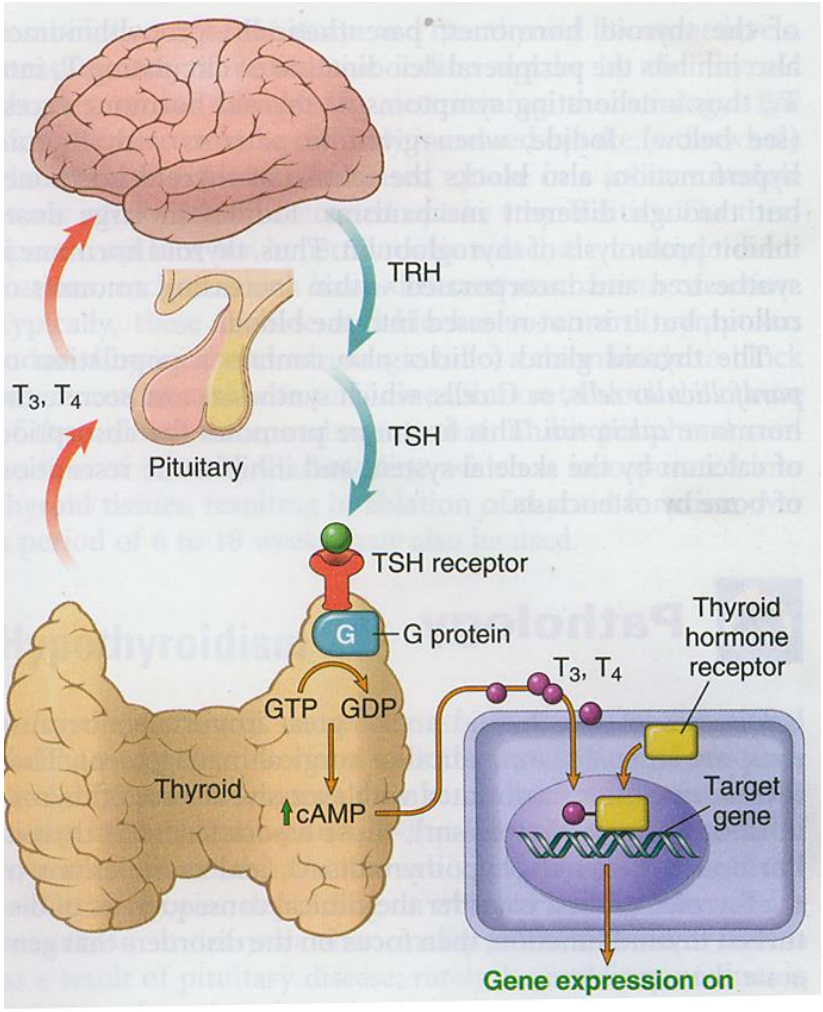
Ductus thyroglossus

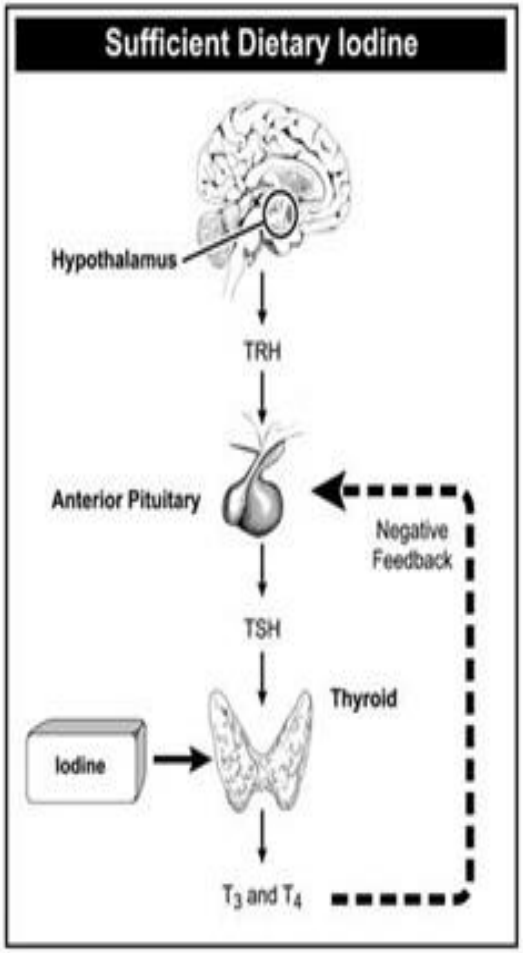
Substernalis
pajzsmirigy szövet

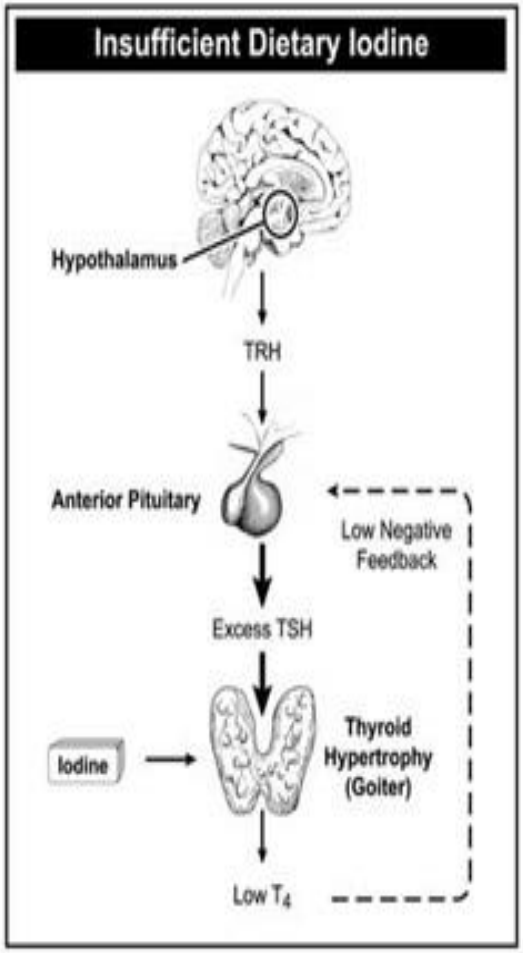


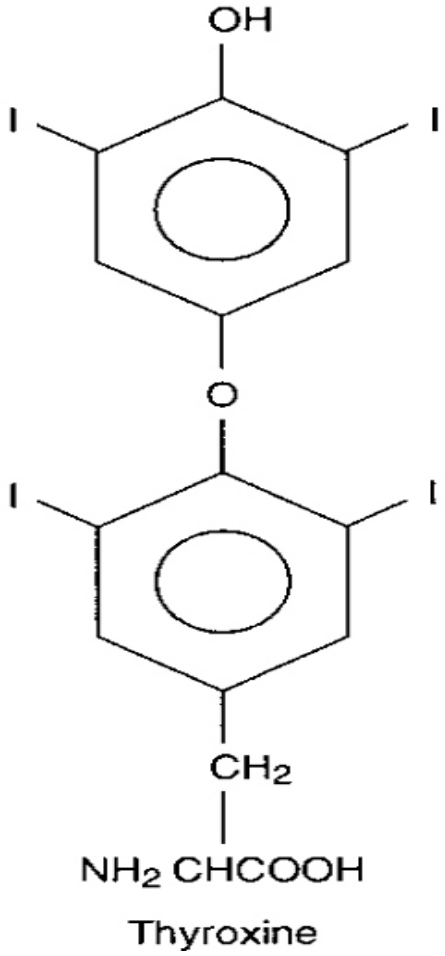




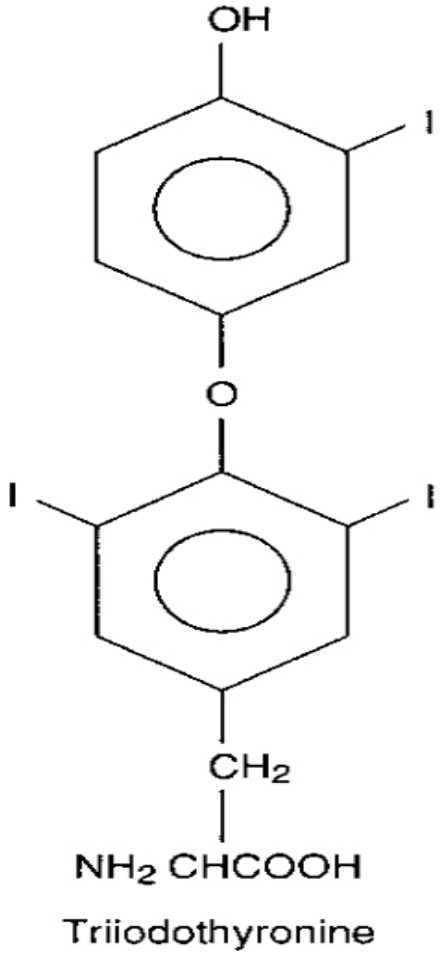

TRH
TSH
T_3, T_4
Pituitary
TSH receptor
G
G protein
GTP
GDP
Thyroid
cAMP
T_3, T_4
Thyroid hormone receptor
Target gene
Gene expression on


Sufficient Dietary Iodine
Hypothalamus
TRH
Anterior Pituitary
Negative Feedback
TSH
Thyroid
Iodine
T_3 and T_4


Insufficient Dietary Iodine
Hypothalamus
TRH
Anterior Pituitary
Low Negative Feedback
Excess TSH
Iodine
Thyroid Hypertrophy (Goiter)
Low T_4



Thyroxine



Triiodothyronine

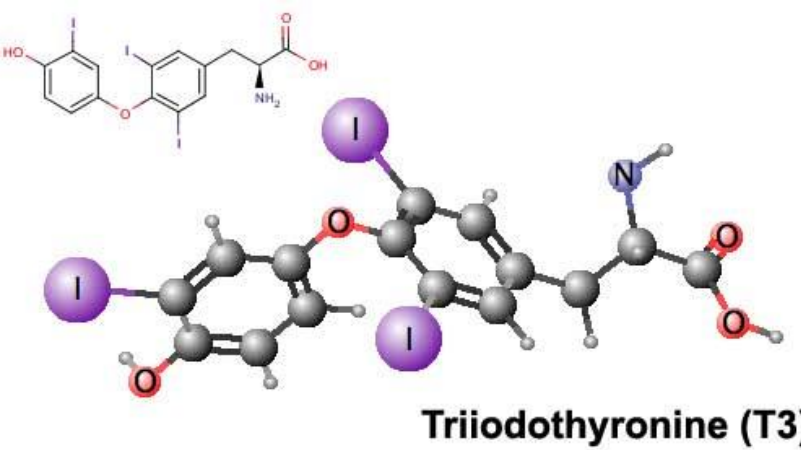
Szénhidrát catabolismus,

Lipid catabolismus,

Protein szintézis

} Metabolikus activitás ^

Agy fejlődés…



Triiodothyronine (T3)

T3, T4 a vérben:

thyroxine-binding globulin (TBG),	70%
transthyretin vagy "thyroxine-binding prealbumin" (TTR vagy TBPA)	10-15%
Albumin	15-20%
szabad T4 (fT4)	0.03%
szabad T3 (fT3)	0.3%

Nomenclatura

Struma diffusa

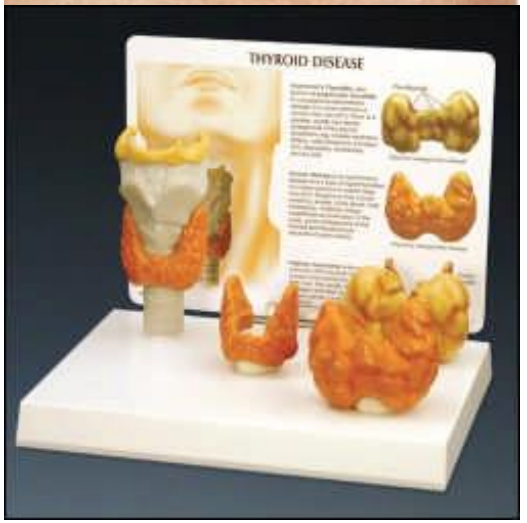
nodosa

Functio (?!)

Normofunctio

Hyperfunctio

Hypofunctio



Pajzsmirgy vizsgálata

Fizikális

Labor TSH 0.3-3.6 mU /l

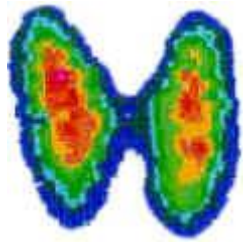
T4 9-19 pmol/l

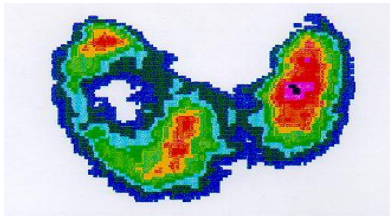
T3 2.6-5.7 pmol/l

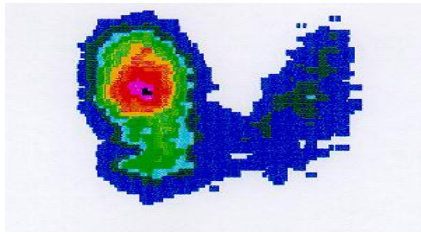
Scintigraphia

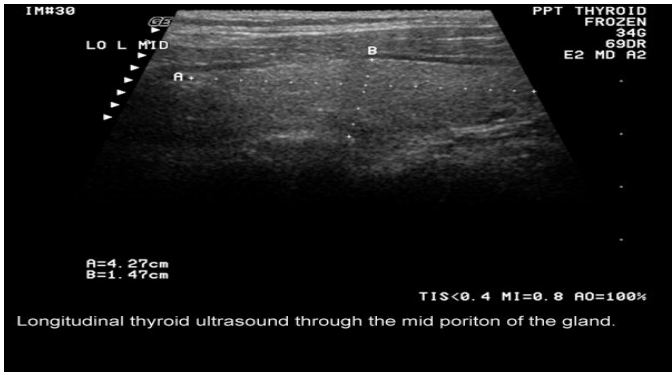
UH

FNAB









Longitudinal thyroid ultrasound through the mid poriton of the gland.




Hyperthyreosis hatásai

Sympathicus túlsúly (ß-adrenerg tónus - basal metabolikus aktivitás-fokozódás)

Bőr: meleg, nedves, meleg intolerancia
Testsúly vesztés diomyopatia

Szív: tachycardia, cardiomegália, arrhytmia (pitvarfibrilláció), CHF- TDC
(congestive heart failure, thyreotoxic dilatative cardiomyopatia)

Neuromuscularis systema:
tremor, hyperactivitás, insomnia, emocionális labilitás, idegesség, proximalis izomgyengeség, izomveszteség

Ocularis elváltozások:
„tágra zárt szemek" - levator palpebrae sympathicus túlsúly
valódi exophtalmus csak Graves kórban

GI: hypermotilitás, malbsorptio, diarrhea

Csontok: osteoporosis a fokozott csontresorptio miatt, törési hajlam ^ ^

Hyperthyreosis – labor tesztek

TSH (alacsony, még szubklinikus stádiumban is!)

T4 szint

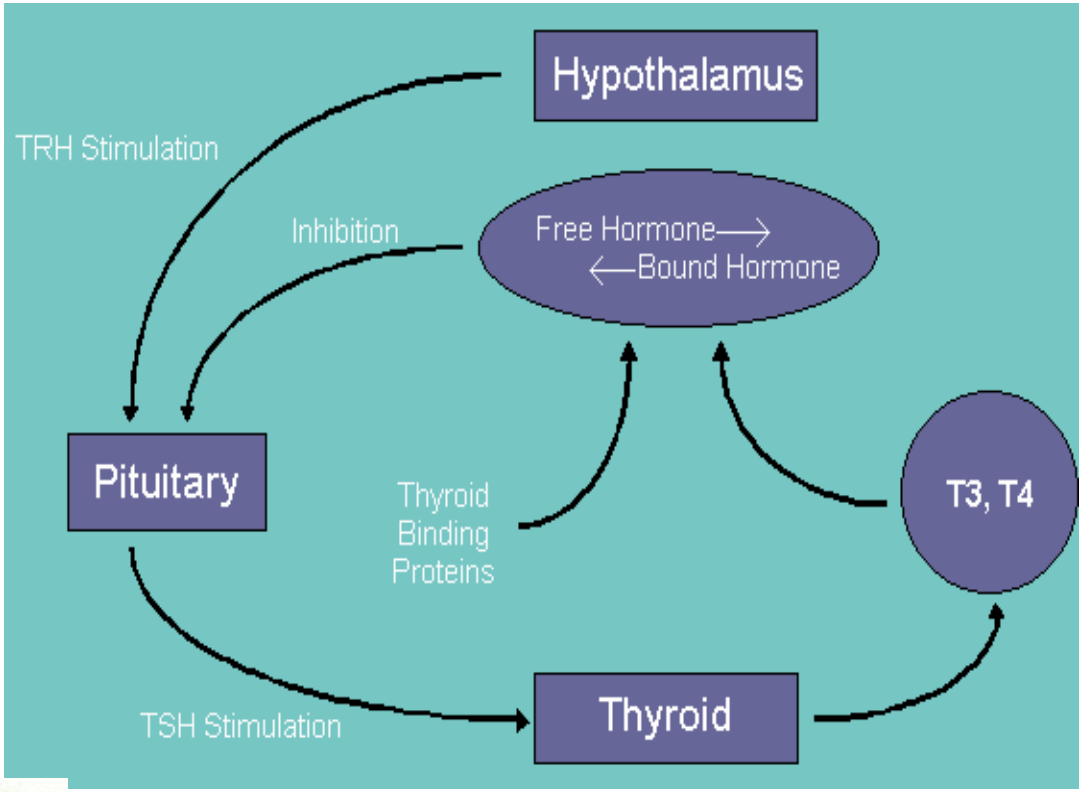
T3 szint

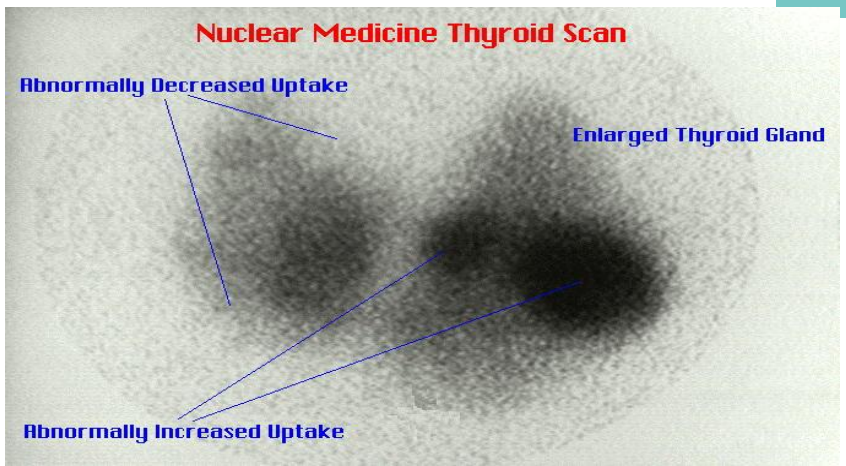
Szabad

T4, T3 mérés

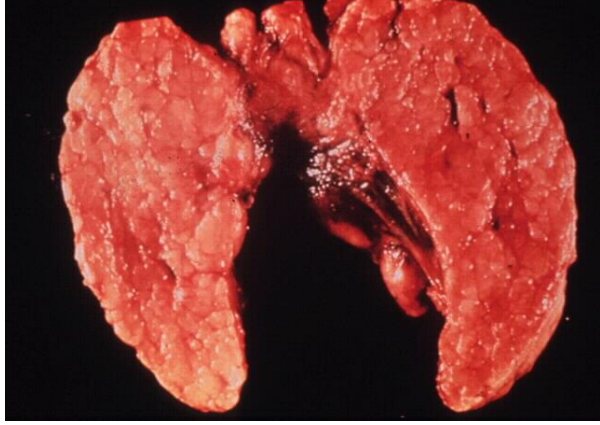
TRH teszt

Scintigráfia





Thyreotoxicosis okai



Hyperthyreosis miatt

Primer

- Diffúz toxicus hyperplasia (Graves- Basedow)
- Toxicus multinodularis golyva
- Toxicus adenoma
- Thyroid carcinoma
- Neonatalis hyperfunctio (anyai Graves kór miatt)

Secunder

- Hypophysis adenoma

Thyreotoxicosis okai
Nem Hyperthyreosis miatt

De Quervain thyreoiditis (Subacut granulomatosus thyreoiditis)

Subacut lymphocytás thyreoiditis

Struma ovarii

Exogen hormon túladagolás

Hyperthyreosis - Therápia

ß-adrenerg tónus csökkentése (ß blokkolók)

Propylthiouracil (gátolja a I oxidációt, gátolja a T4 szintézist, és a szövetekben a T4-T3 konverziót)

Thiamazole (thyroperoxidase gátló (I^--I_2)) (metothyrin)

Jód

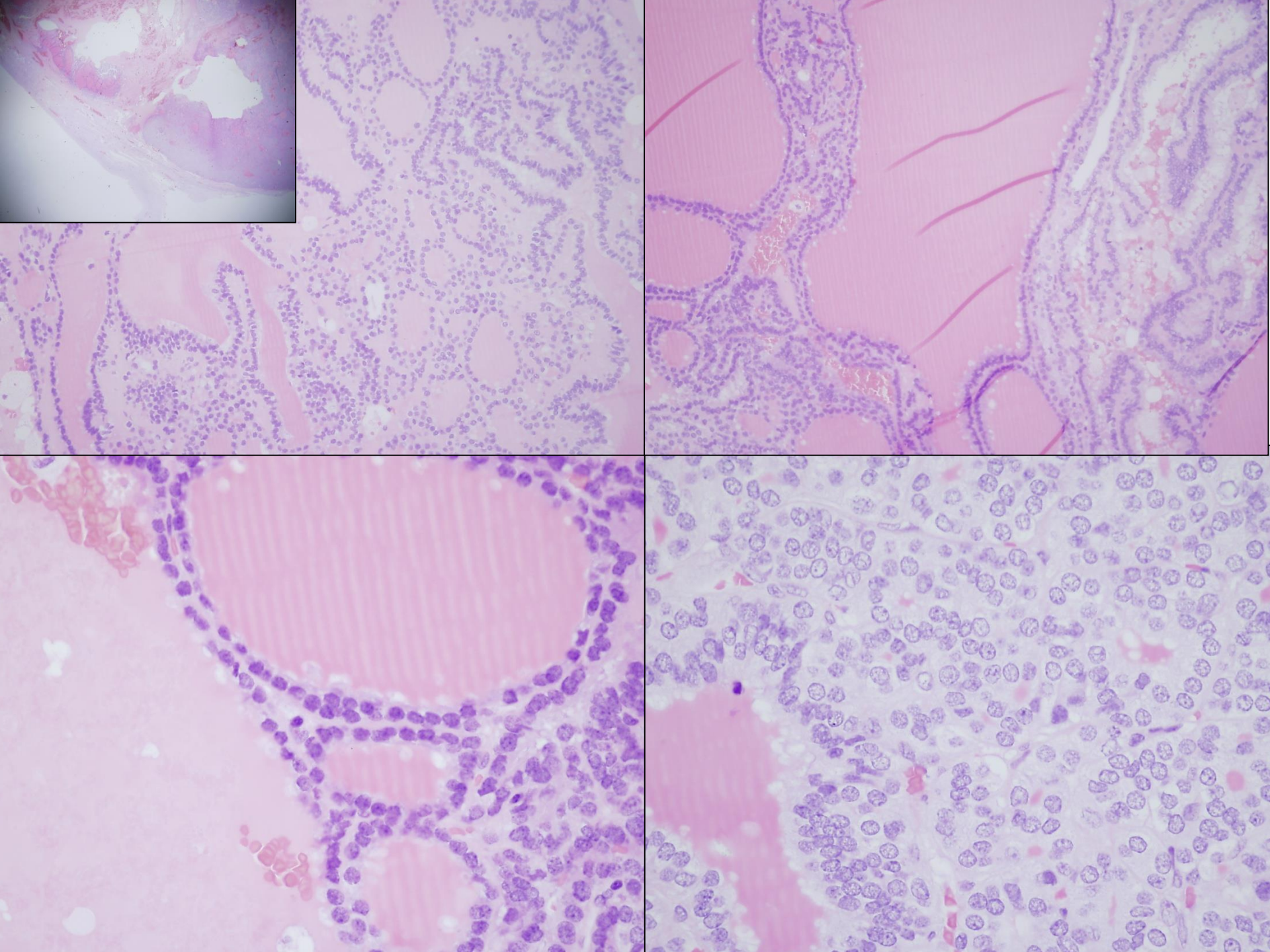
gátolja a tárolt hormon felszabadítását

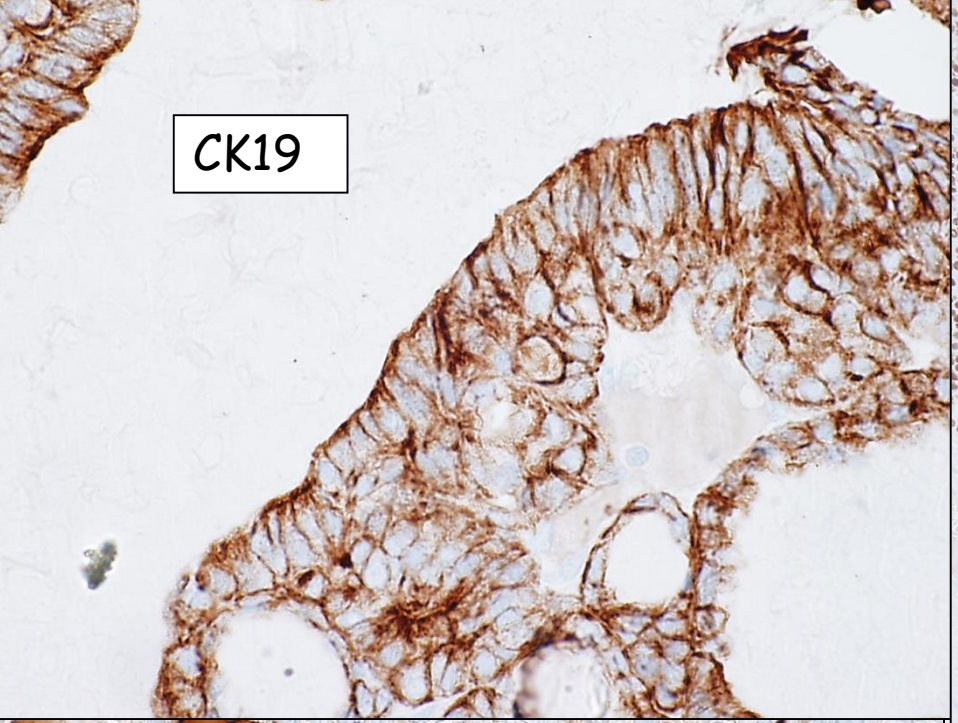
Radiojód therápia

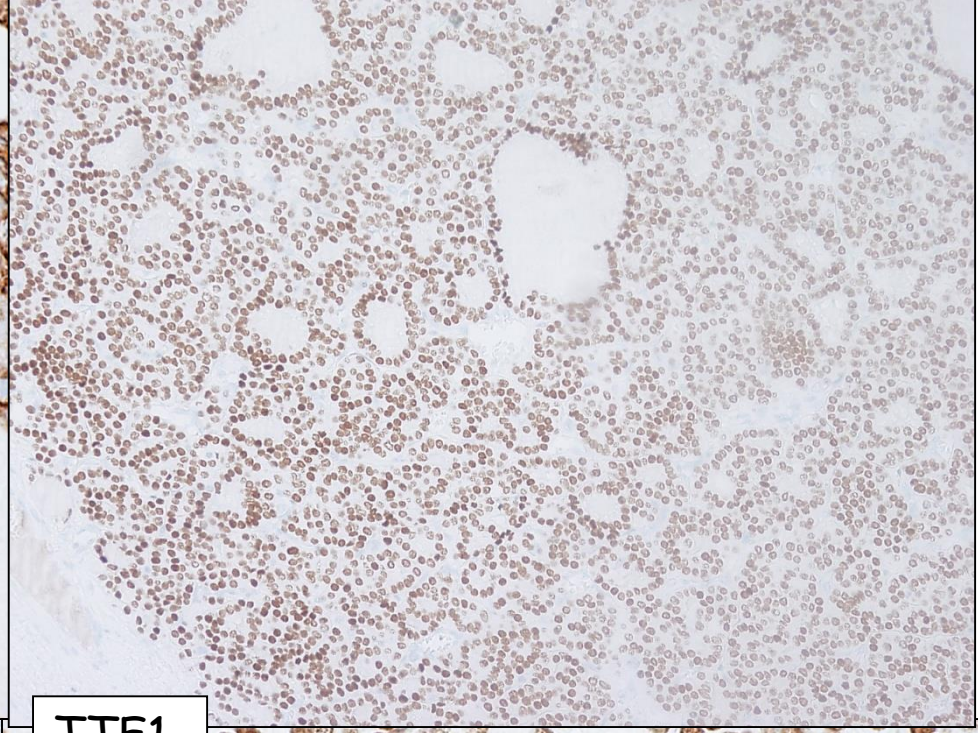
pusztítja a működő pajzsmirigy szövetet

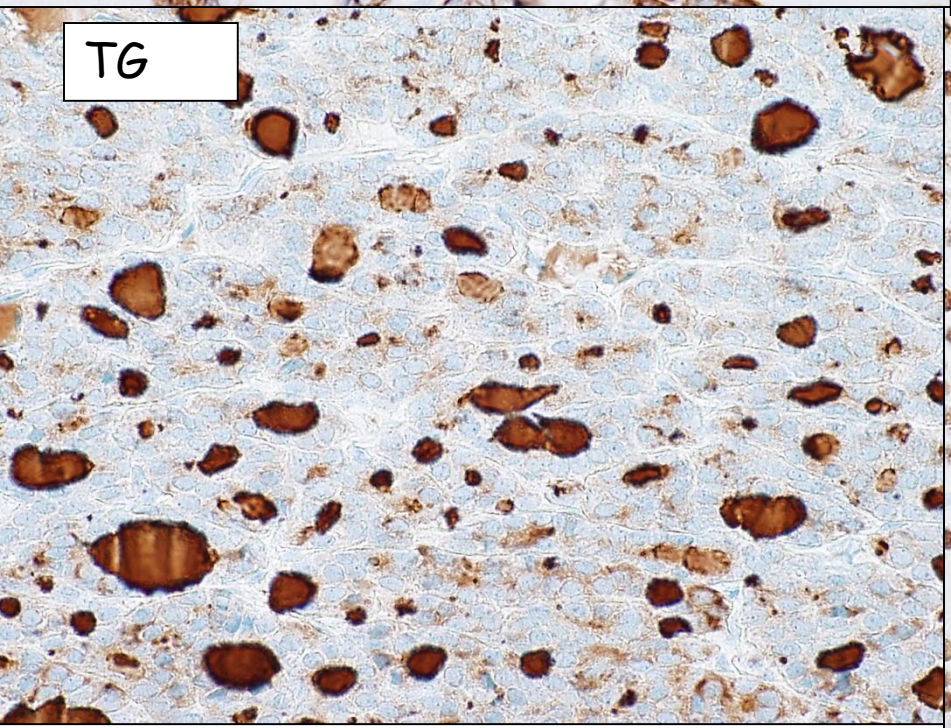
67 éves nő

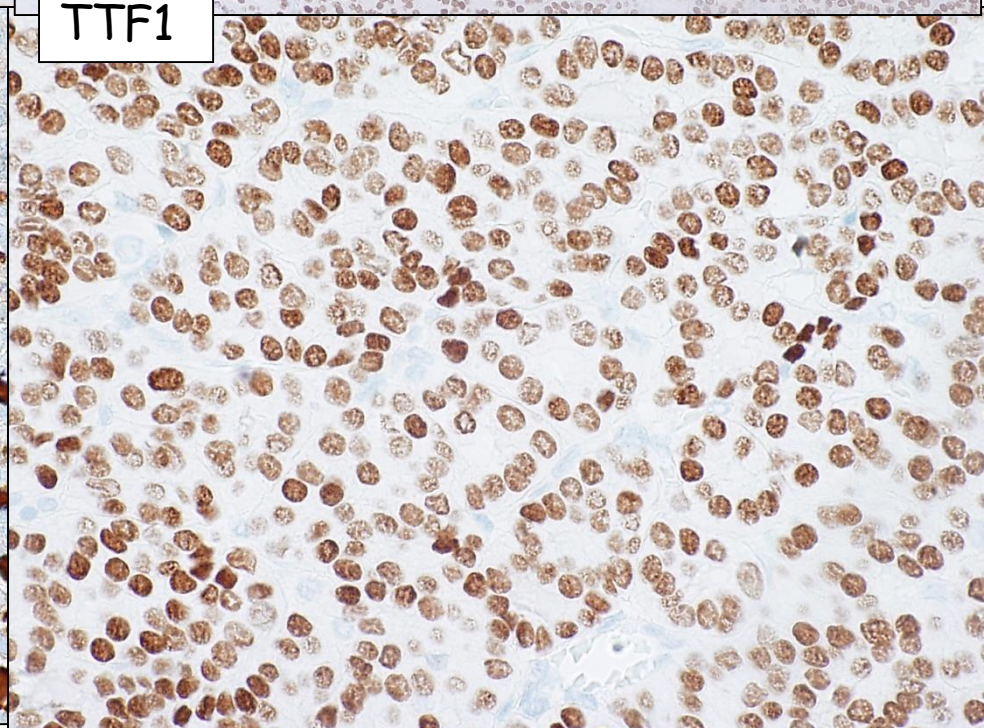
Hasi fájdalmak hátterében ovarium tumort találtak, műtét történt…..




CK19




TG


TTF1

Hypothyreosis - Cretenismus

Ha a terhesség korai szakában anyai hypothyreosis áll fenn, - súlyos

Később – kevésbé súlyos

Csontváz, agyfejlődési zavar

Alacsony testalkat

Széles arc

Nagy, kilógó nyelv

Umbilicalis hernia

Hypothyreosis okai

Primer

- Fejlődési zavar (pm dysgenesis: PAX-8, TTF2, TSH-R mutáció)
- Congenitális bioszintézis zavar (dyshormonogeneticus golyva)
- Thyroid hormon resistentia (TRß mutáció)
- Postablatio
  - (Műtét, radiojód th, irradiáció)
- Autoimmun thyreoiditis
- Jóddefitientia
- Gyógyszer (lithium, PAS)

Secunder

- Hypophysis zavar

Tertiaer

- Hypothalamus

Hypothyreosis - Myxoedema

Fáradt, indítékszegény, lelassult állapot, (szellemileg is), mely – depresszióhoz hasonlít

Hideg intolerancia

Súlynövekedés

Obstipáció

Csökkent izzadás

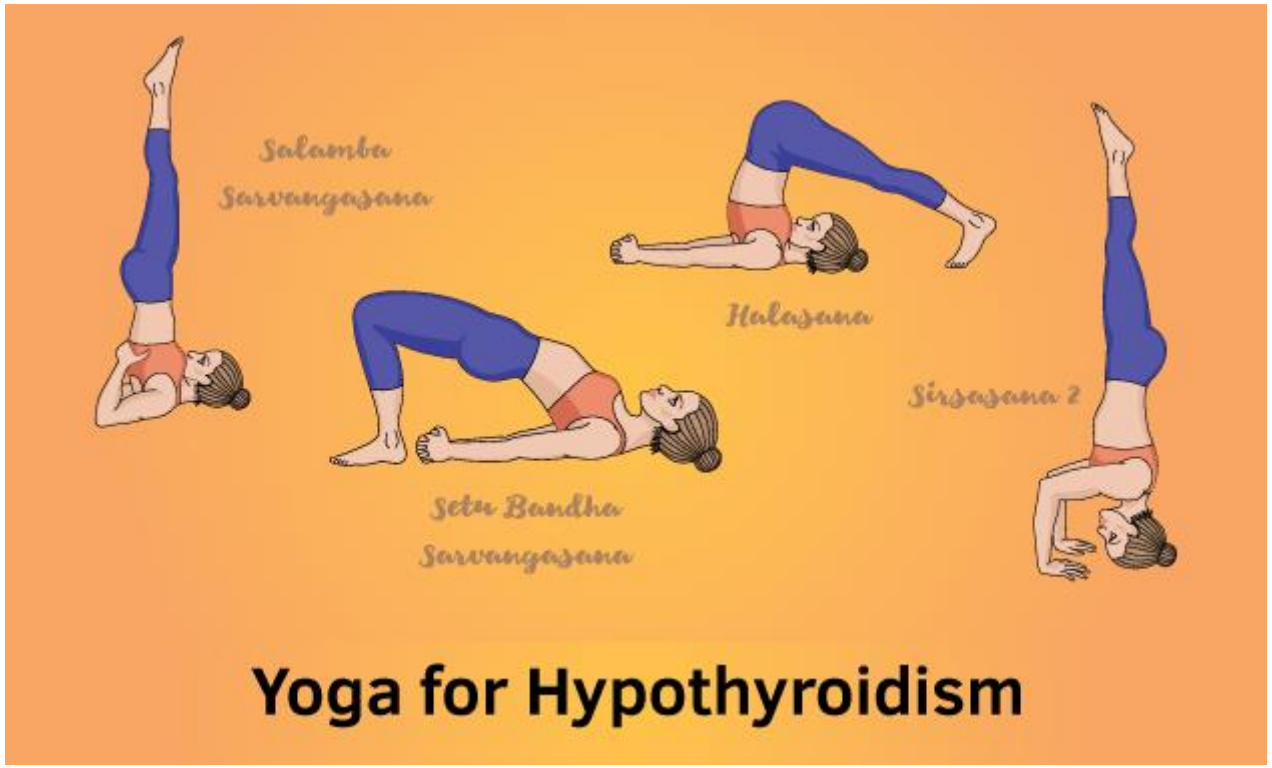
Csökkent cardiális funkció

(Low output failure)

GAG, HA lerakódás, vízvisszatartás

Labor: TSH^^^, T3, T4ˇˇˇ,

kivéve, ha hypophysis, hypothalamus eredetű


Salamba
Sarvangasana
Halasana
Sirsasana 2
Setu Bandha
Sarvangasana
Yoga for Hypothyroidism

Thyreoiditisek

Infectiosus

Hashimoto (chronicus lymphocytas thyroiditis)

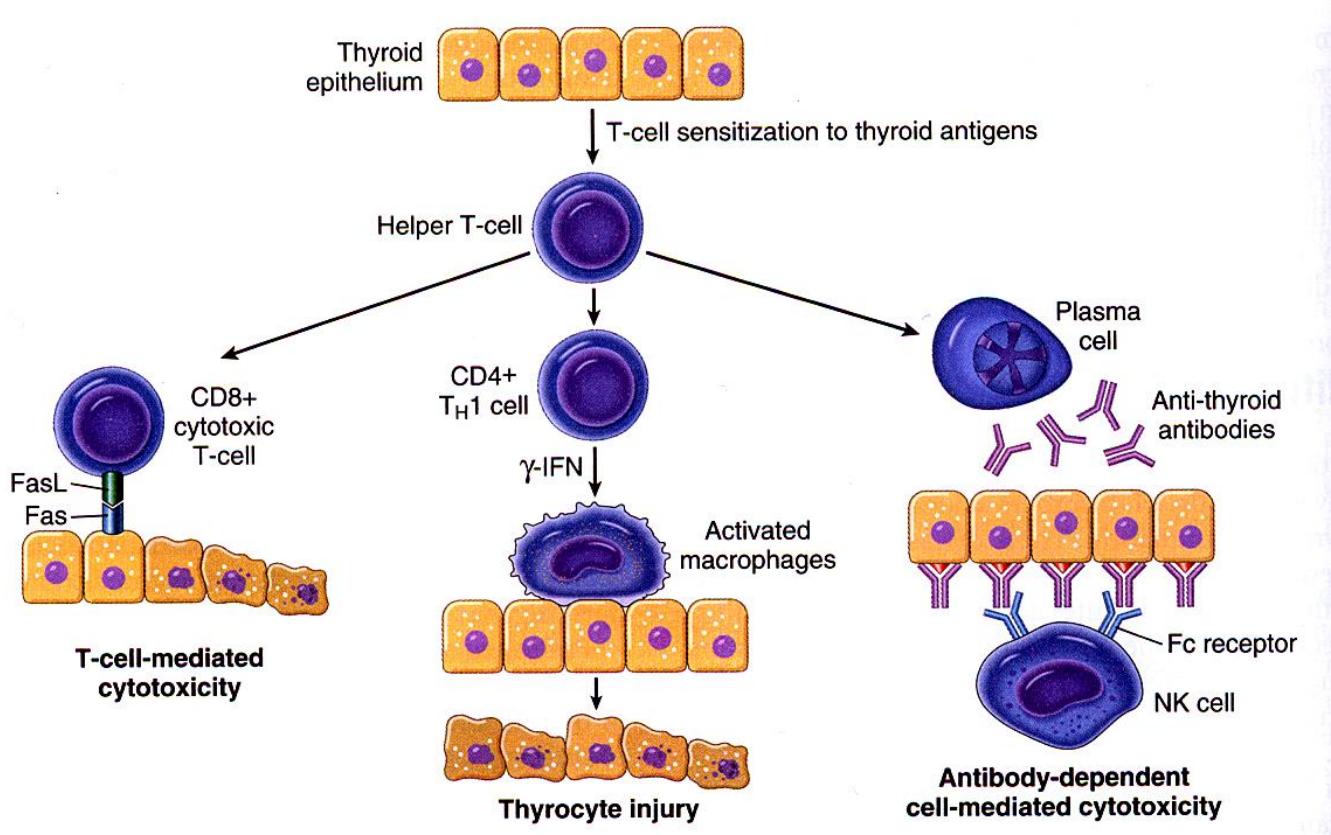
Subacut granulomatosus thyroiditis – De Quervain

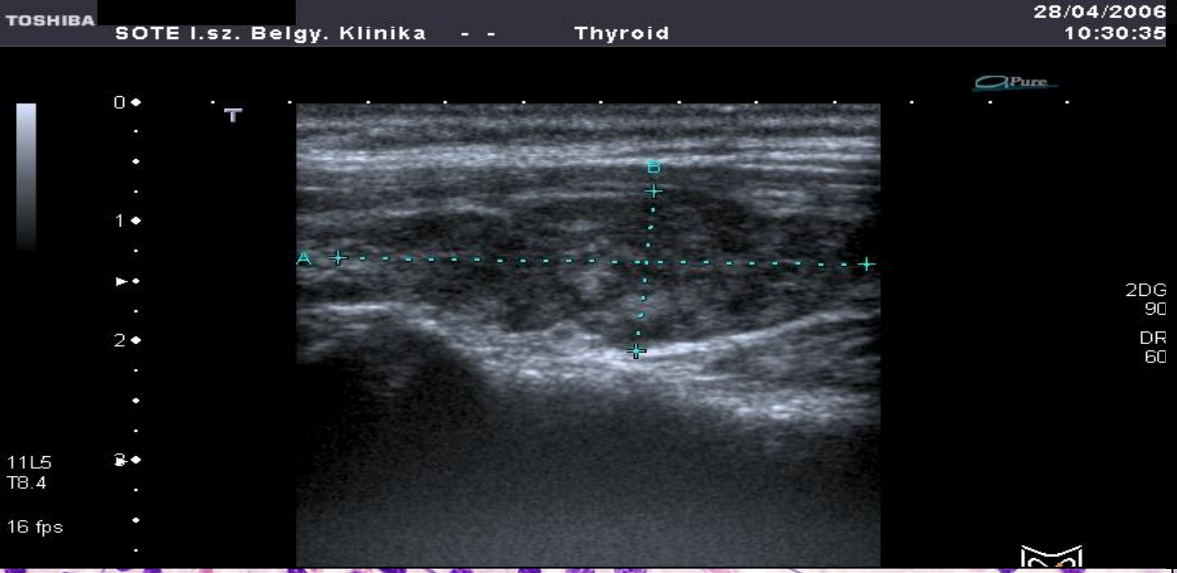
Subacut lymphocytas thyroiditis

Riedel struma

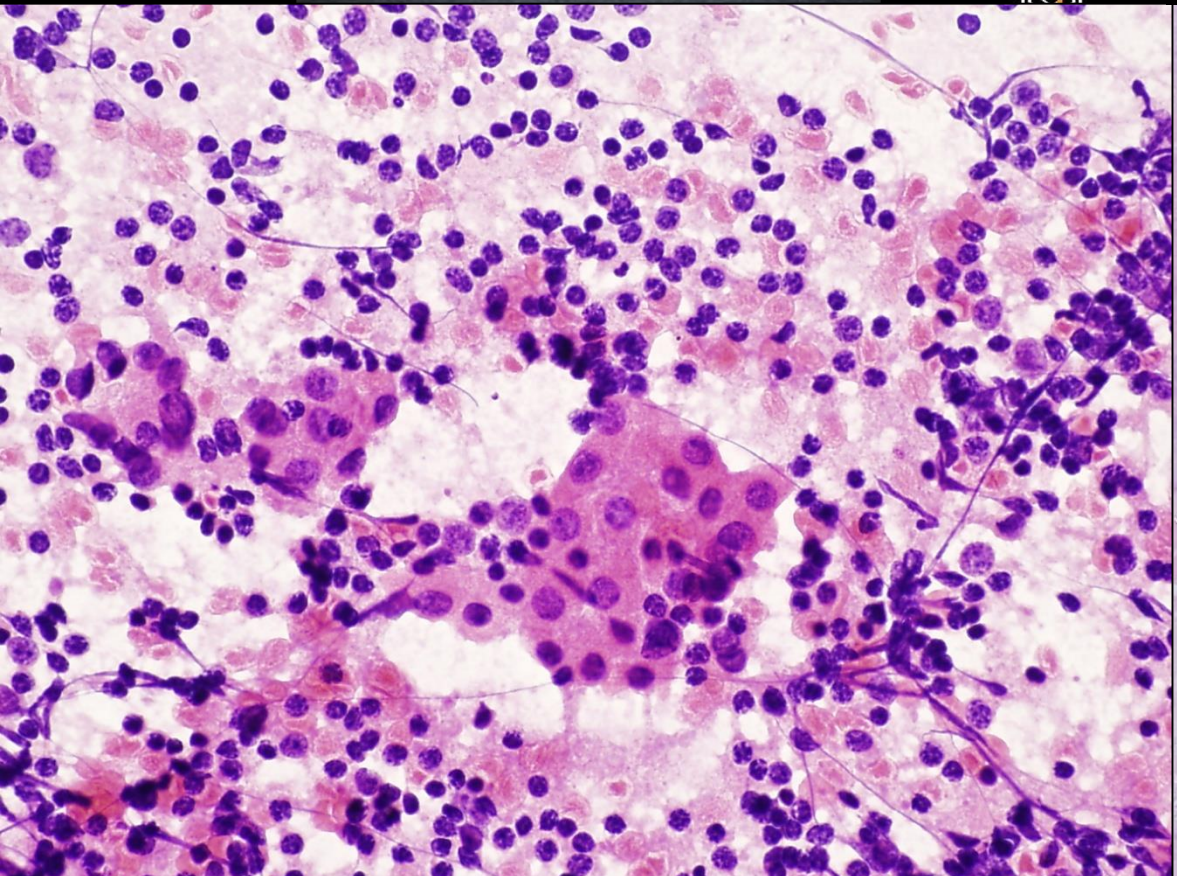
Hashimoto

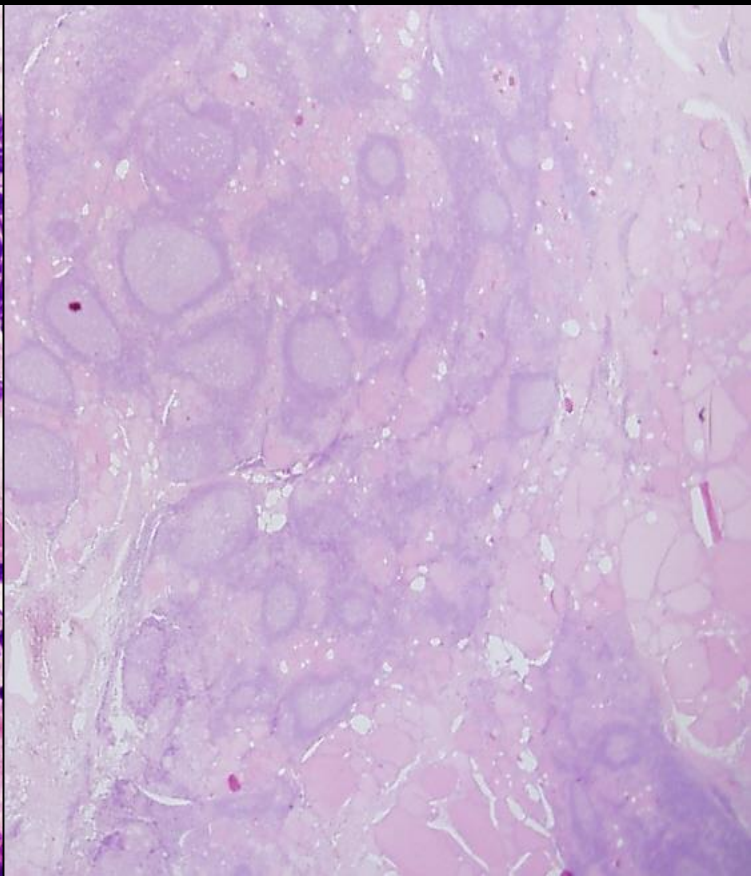
Öröklődés ? (Monozigóta ikrek között 30-60 % concordantia)
HLA-Dr3, HLA-DR5, polymorphismus,
6p, 12q – susceptibility locus

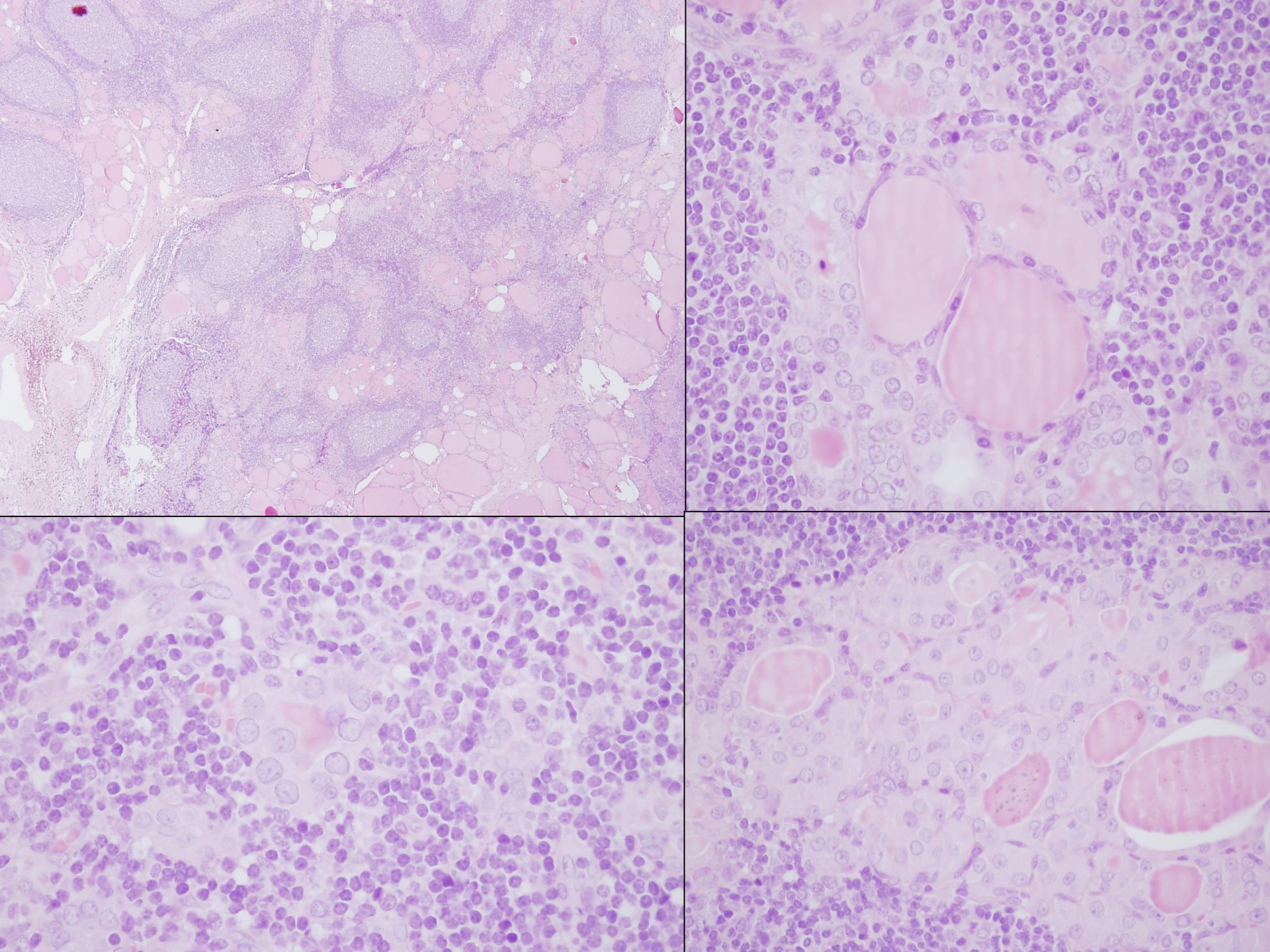



TOSHIBA
SOTE I.sz. Belgy. Klinika - -
Thyroid
28/04/2006
10:30:35
2DG
90
DR
60
11L5
T8.4
16 fps


Small Parts
L5-12IM /
RES TIs 0.0
05:02:06







Klinikum

Hyper (kezdetben), de gyakrabban

Hypothyreosis

Kezdetben fájdalmatlan diffúz pm nagyobbodás

(lehet localisalt, göbös is)

T3, T4 ˇ, TSH ^ ^ ^, anti TPO

Gyakran más autoimmun betegséggel társul:

Diabetes I., Autoimmun adrenalitis, SLE, myastenia gravis, Sjögren,

Veszély: NHL!

(epithelialis daganatok veszélye nem ismert ……. khmmmm)

Subacut lymphocytás thyroiditis

Ritka

Pathogenesis nem egyértelmű, de *egy részük* vs autoimmun (autoantitestek megjelenhetnek, de nem feltétlenül!)

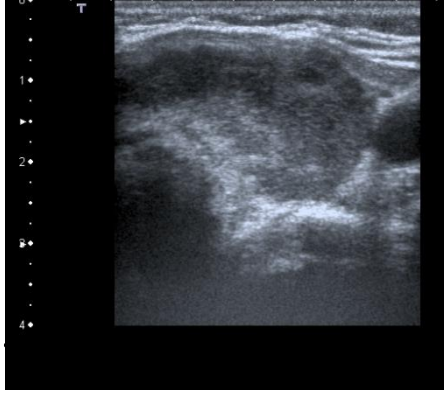
Hashimoto előfutára lehet (nem biztos!)

Terhesség körül gyakori (postpartum thyreoiditis, következő terhességekkor visszatérhet)

Klin.: fájdalmatlan pm nagyobbodás, thyreotoxicosis, T3, T4 ^, TSH ˇ,

többségük néhány hét alatt megszűnik, de átmehet *chronicus hypothyreoticus* fázisba

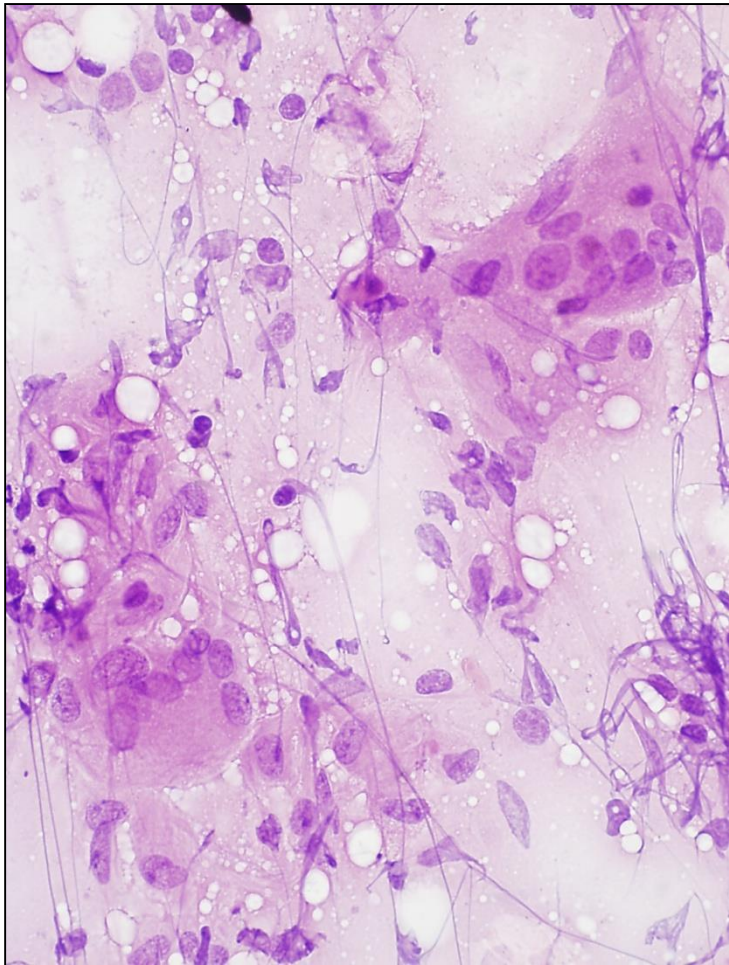
Subacut granulomatosus thyroiditis – De Quervain



Postvirális gyulladás, -felső légúti hurut után

Coxsackie, mumps, kanyaró, adenovírus valamilyen

(virális, vagy pajzsmirigy eredetű)



AG felszabadulást okoz

Cytotoxicus T sejtek

AG megszűnte után a folyamat leáll

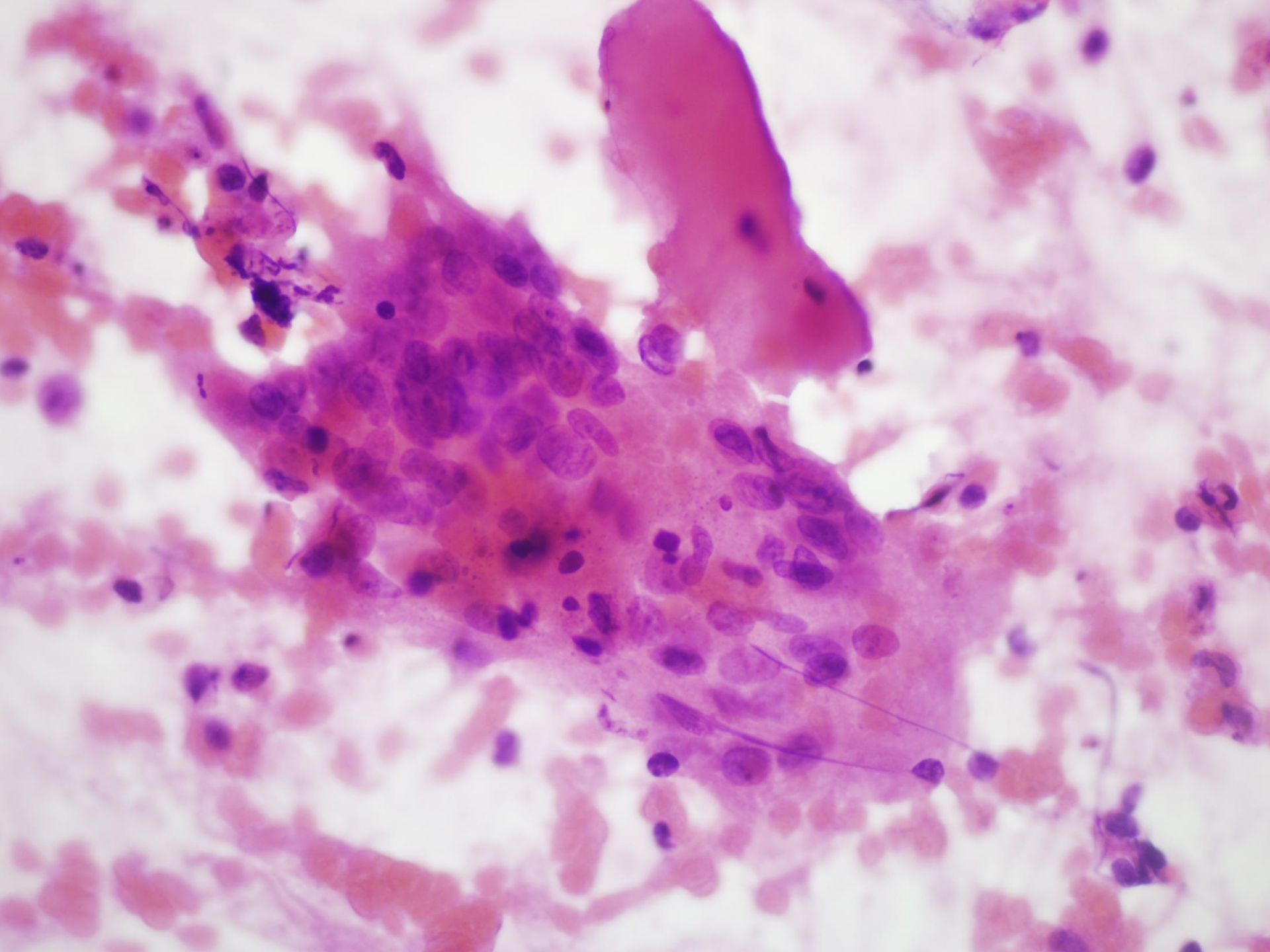
Klin.: Súlyos nyaki fájdalom

Hyper, - majd hypothyreosis,

TSH ˇ, T3, T4 ^,

scintig: alacsony felvétel

6-8 hét alatt lecseng



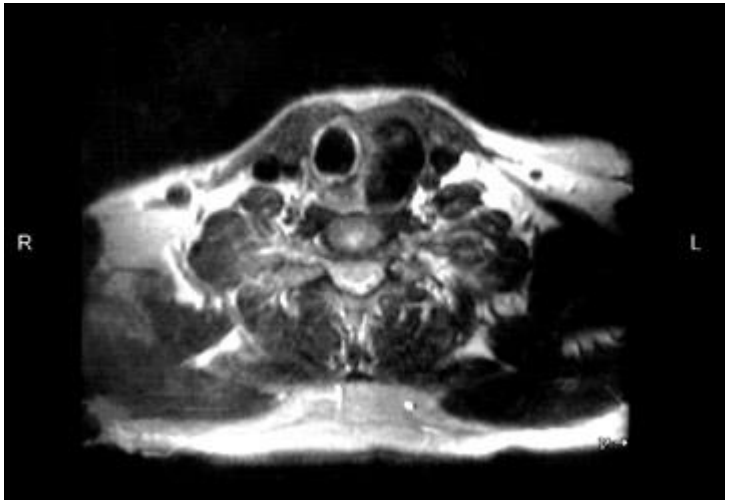
Riedel struma

Kőkemény, feszes, környezetével összekapaszkodott pm

Klinikailag daganatot utánoz

„Kiégett”, heges pajzsmirigy

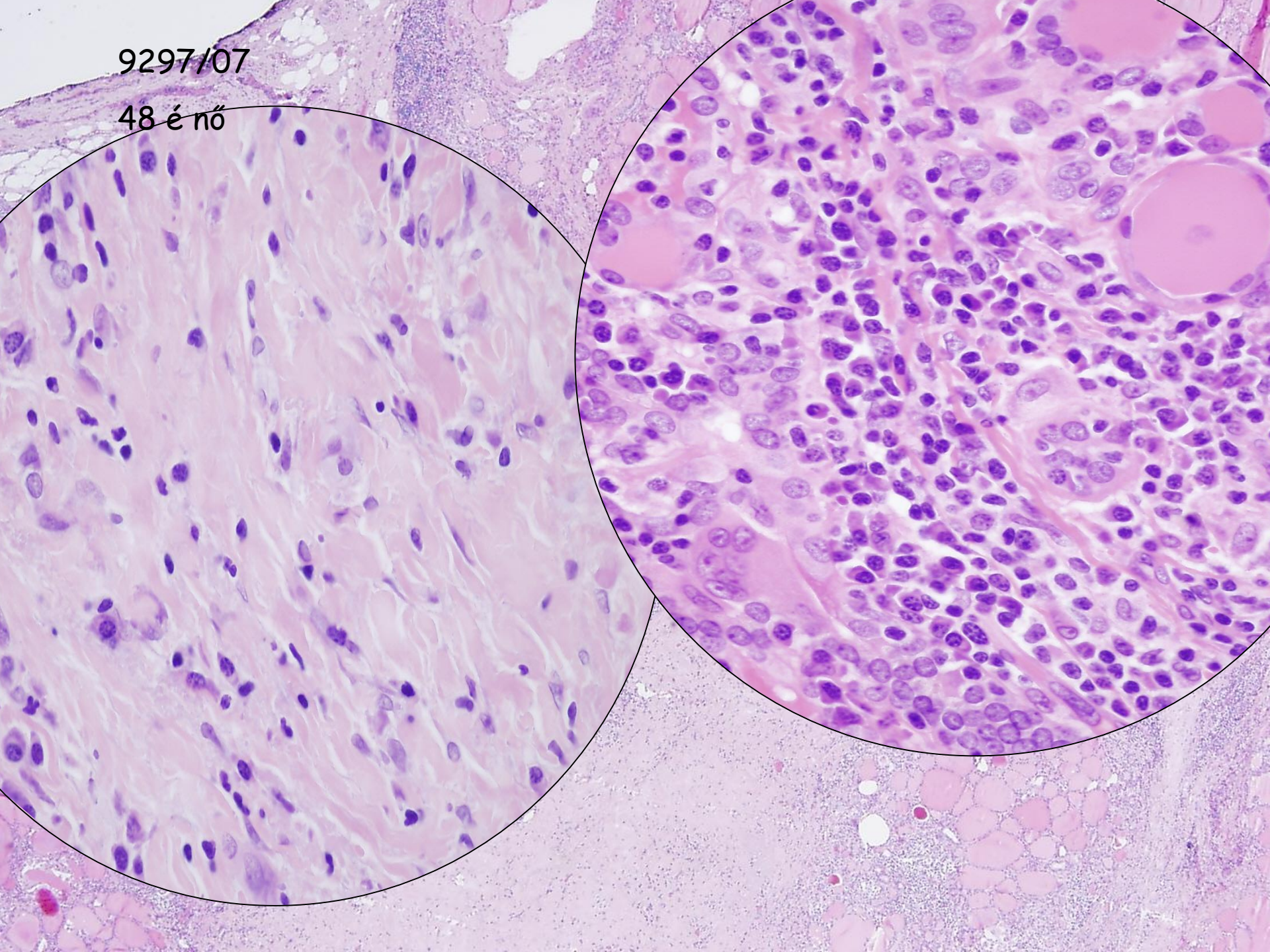
Etiológia: (???), vs autoimmun



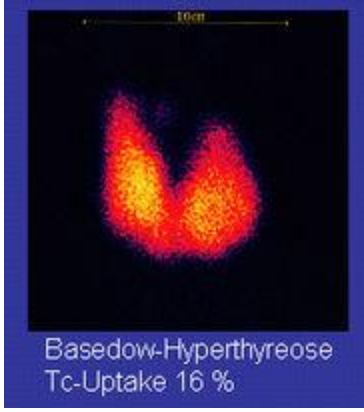
Palpatios thyreoiditis

Hashimoto????

IgG4 betegség


9297/07
48 é nő

Graves - Basedow



Genetika

concordantia ikrek közt: 60%

bizonyos HLA-DR 3, HLA-B8 típusoknál gyakrabb

CTLA-4 polymorphismus (~ blokkolja az autoantitest képzést)

Autoantitestek:

Anti-TG, anti-T peroxisoma, anti – TSH receptor (TRAK)

TSI (LATS), (ez Graves specifikus)

TGI

TBII (TSH-binding inhibitory immunoglobin) – ez blokkol, vagy stimulál)

TRIGGER ?? (T sejt tolerancia elvész)

Anti-TG, anti-T peroxisoma

Graves - Basedow

Klinikum

- Hyperthyreosis
- Exophtalmus (retroorbitalis ly, oedema, GAG, HA lerakódás, zsírszaporulat)
- Pretibialis myxoedema

Gyakran más autoimmun betegséggel társul:

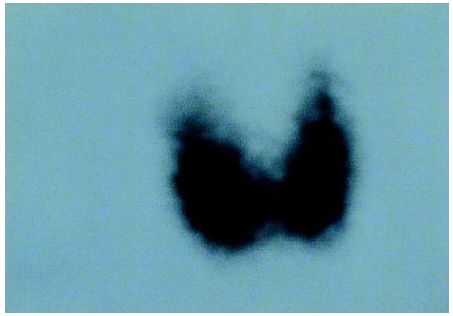
Diabetes I., Autoimmun adrenalitis, SLE, myastenia gravis, Sjögren, Anaemia perniciosa, + Hashimoto !!!!!

Labor:

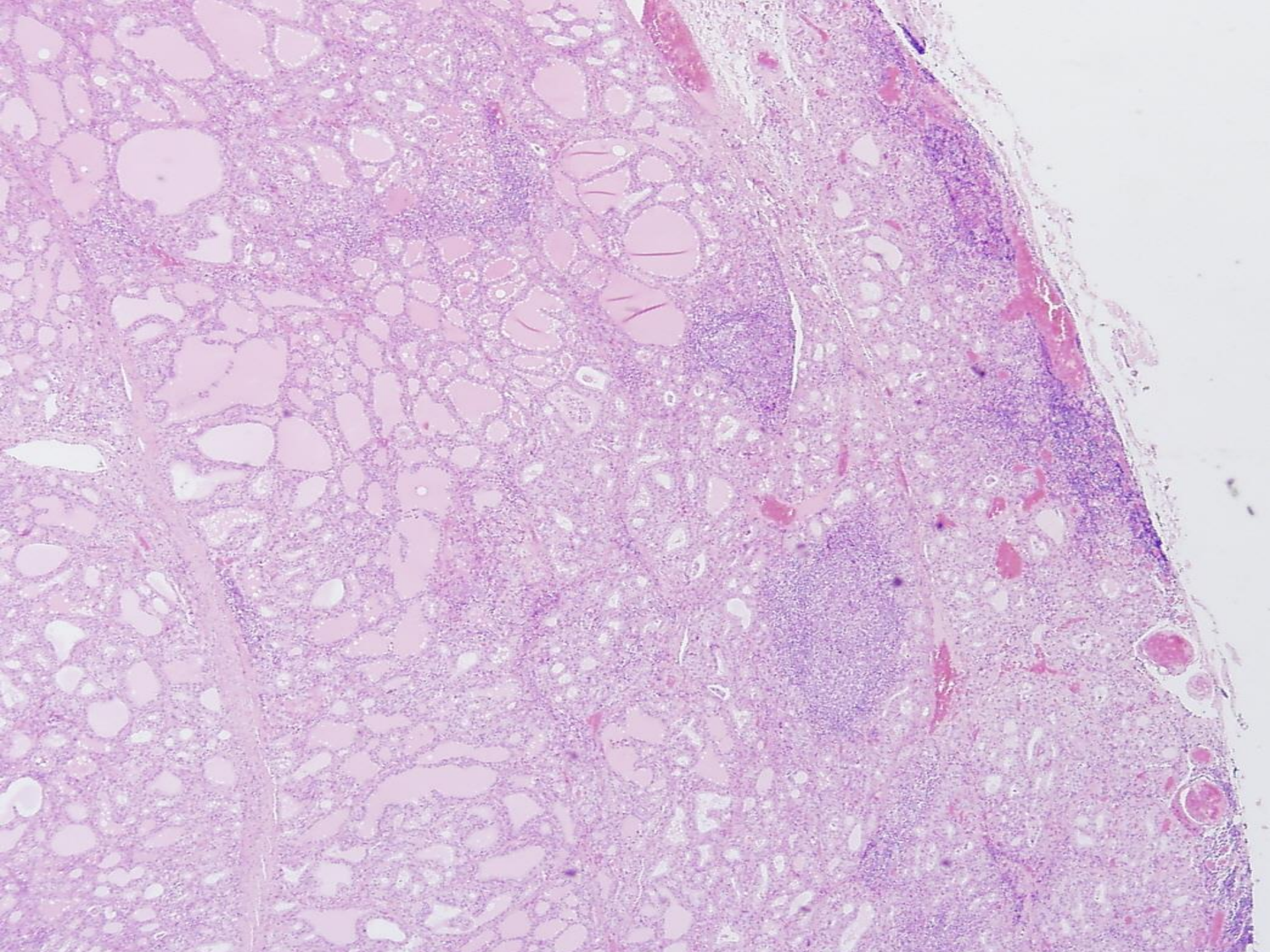
TSHˇˇˇ

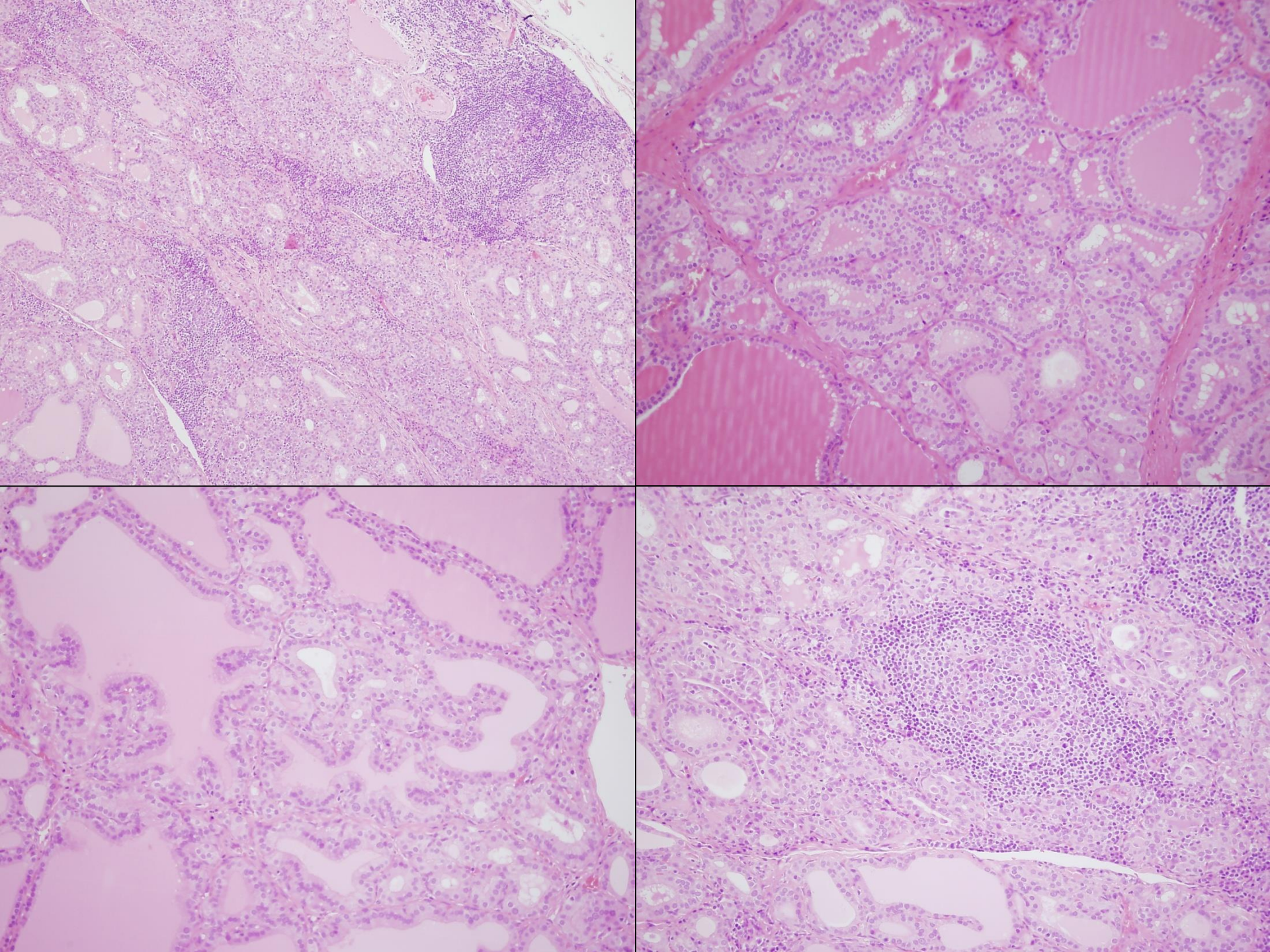
T3, T4 ^^^

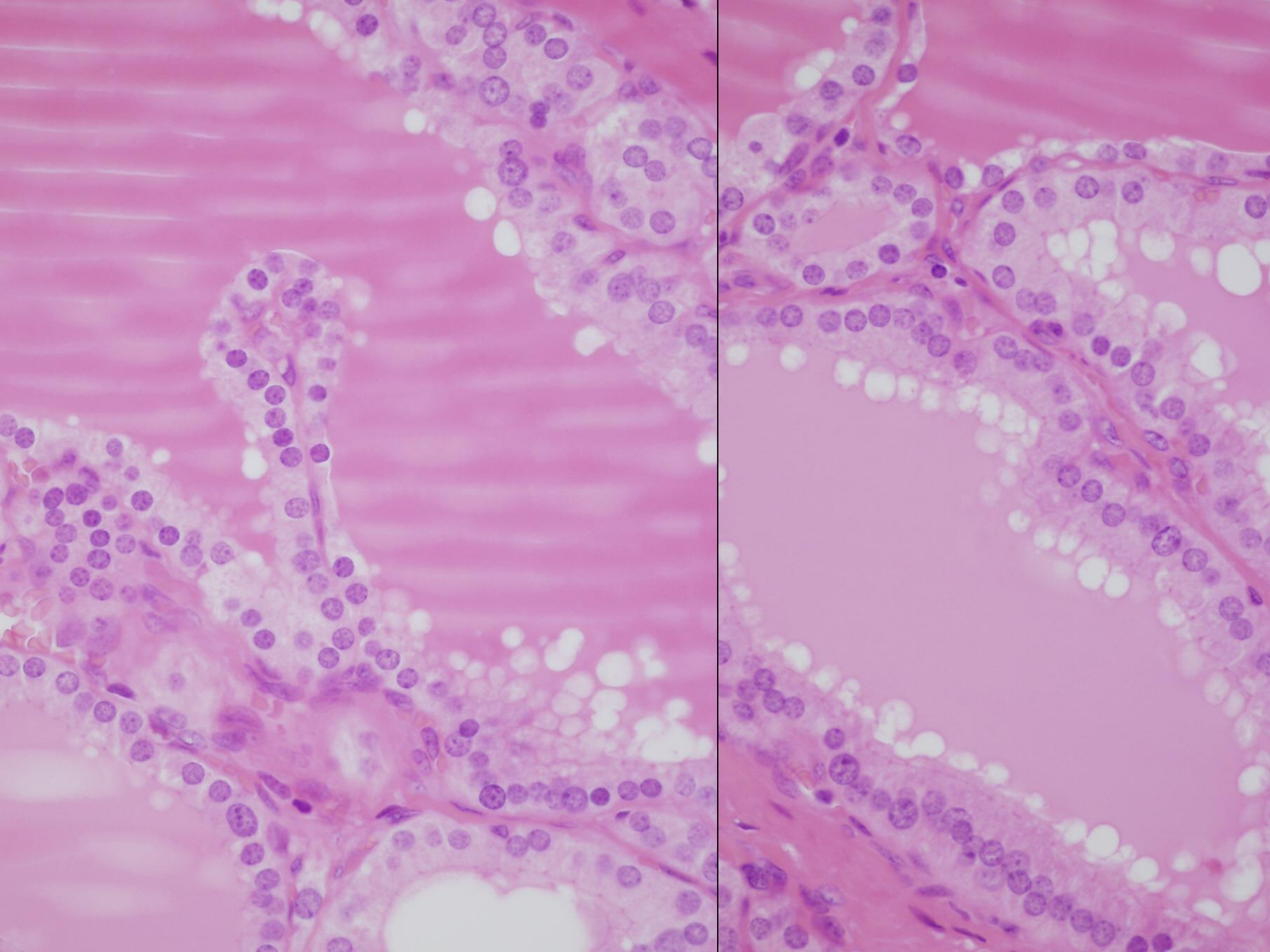
Scinti: ^^^



Th.: propylthiouracyl, radiojód, műtét, ß-blokkoló







Graves ——————————— Hashimoto

Diffúz / göbös golyva

Diffúz golyva

Endemiás

(leggyakrabban) (lakosság legalább 10 %-a érintett)

Alpok, Andok, Himalaya

Goitrogenek: káposzta, karfiol, kelbimbó, fehérrépa, cassava

Jód hiány

Hpl, htr – euthyreoid

hypothyreoid

T3, T4 norm., TSH a norm felső határán

Sporadikus

hormonszintézis zavara

sokszor ismeretlen etiológia

Göbös golyva

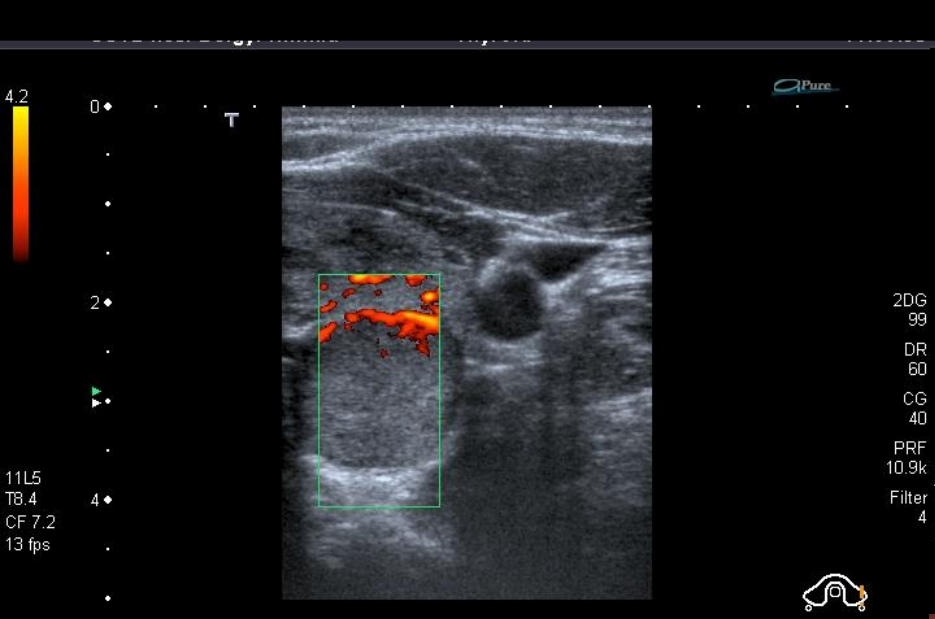
Diffúzból fejlődik

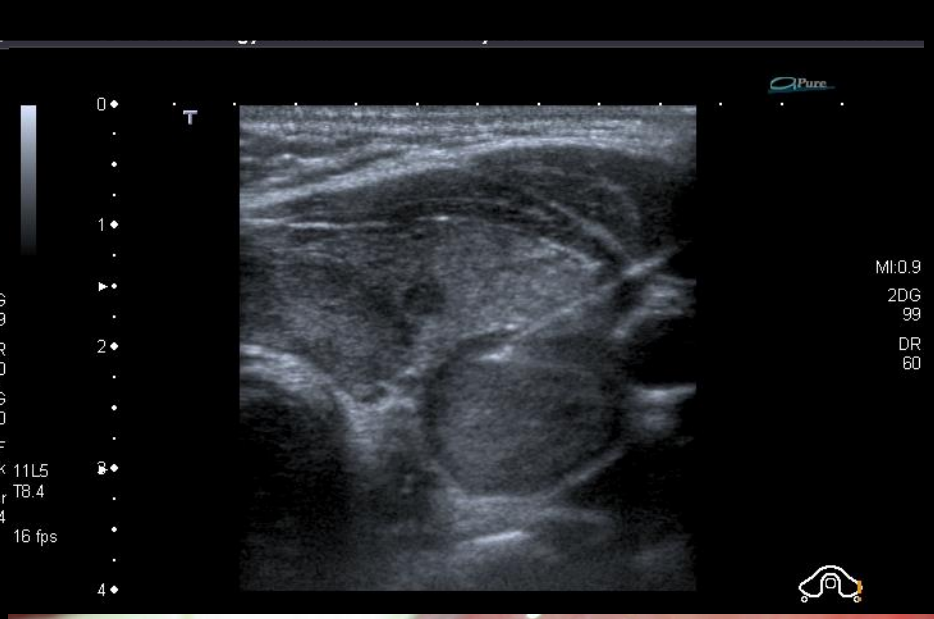
Hpl, atrophia, fibrosis, calcificatio, cysta képződés

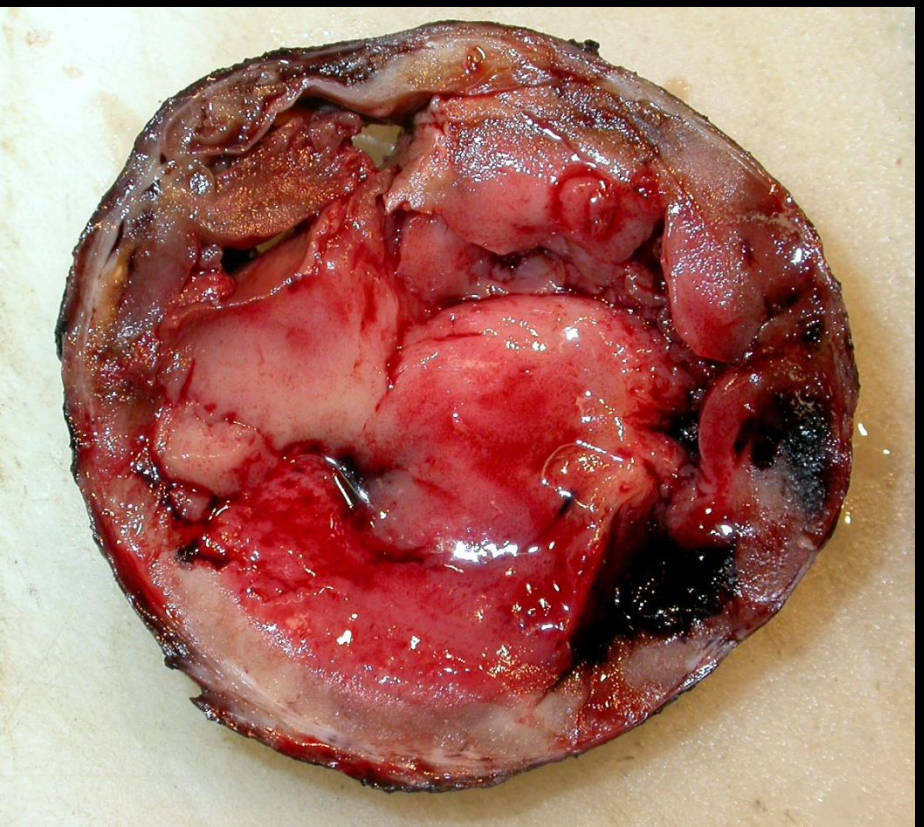
Scintigr.: egyenetlen

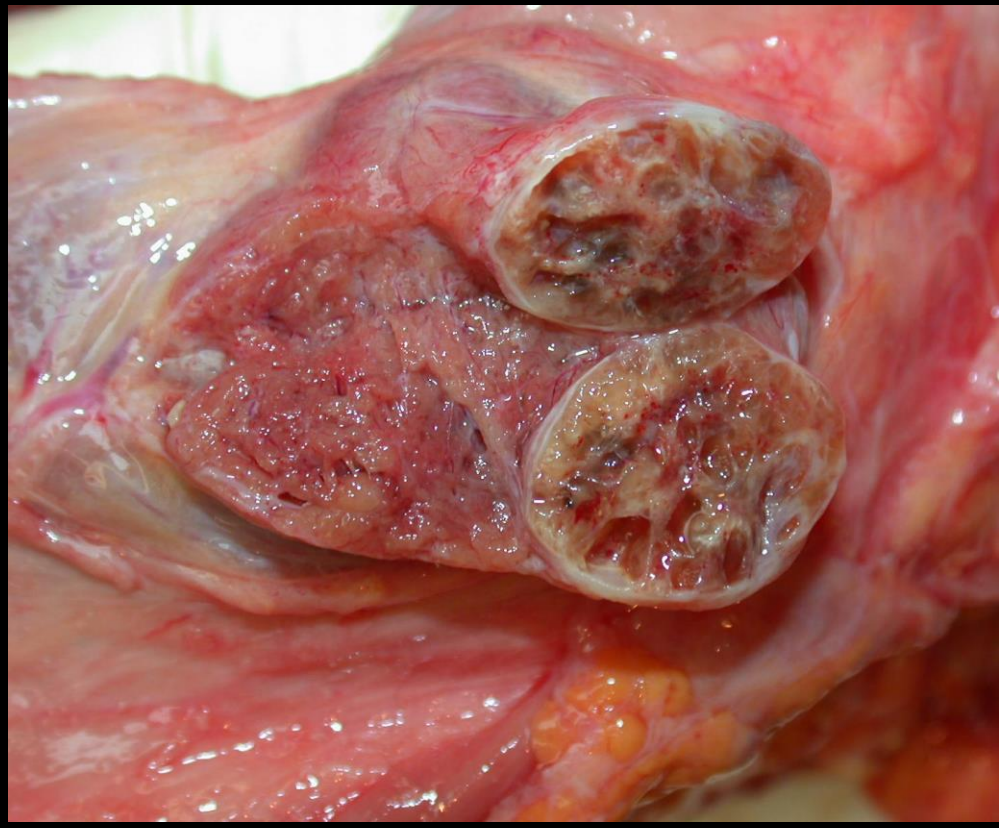
Egy-egy göb autonómmá válik:

toxicus göbös golyva


4.2
11L5
T8.4
CF 7.2
13 fps
2DG
99
DR
60
CG
40
PRF
10.9k
Filter
4
16 fps


11L5
T8.4
MI:0.9
2DG
99
DR
60



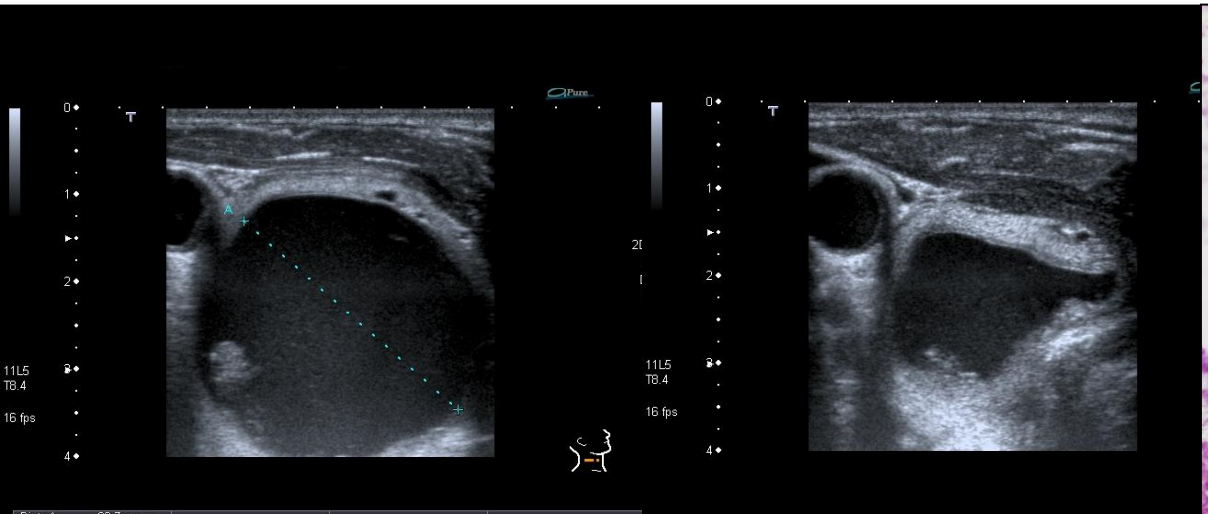


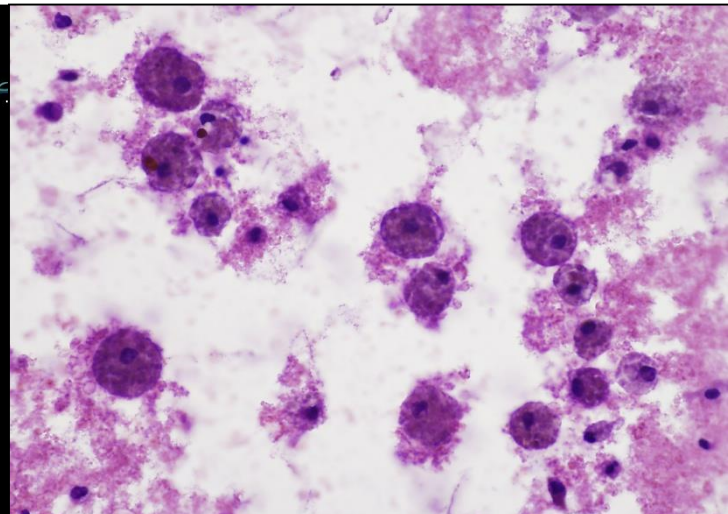
Pajzsmirigy cysta

Lehet „hideg”

vagy „meleg” göb

Scintigraphia sokszor „autonóm adenomá”-nak látja





Daganatok

Daganat gyanús, ha:

- Soliter göb
- Fiatal beteg
- Férfi
- Hideg (I, ! , Tc lehet meleg!)

TI-RADS	Interpretation	Ultrasonographicfindings
1	Normal thyroid findings	Normal thyroid tissue without any nodular aspect
2	Constantly benign aspect	• simple cyst, spongiform nodules • "white knight" • isolated macrocalficication, nodular hyperplasia
3	Very probably benign	Nosignsof high suspicion, isoechoic or hyperechoic, partial incapsulated
4A	Undetermined	Nosignsof high suspicion, mildlyhypoechoic, encapsulatednodule
4B	Suspicious	• irregularshape • tallerthanwide, irregularborders, microcalcifications, markedlyhypoechoic, high stiffnesswith elastography 1 or 2 signsandnolymphnodemetastasis
5	Highly suspicious	• irregularshape/ tallerthanwide, irregularborders • microcalcifications • markedlyhypoechoic • high stiffness with elastography: strain ratio > 4 3 to 5 signsand/orlymphnodemetastasis
Abbreviations: TI-RADS: Thyroid Imaging Reporting Data System		

2017 Bethesda System for Reporting Thyroid Cytopathology

Diagnostic Category	ROM if NIFTP not cancer	ROM if NIFTP is cancer	Management
Nondiagnostic/unsatisfactory Cyst fluid only Acellular specimen Other: Obscuring factors	5–10%	5–10%	Repeat fine needle aspiration under ultrasound guidance
Benign Benign follicular nodule Chronic lymphocytic (Hashimoto) thyroiditis, in proper clinical setting Granulomatous (subacute) thyroiditis	0–3%	0–3%	Clinical and US follow-up until two negative
Atypia of undetermined significance/ follicular lesion of undetermined significance	6–18%	10–30%	Repeat FNA, molecular testing, or lobectomy
Follicular neoplasm/ suspicious for a follicular neoplasm (Specify if Hürthle cell type)	10–40%	25–40%	Molecular testing, lobectomy
Suspicious for malignancy	45–60%	50–75%	Lobectomy or near-total thyroidectomy
Malignant Papillary thyroid carcinoma Medullary thyroid carcinoma Poorly differentiated carcinoma Undifferentiated (anaplastic) carcinoma Squamous cell carcinoma Carcinoma with mixed features Metastatic malignancy Non-Hodgkin lymphoma Other	94–96%	97–99%	Lobectomy or near-total thyroidectomy

Daganatok

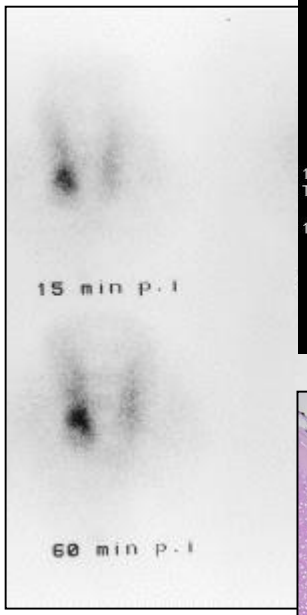
Adenoma

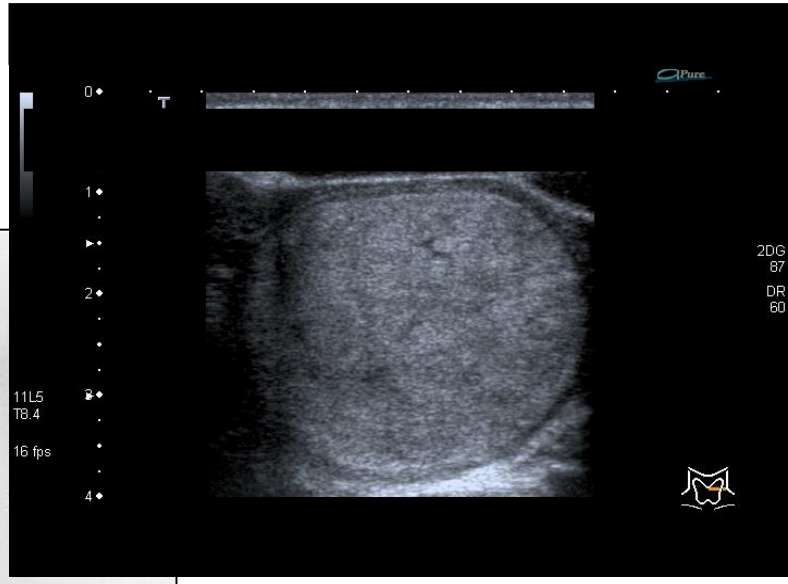
Nem-functionáló

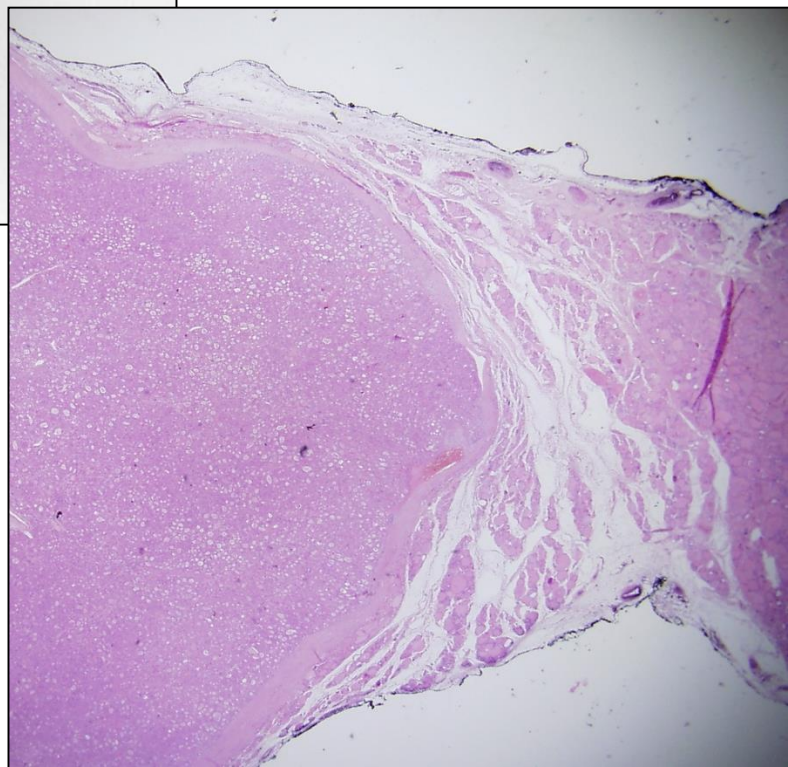
(gyakran „hideg")

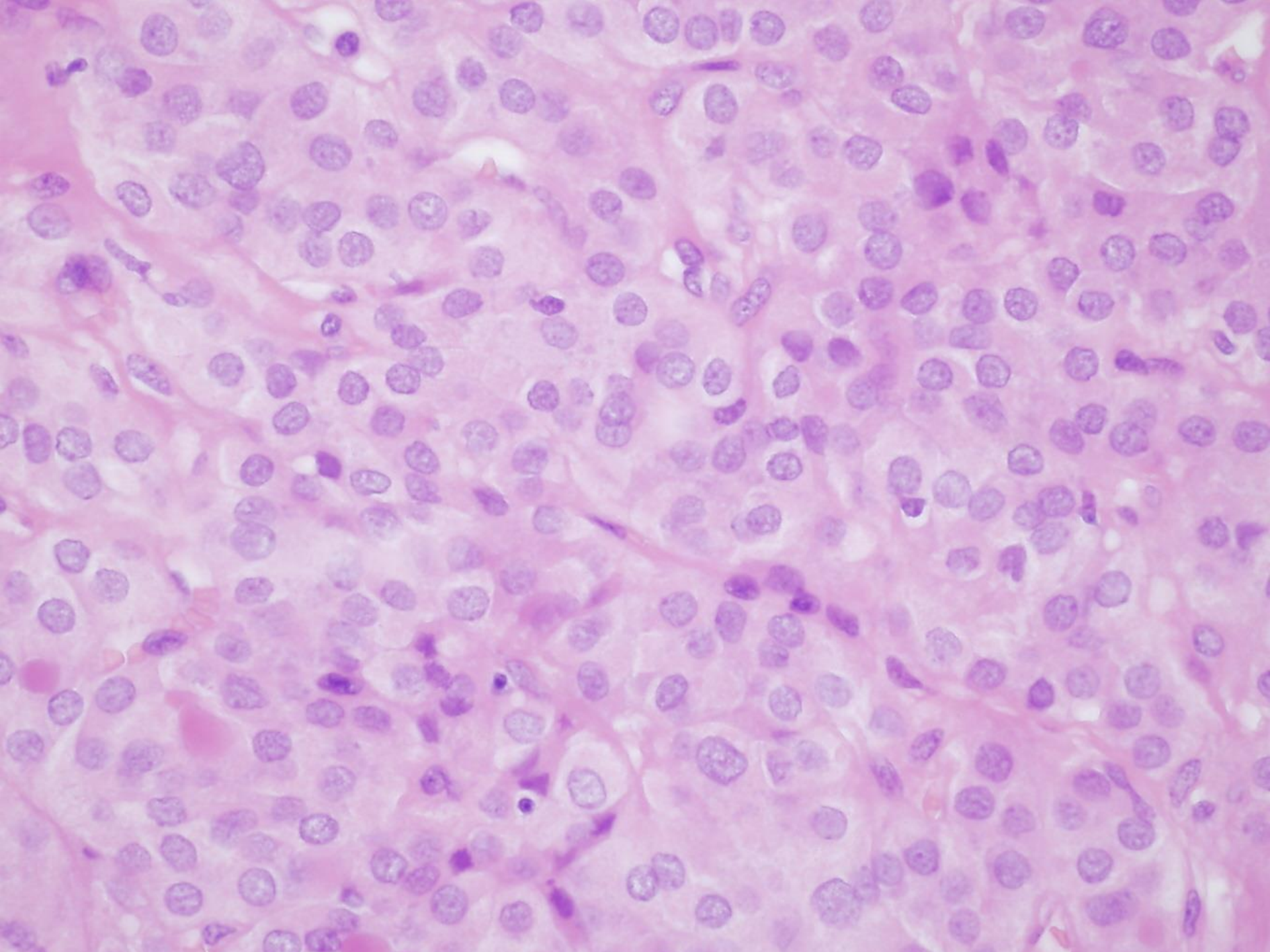
Hormon-termelő

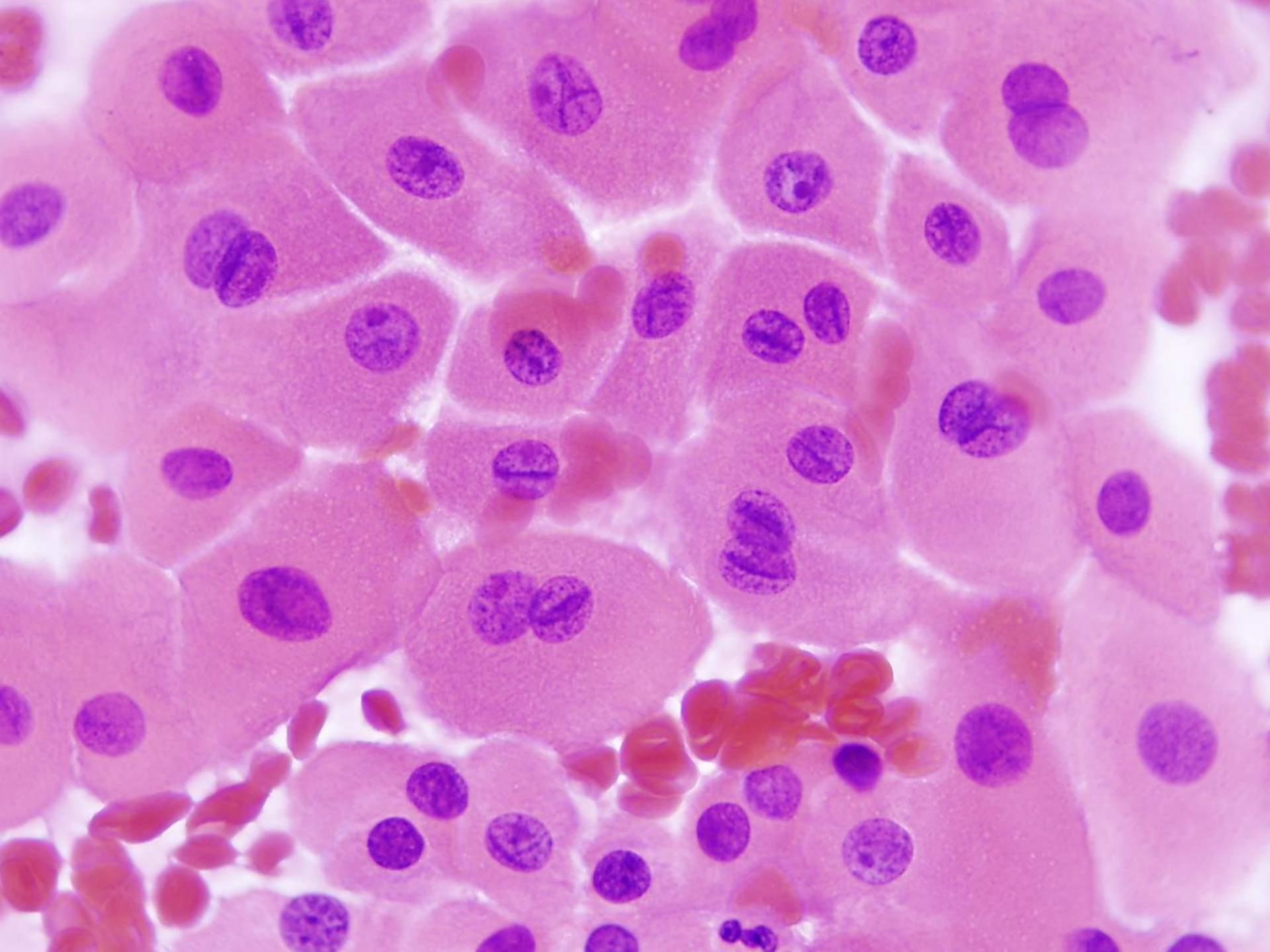
(„meleg göb", „forró göb"
toxicus adenoma)











A pajzsmirigy malignus daganatainak gyakorisága

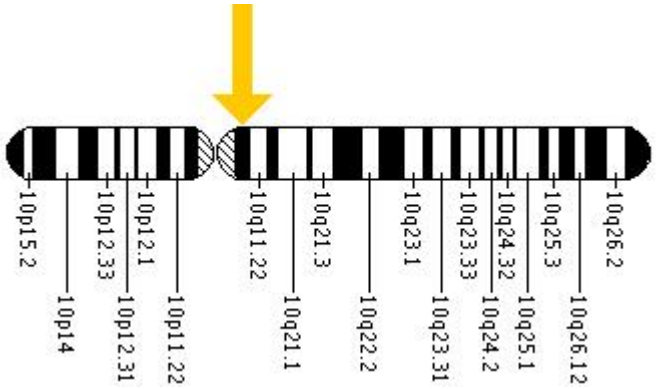
- Papillaris carcinoma 75%
- Follicularis carcinoma 15%
- Medullaris carcinoma 5%
- Anaplasticus c. 2%
- Lymphoma 2%
- Egyéb, nem hám 0.8%
- Metastaticus 0.2%

Malignus pajzsmirigy daganatok

Genetikai háttér – mutációk

pl.: ret/PTC,

BRAFV600E



Ionizáló sugárzás

(terápia

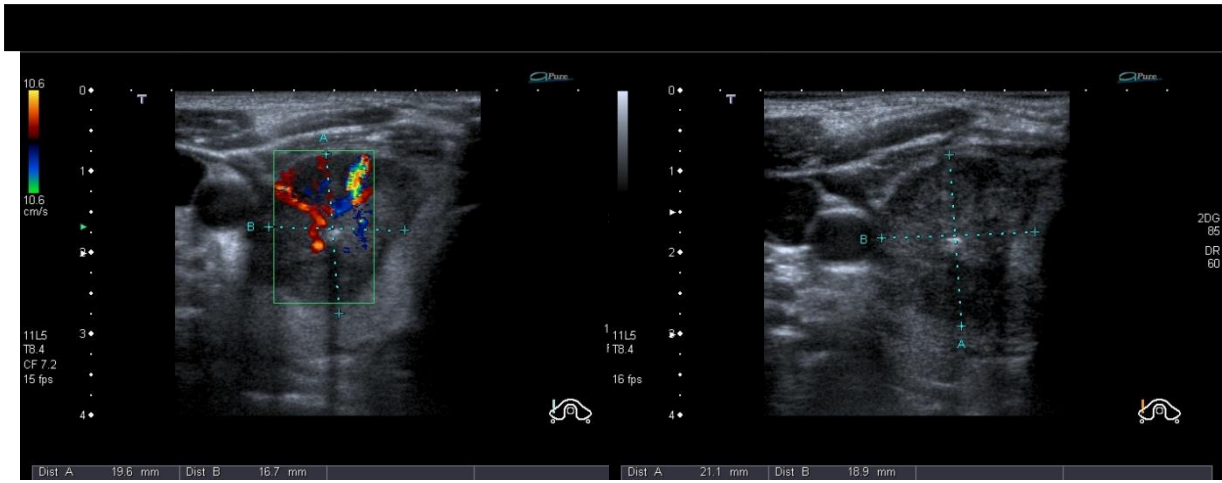
környezeti hatás okozta)

Papilláris cc.

Előfordulás: középkorú nők, de bármely életkor, (gyerek is), és ffi is érintett lehet

Tünetek

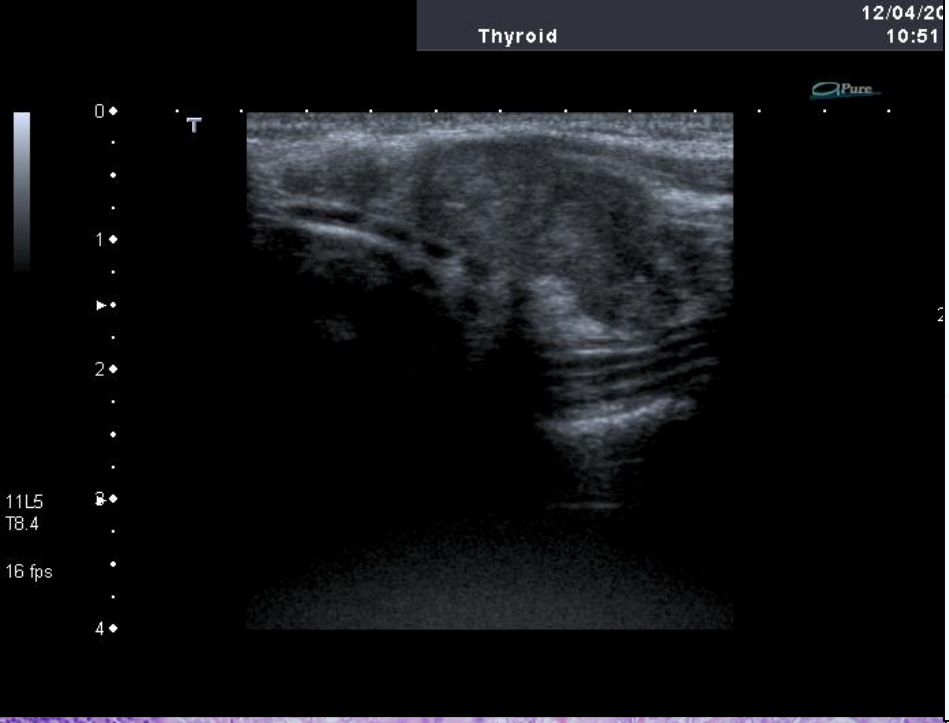
- „Göb"
- Rekedtség
- Köhögés
- Dysphagia
- Dyspnoe

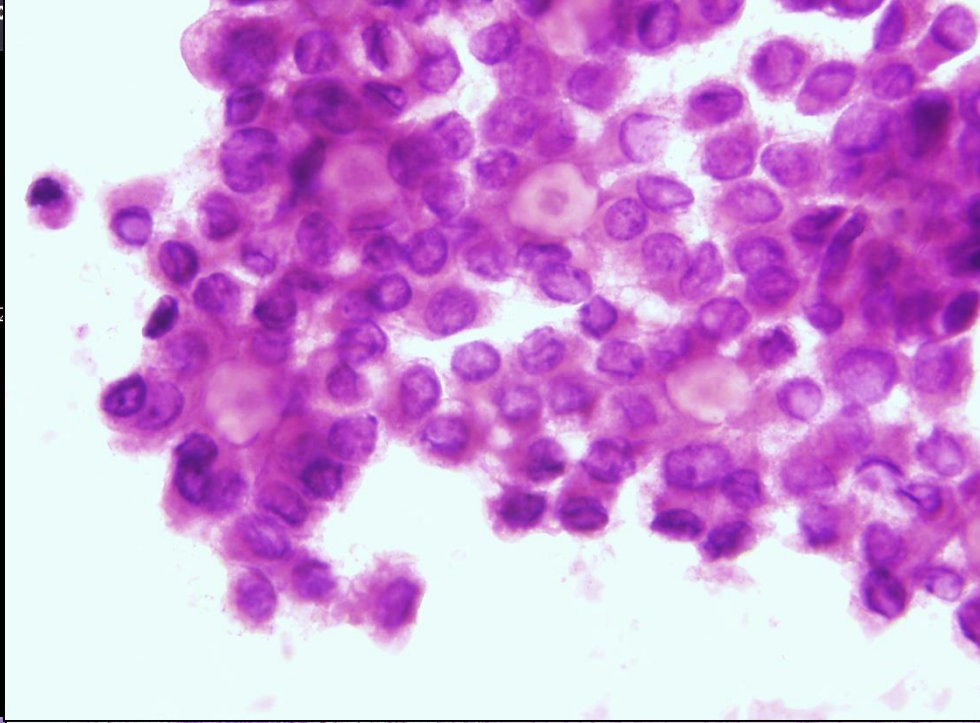


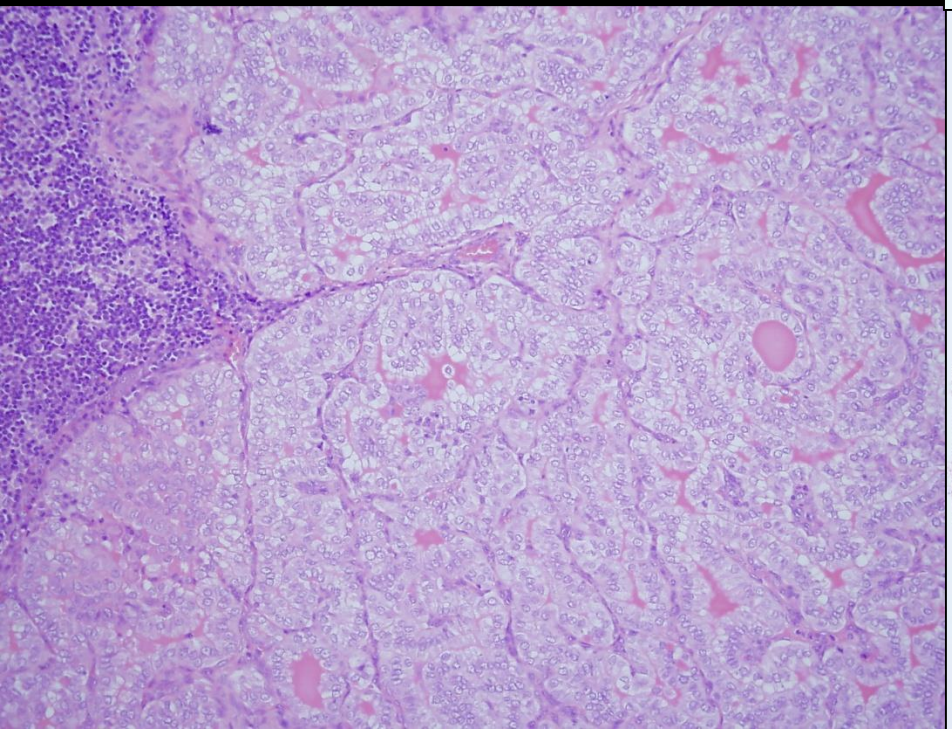
Áttétek: regionalis nycs-k, ritkán távoli

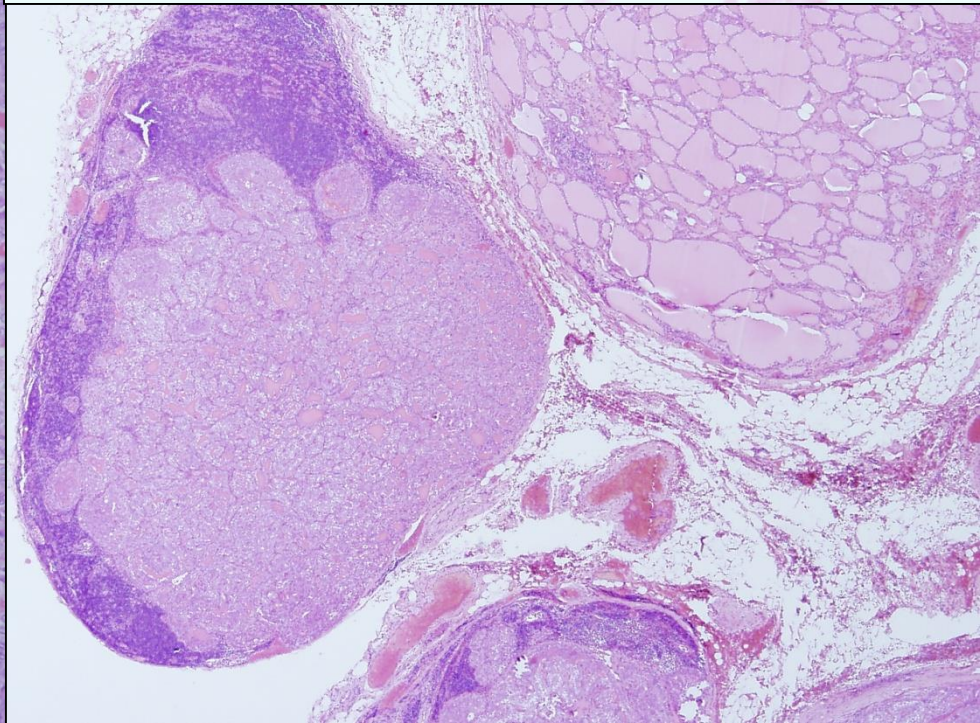
Prognózis: relatíve jó

Th.: sebészi + radiojód th.


Thyroid
12/04/20
10:51
T
11L5
T8.4
16 fps





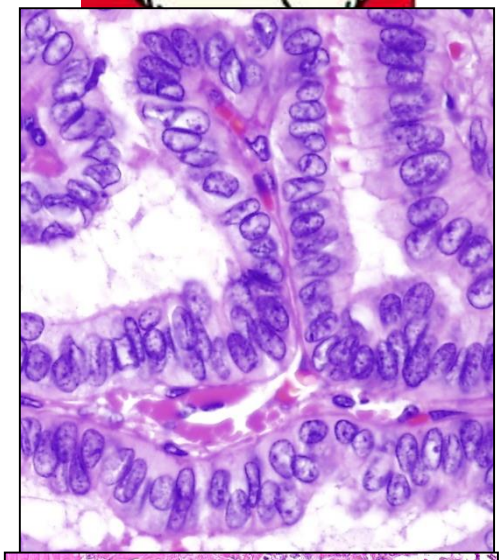


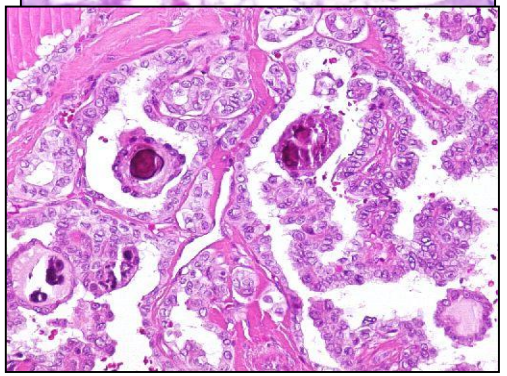
Papilláris cc.

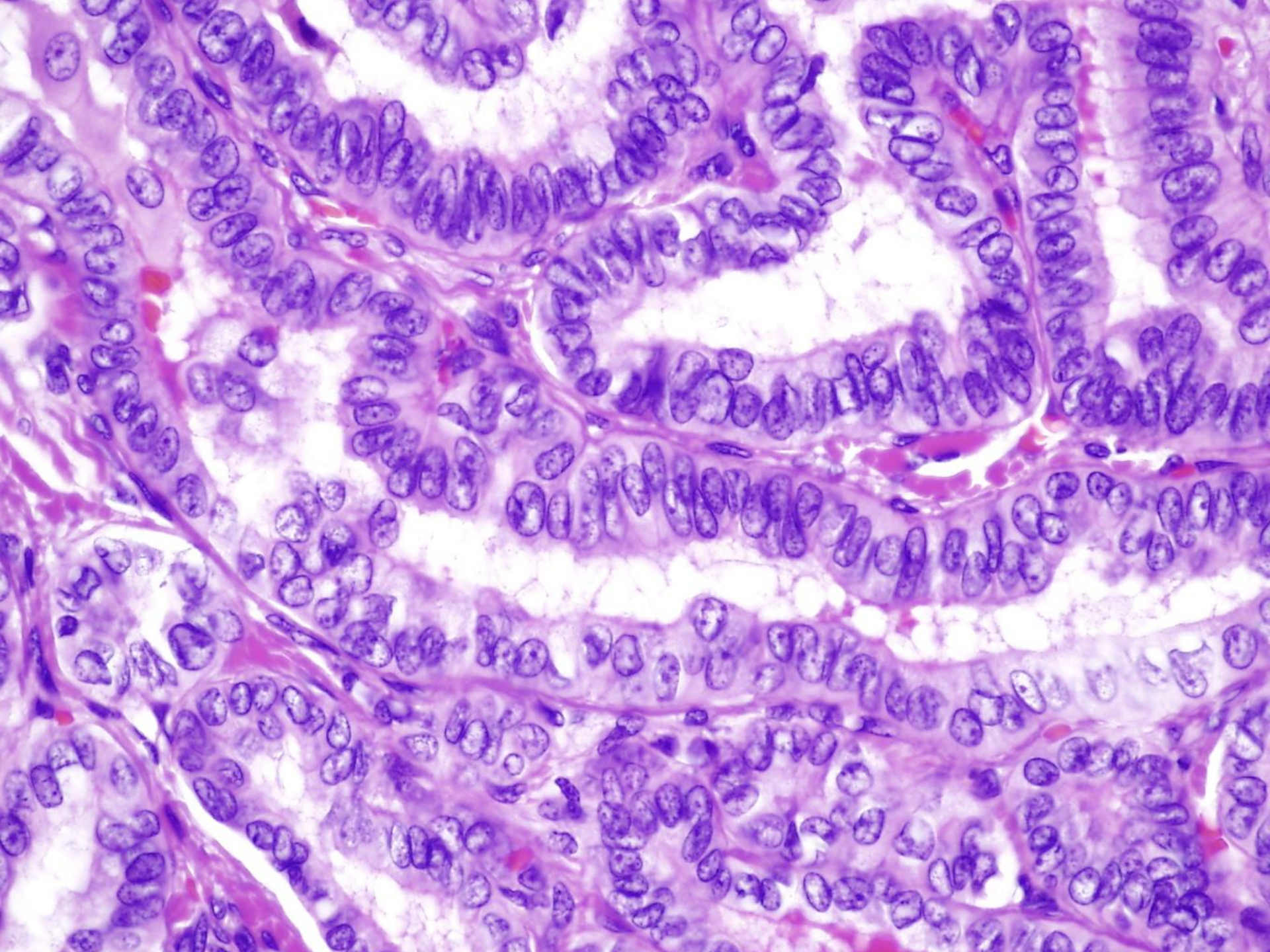
„Classic" (papillák, Orphan Annie, Psammoma)

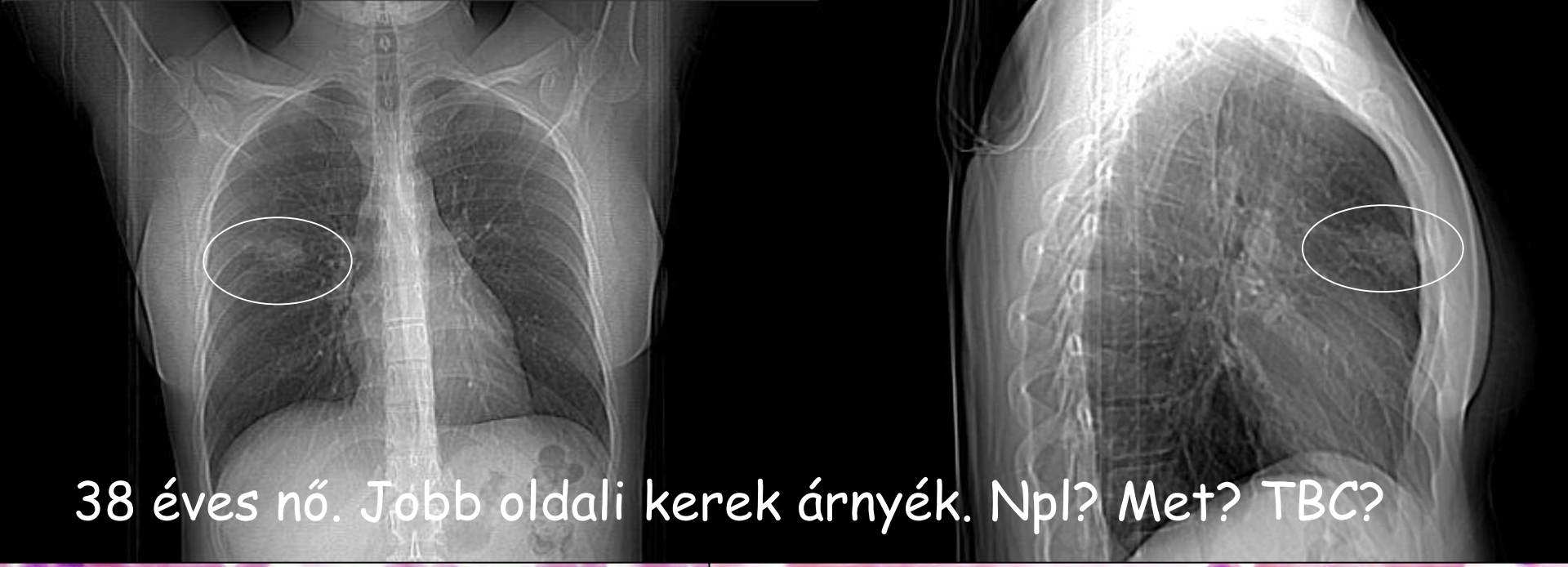
Különleges

- Encapsulalt
- Folliculáris
- Tall cell
- Diffúz sclerotizáló (gyerekek)
- Hyalinizáló trabecularis

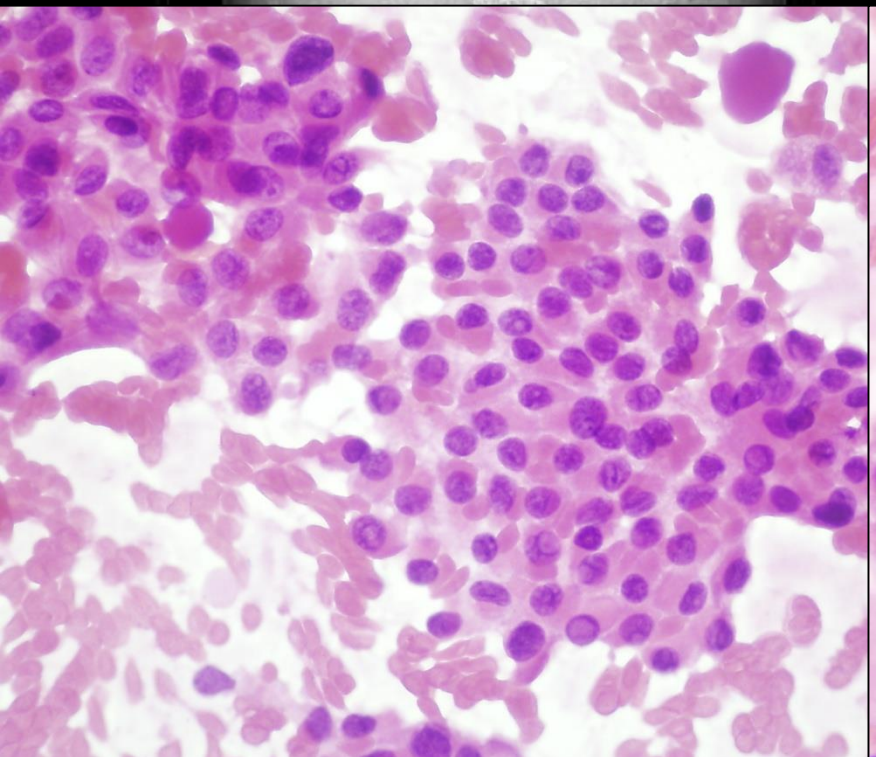


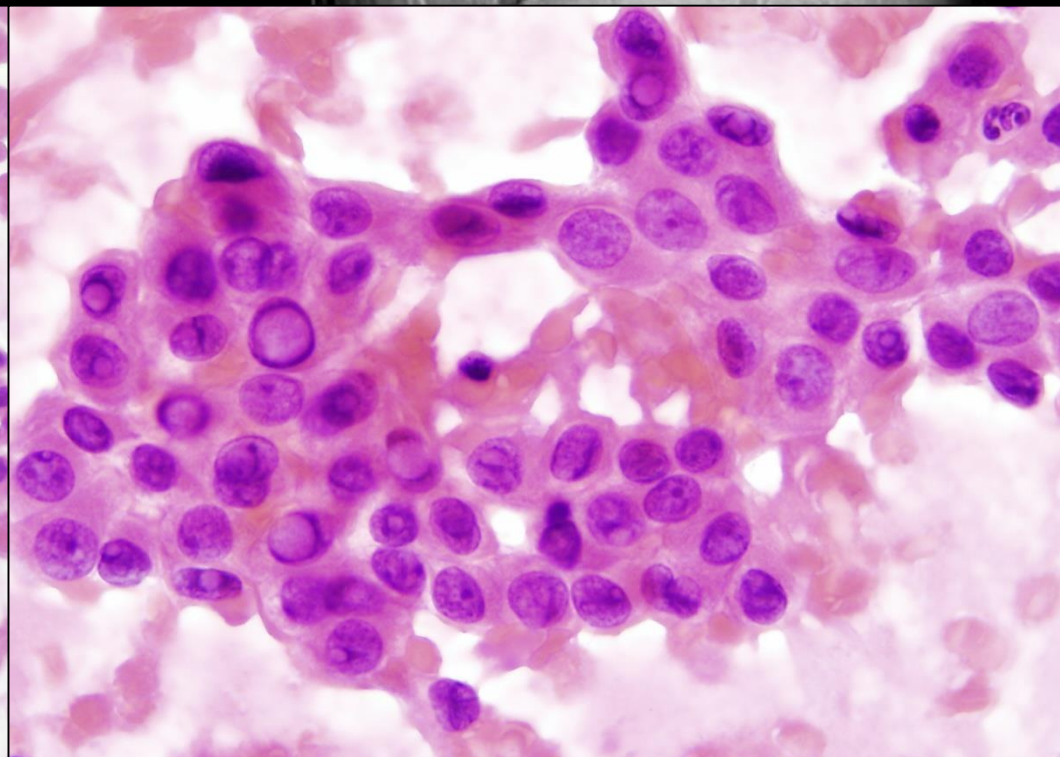


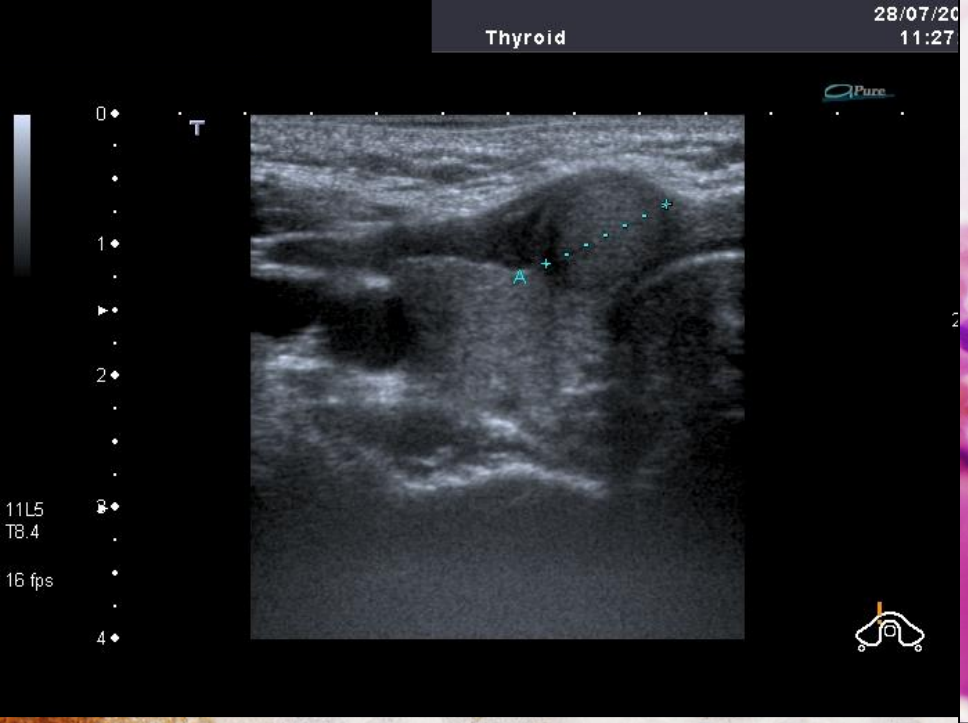


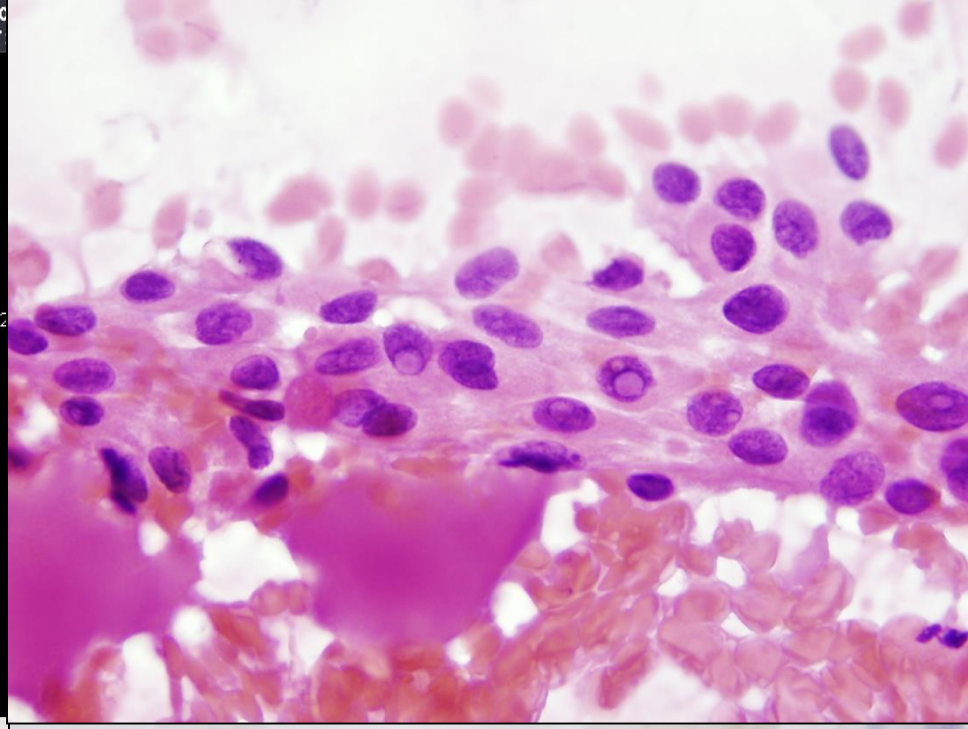


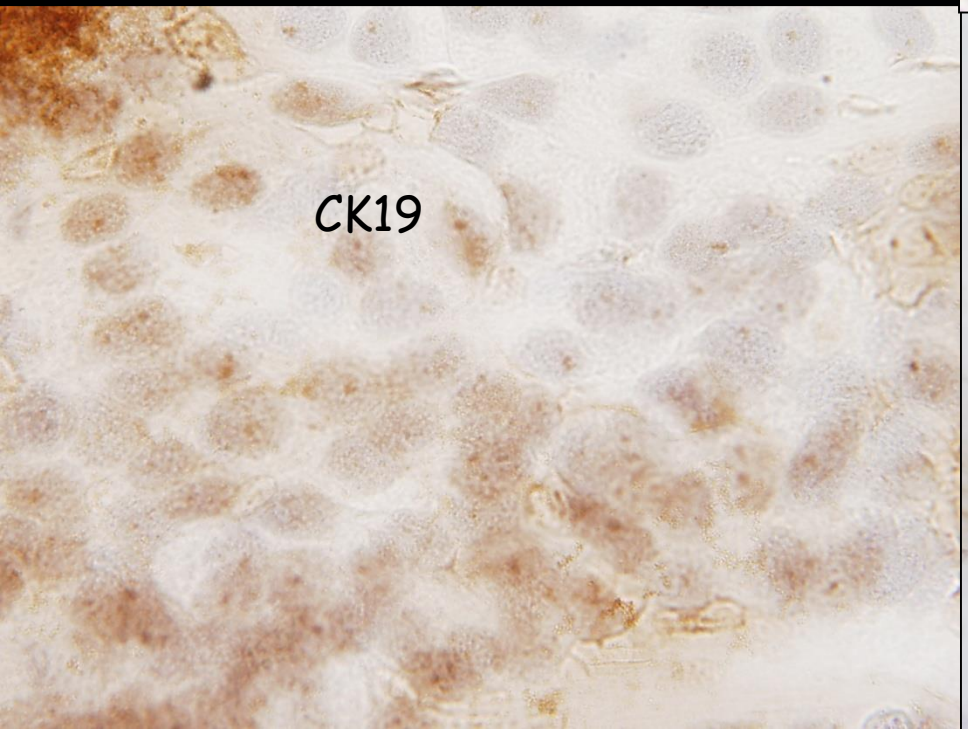
38 éves nő. Jobb oldali kerek árnyék. Npl? Met? TBC?

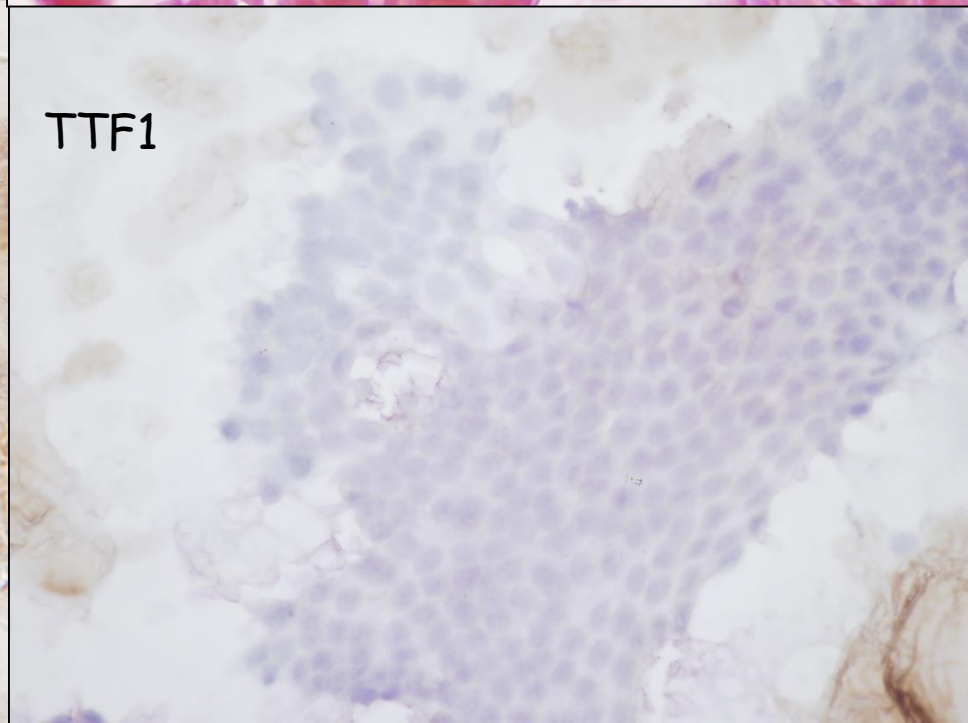


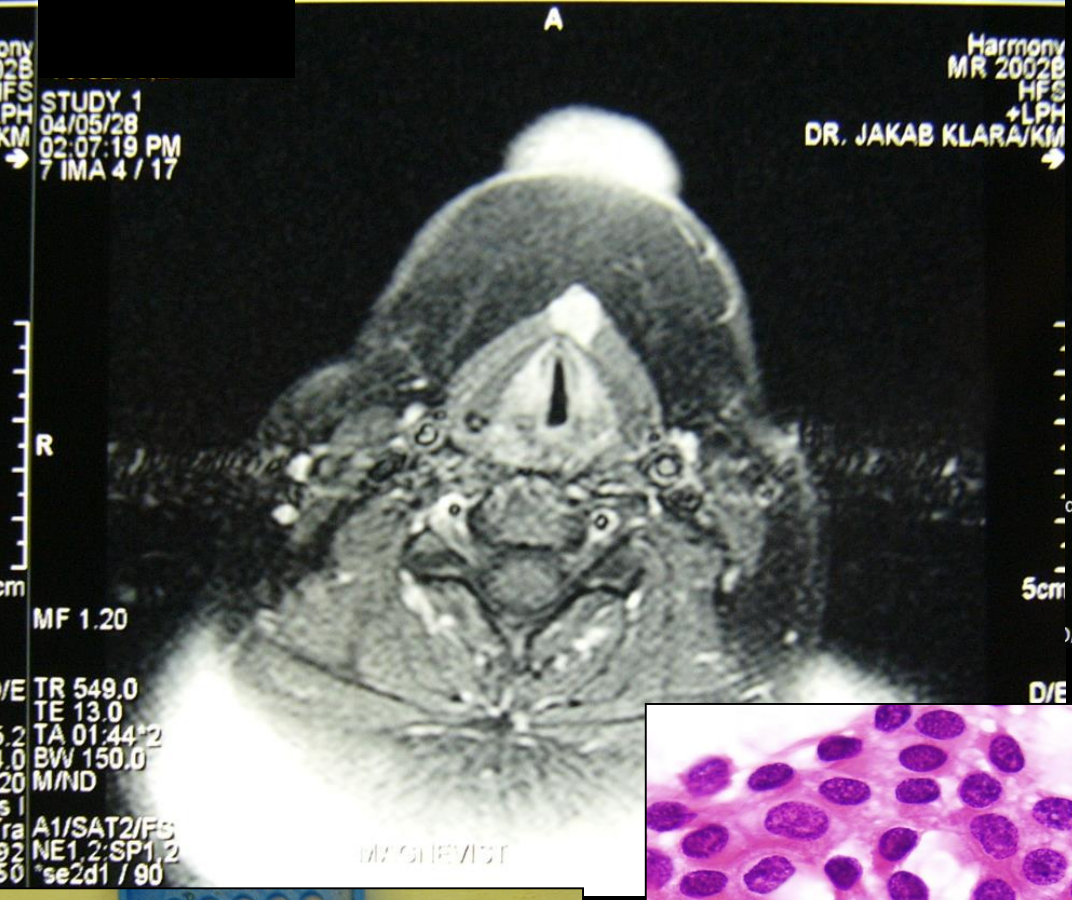



Thyroid
28/07/20
11:27
11L5
T8.4
16 fps



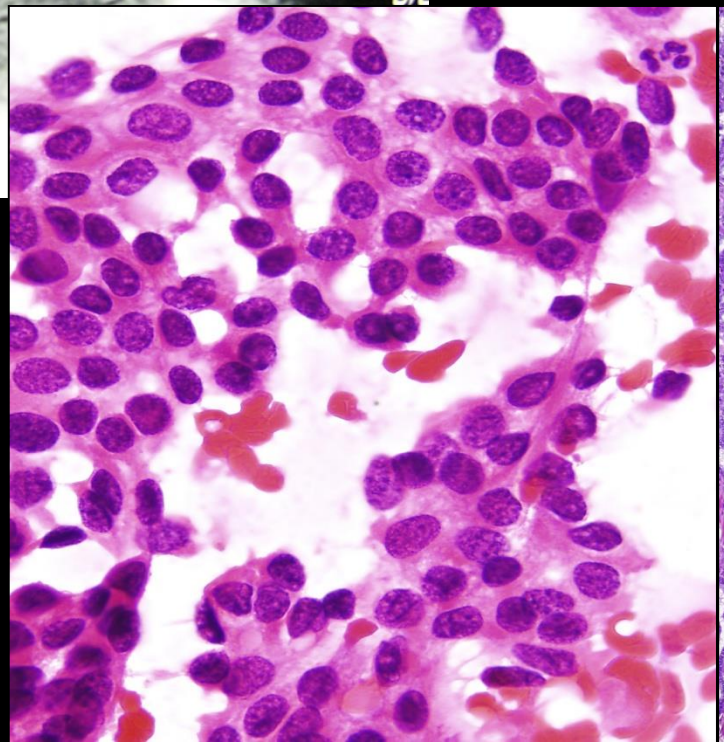

CK19

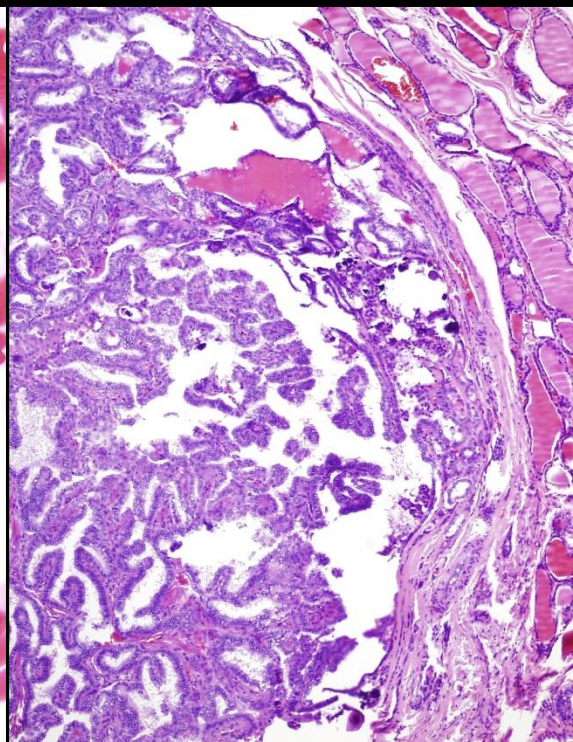

TTF1

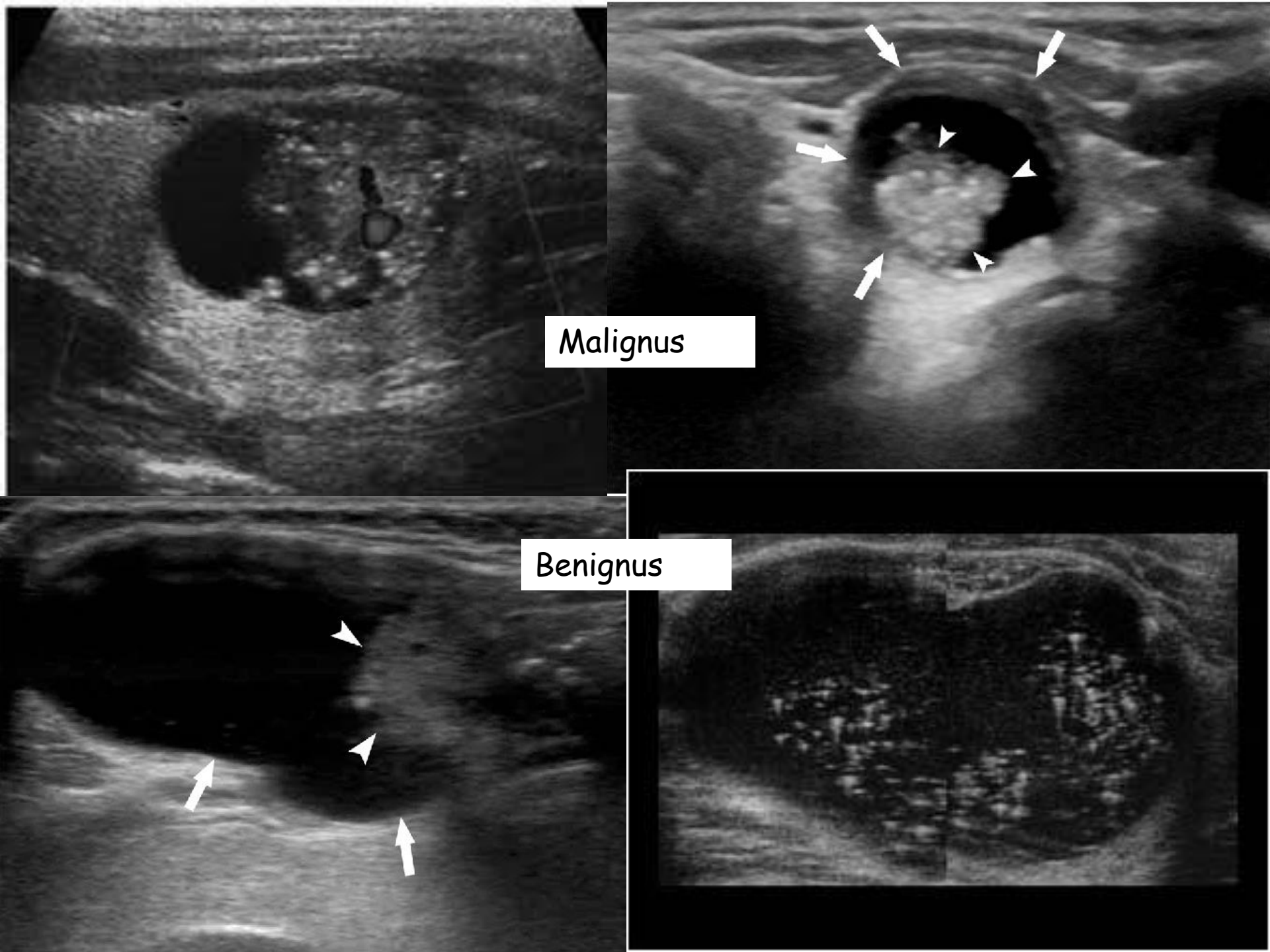

A
Harmony
MR 2002B
HFS
+LPH
DR. JAKAB KLARA/KM
STUDY 1
04/05/28
02:07:19 PM
7 IMA 4 / 17
R
5cm
MF 1.20
TR 549.0
TE 13.0
TA 01:44*2
BW 150.0
M/ND
A1/SAT2/FS
NE1.2:SP1.2
*se2d1 / 90


8 IMA 10 / 15
A
cm
10cm
MF 0.92
TR 549.0


8602/04






Malignus
Benignus

Follicularis cc.

Előfordulás

Idősebb nők

Ok: ras mutáció (adenomában is!)

Lassan növő göb (ált. hideg, de néha meleg is lehet)

Monoton sejtek

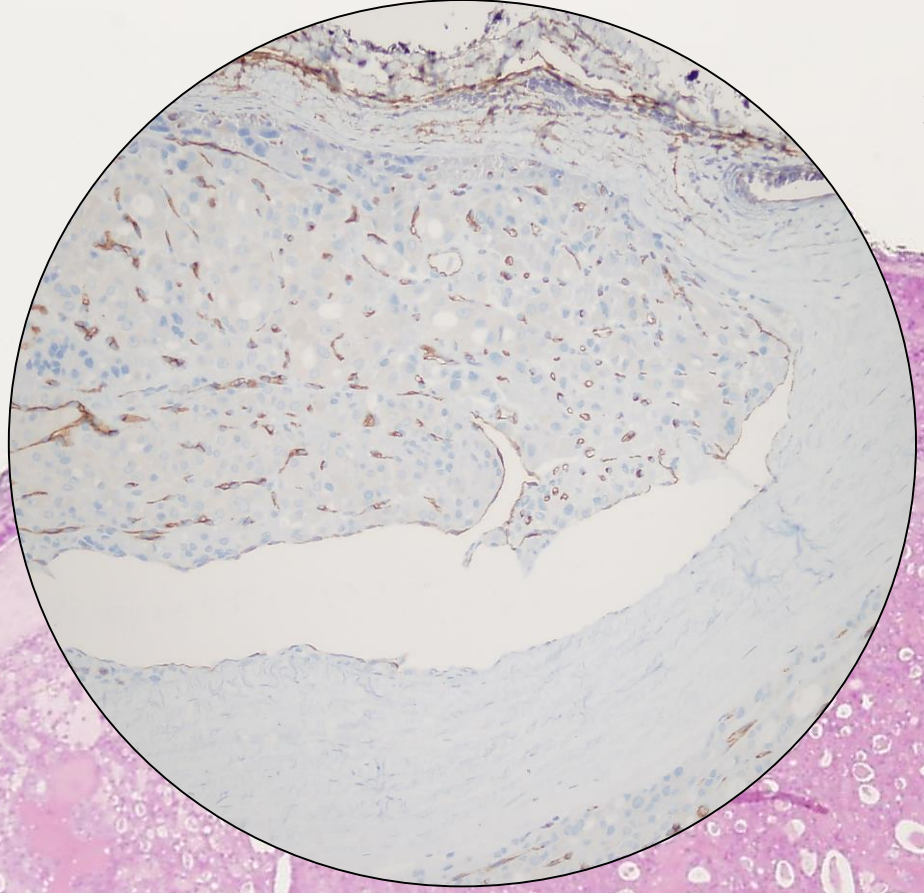
Capsula / és/ vagy érinvázió

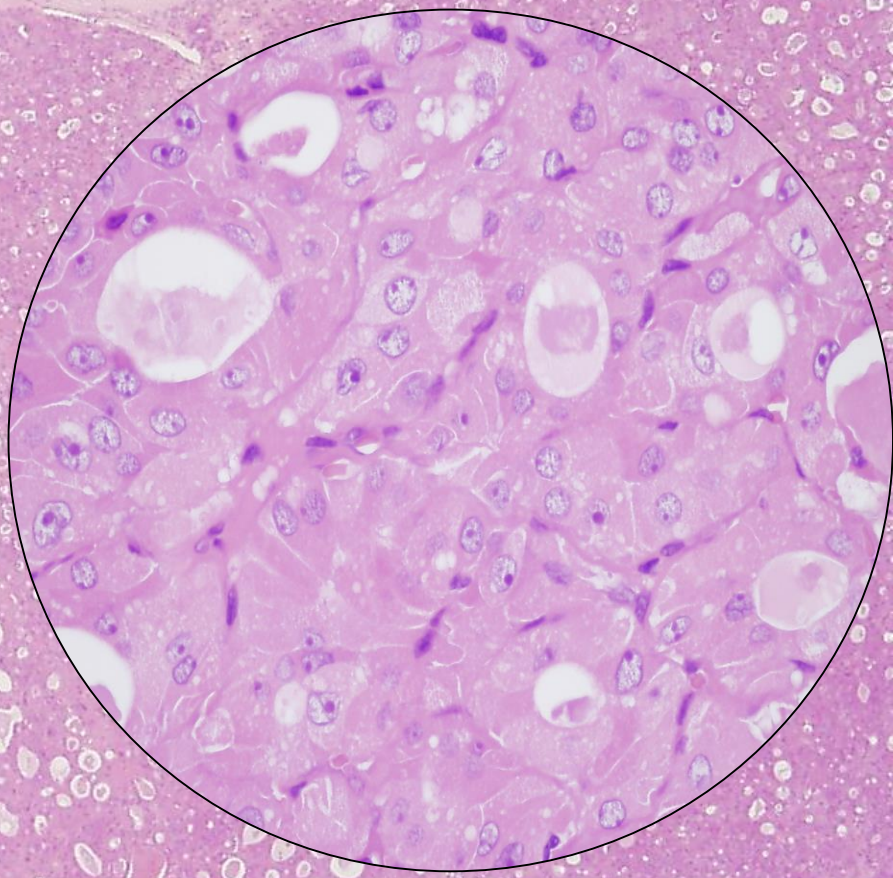
Reg. nycs-ba nem, inkább távoli áttét (csont, máj, stb.)

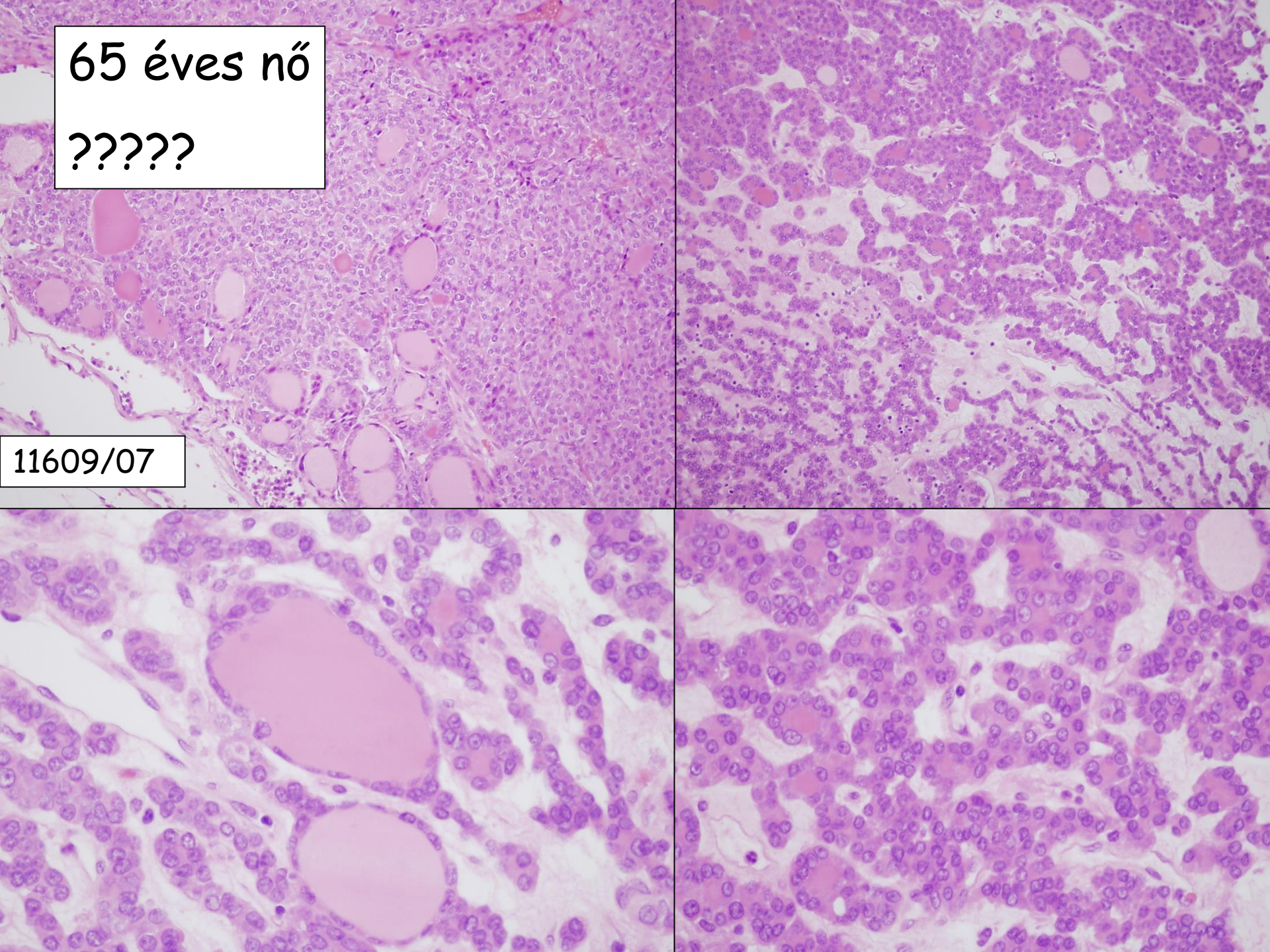
Progn.: Az áttétképzés mértékétől függ

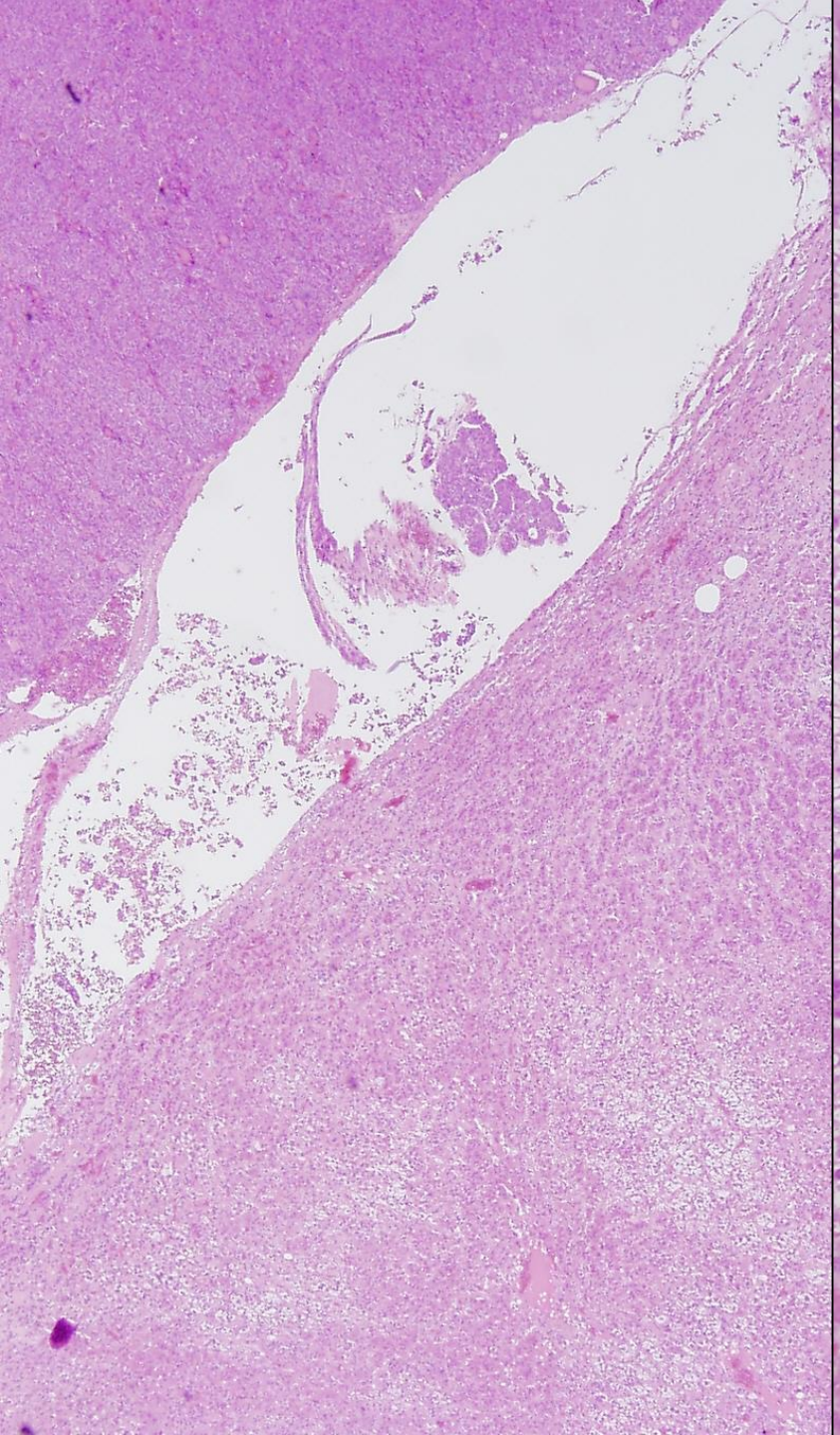
Th.: sebészi + radiojód th

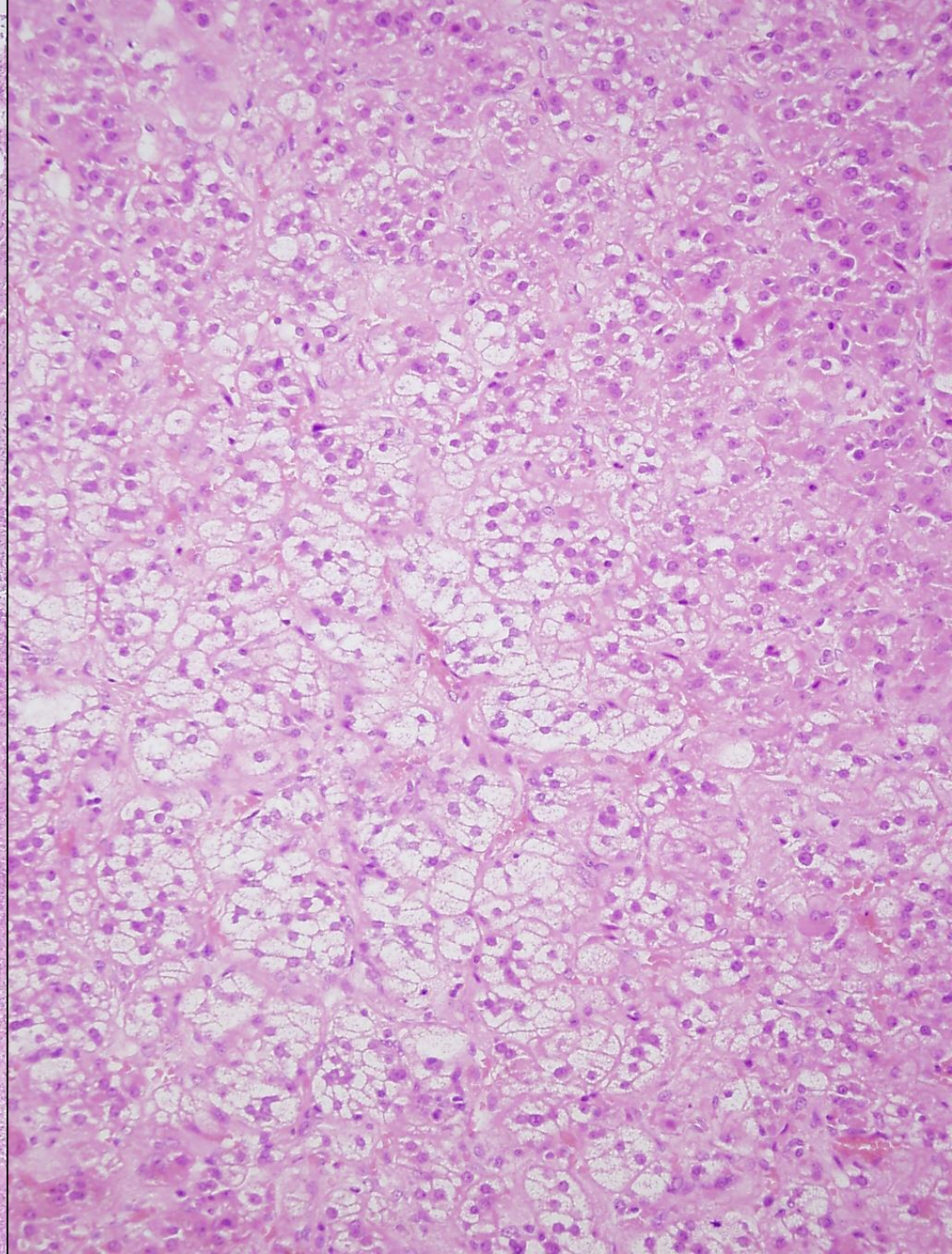
12536/07 59 é. nő





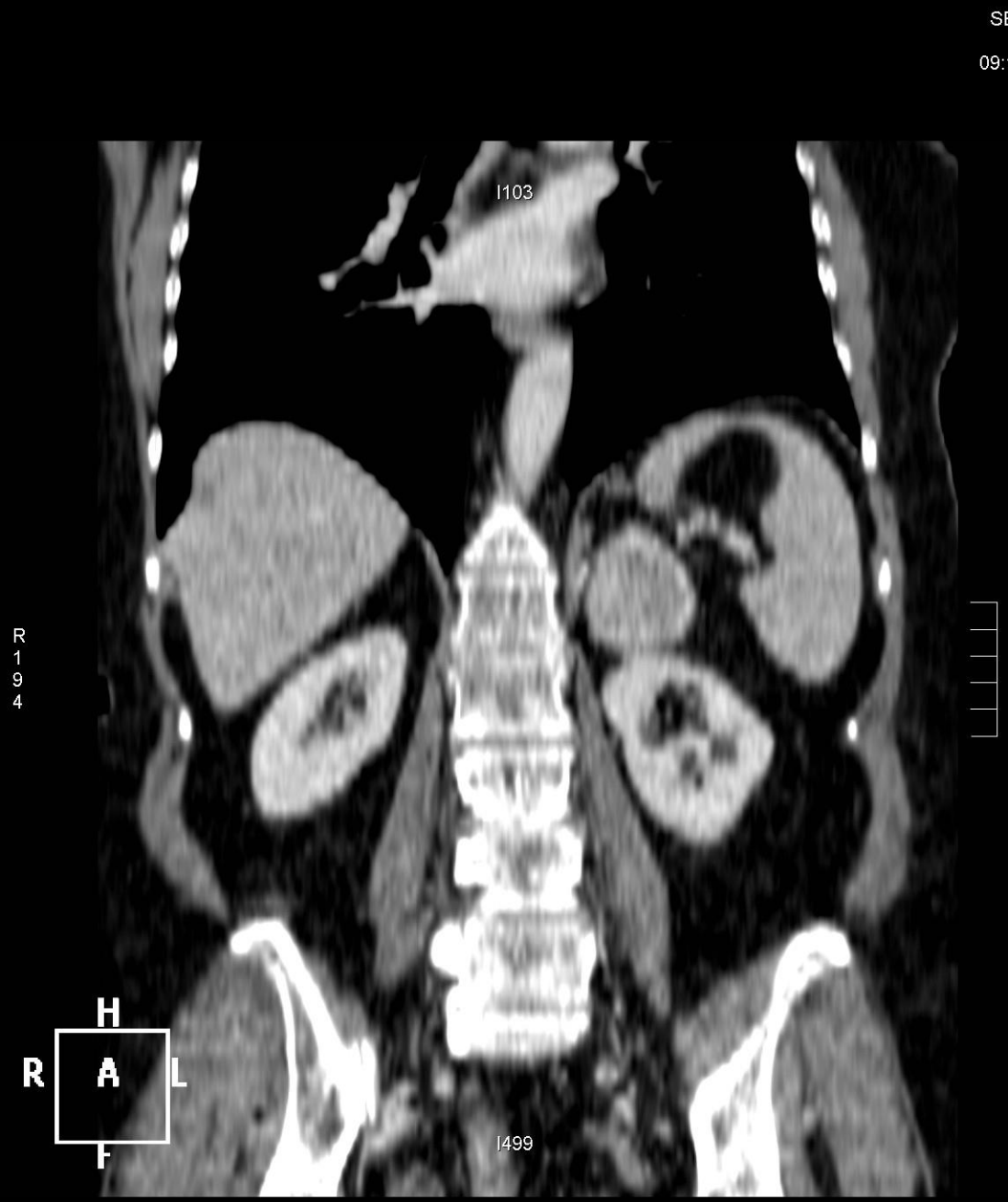

65 éves nő
?????
11609/07

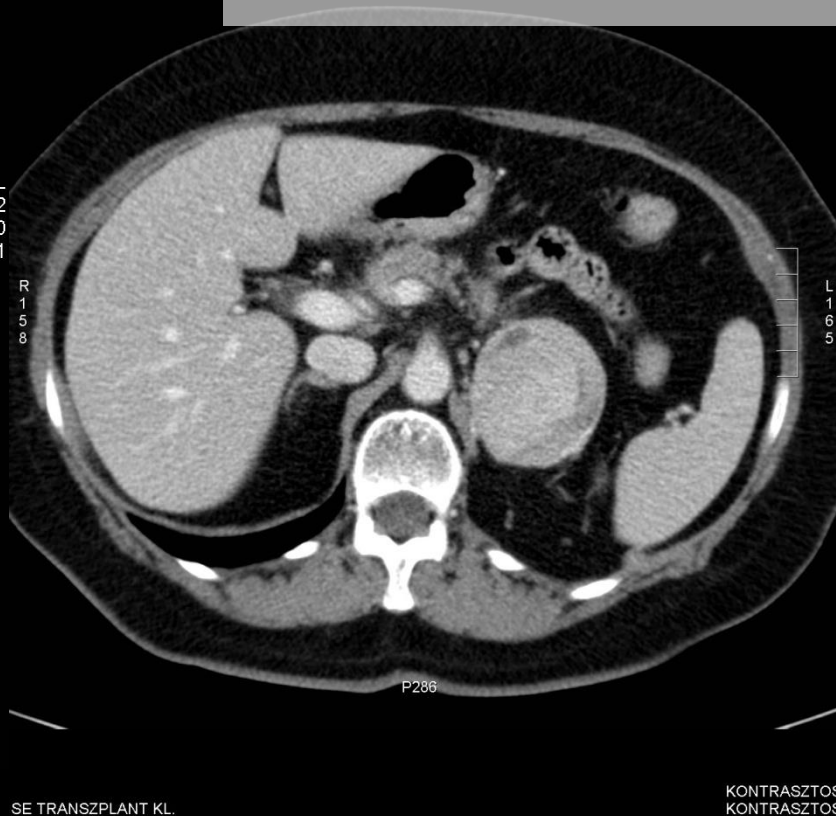


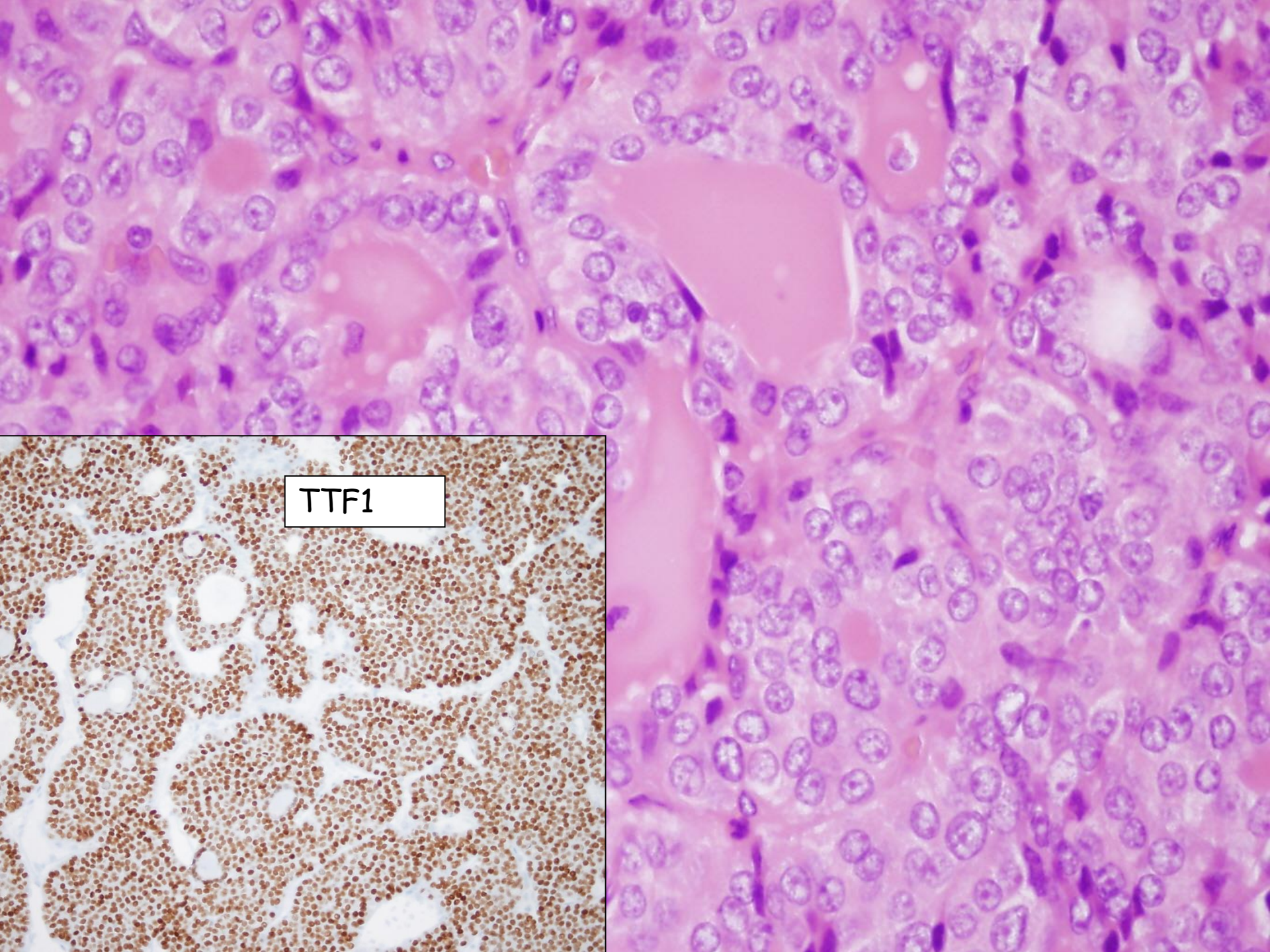


1996. b.o. emlőcc. op.
2003. b.o. rec., 2005. j.o. emlőcc.

Bal mellékvesében 6 cm átm. növekvő tu.





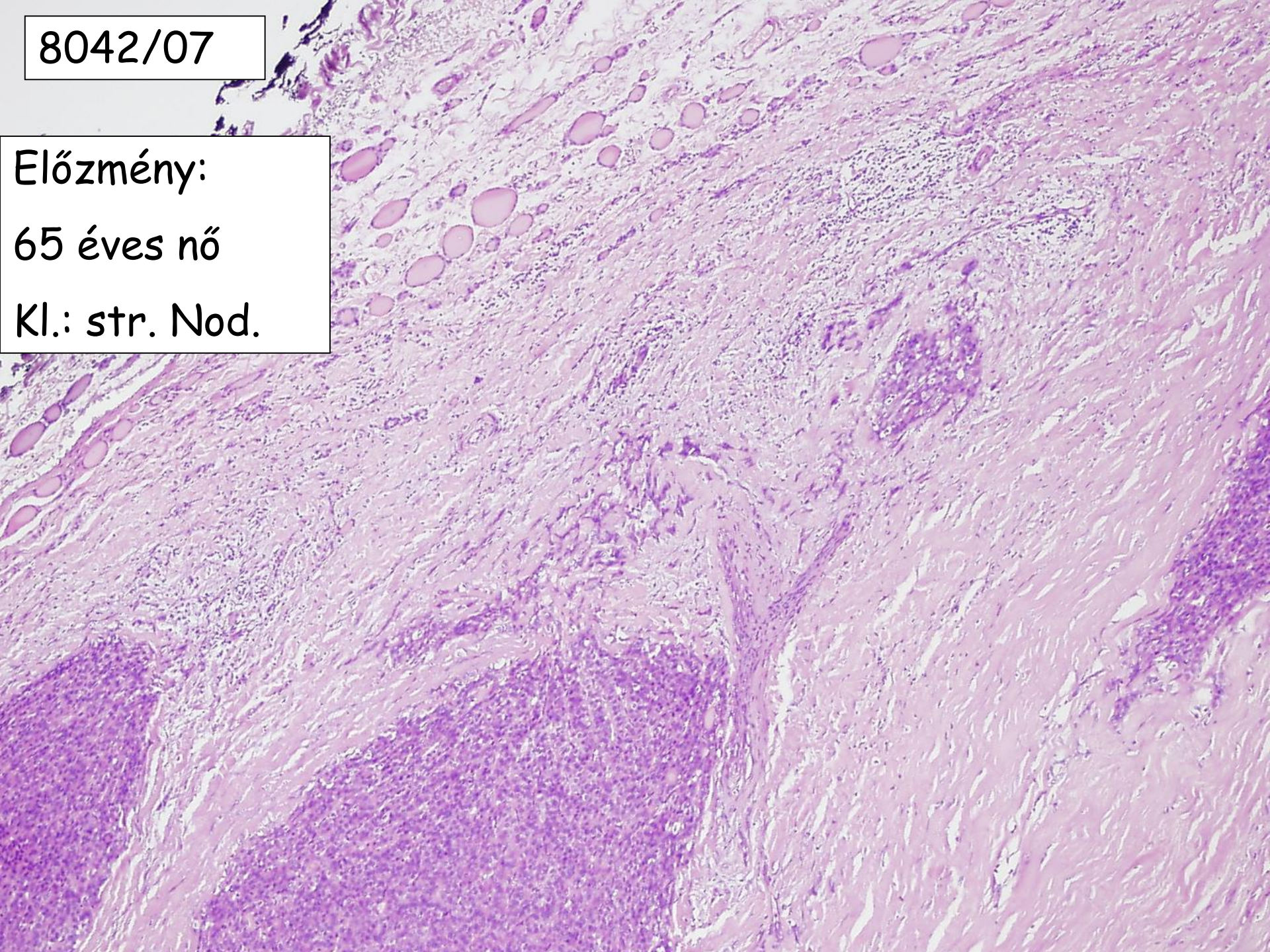

TTF1

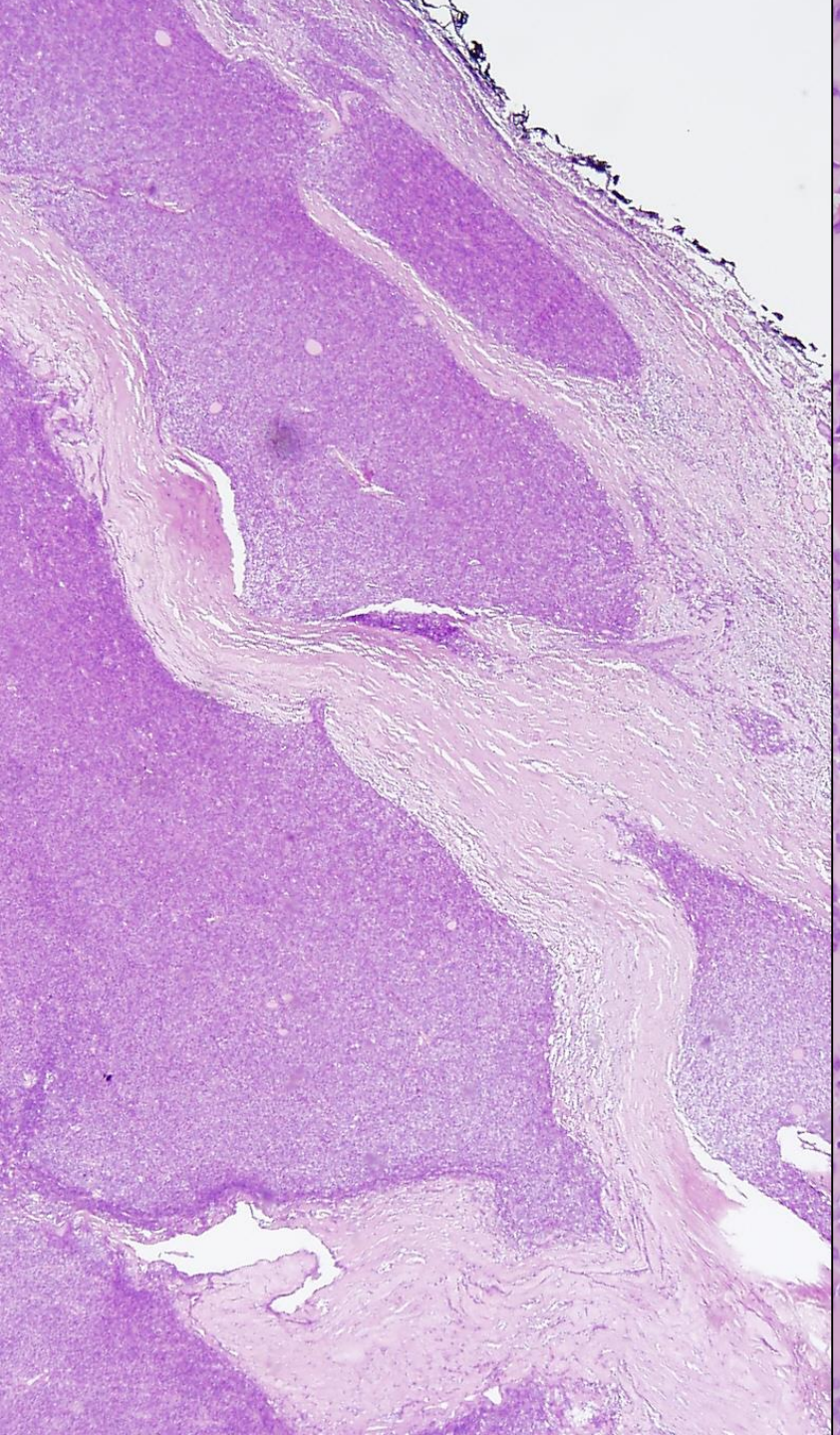
8042/07

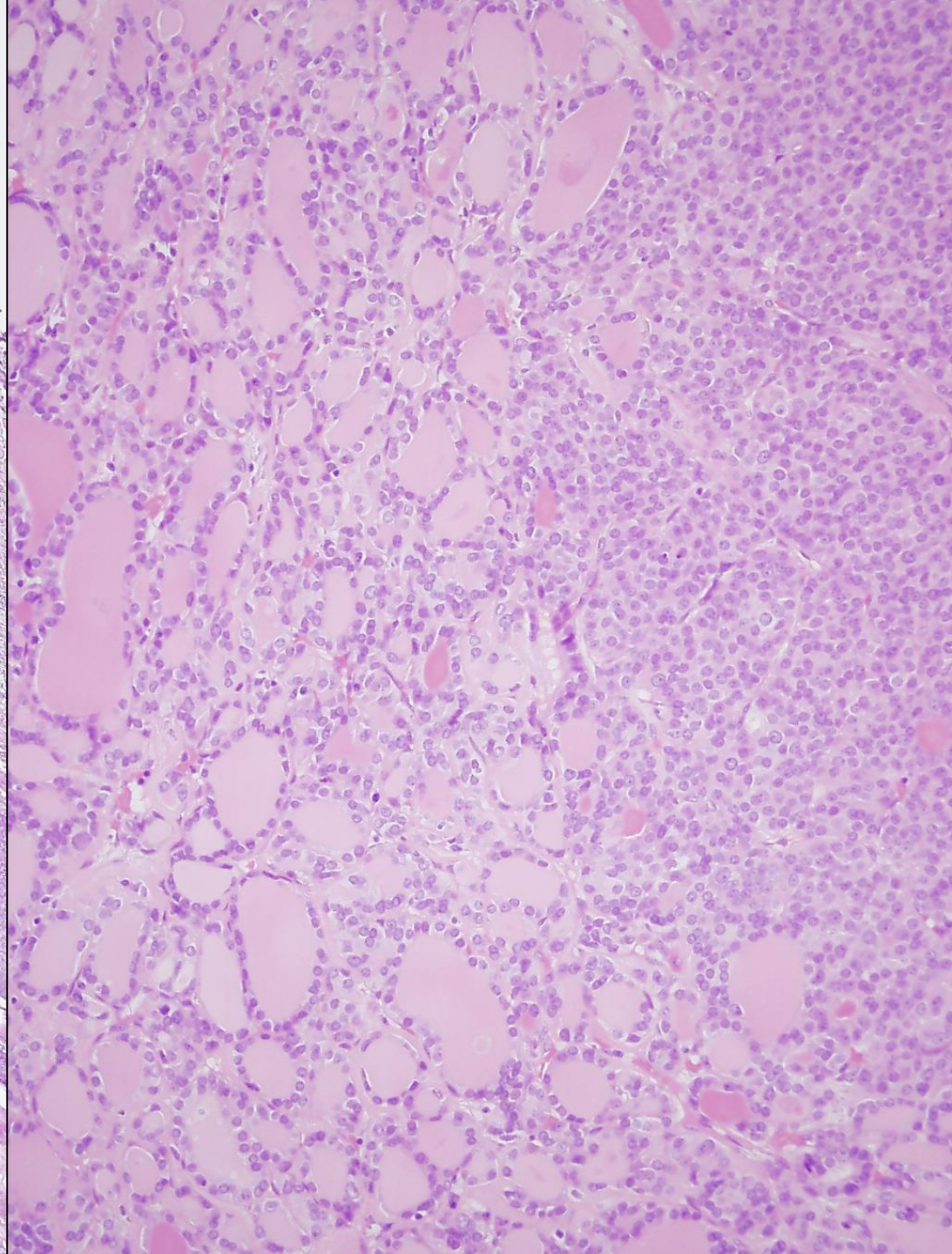
Előzmény:

65 éves nő

Kl.: str. Nod.







Anaplasticus cc.

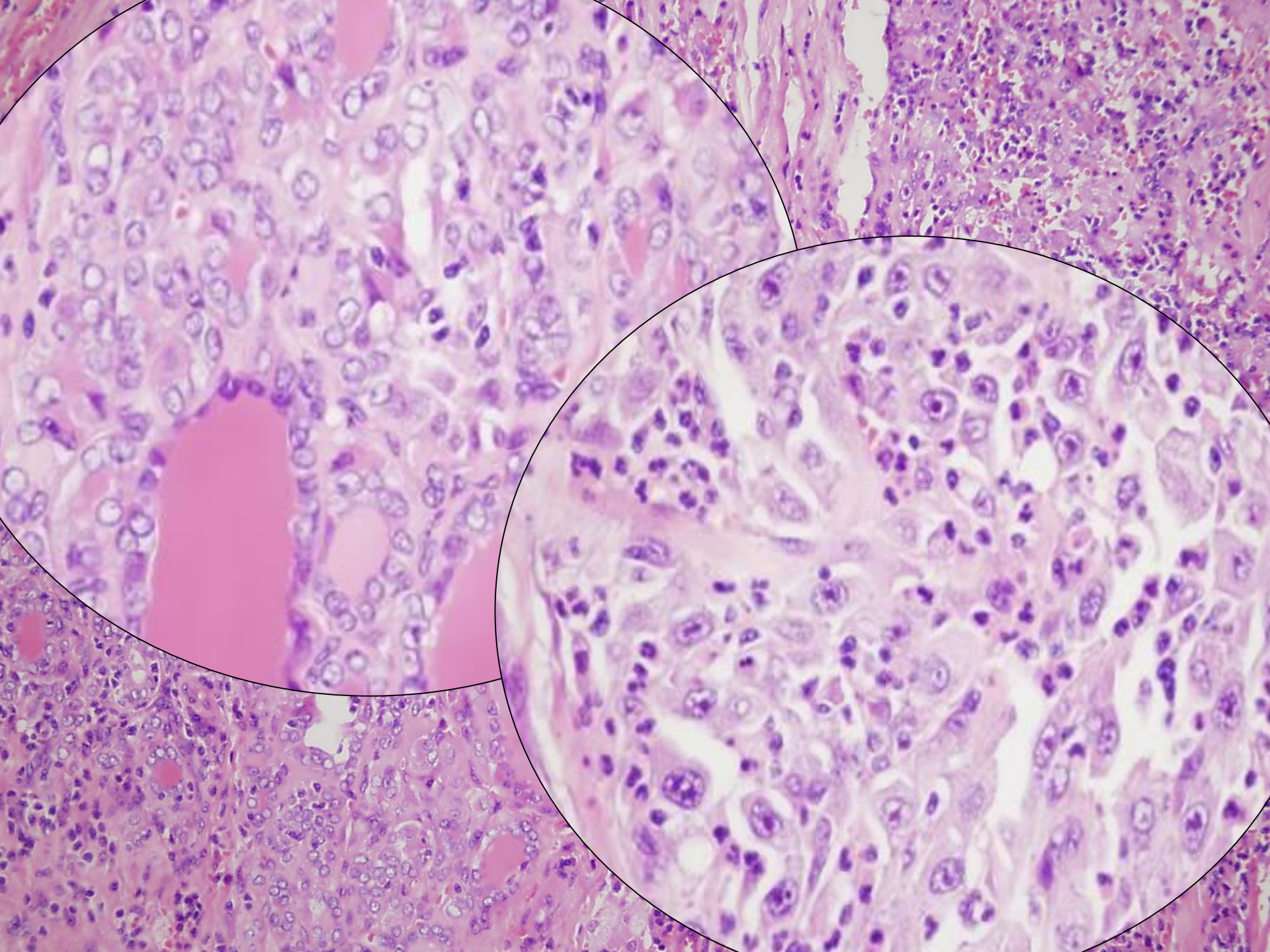
Ált. valamilyen pm betegség talaján

(göbös golyva, vagy papill. pmcc.)

Gyorsan növő agresszív tumor.

Rekedtség, fulladás, kompresszió

Mortalitás 100 %, egy éven belül



Medulláris cc.

C sejtekből indul

80 % sporadikus

20 % a MEN sy 2A, 2B. betegekben, vagy

FMTC

(Familiáris medulláris pajzsmirigy cc. FMTC,- spec. MEN2A)

Soliter göb (sporadikus), vagy mlpx kisebb familiaris (C sejt hpl mellett)

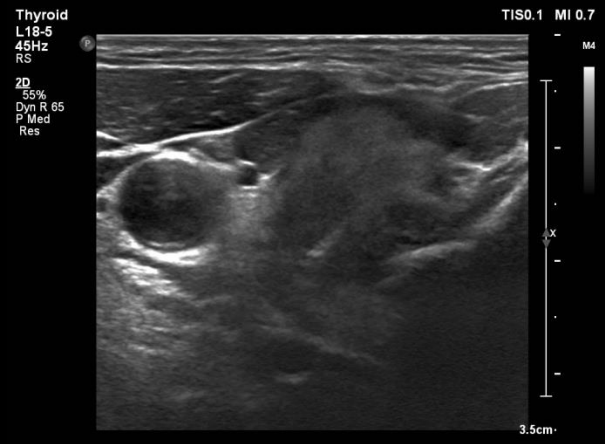
Medulláris cc.

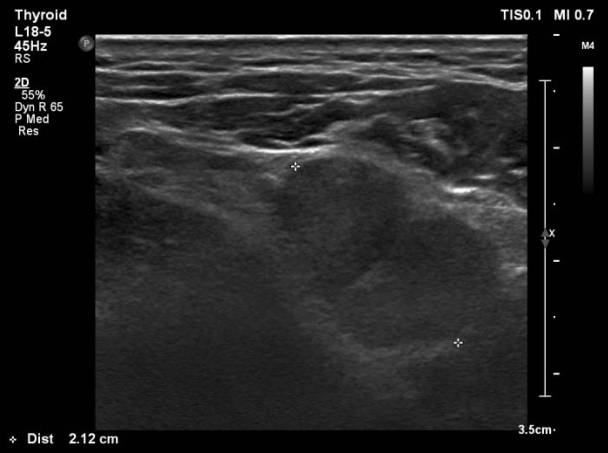
Tünetek: göb, rekedtség, dysphagia
paraneoplasticus (?!) hormontermelés

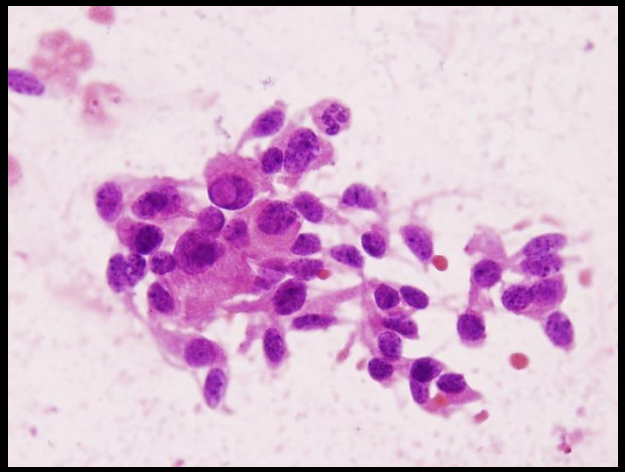
Calcitonin ^^, de hypocalcaemia nincs mindig

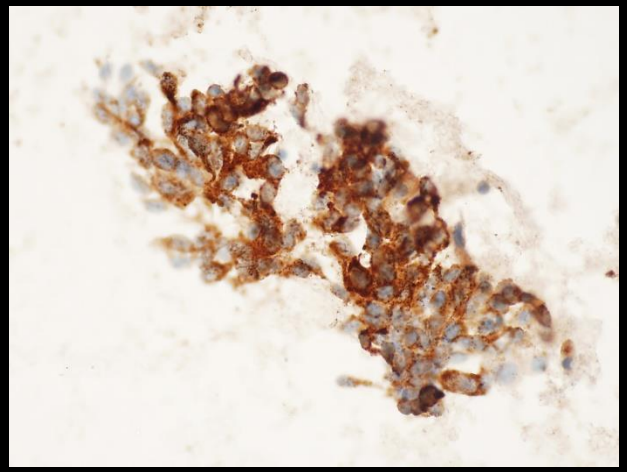
Familiáris esetekben a családi szűréskor derül ki a RET-mutáció. (C sejt hpl előfordulhat a prophilacticusan eltávolított pm-ben).

53 éves ffi
Bo-i nyaki duzzanat







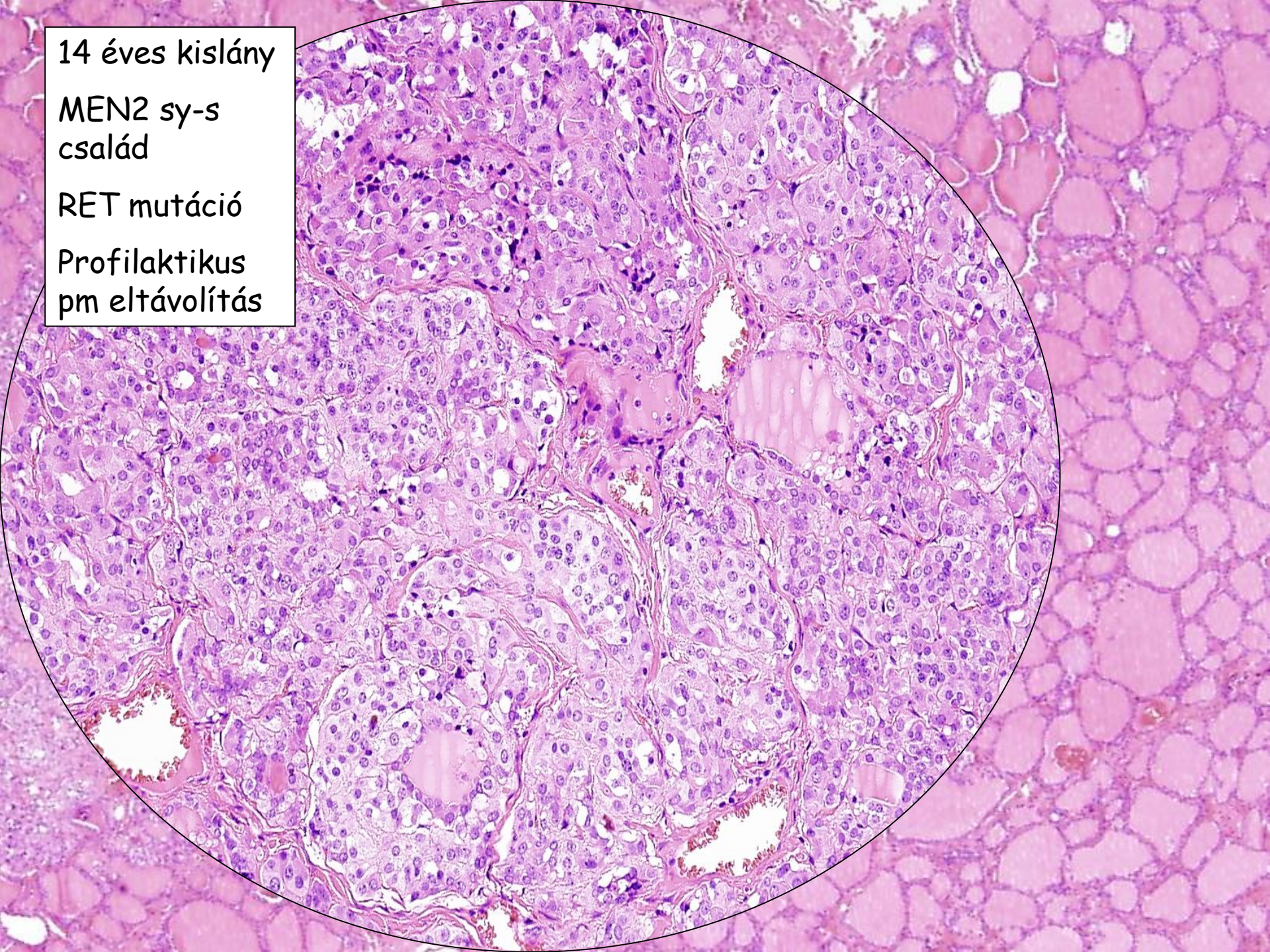


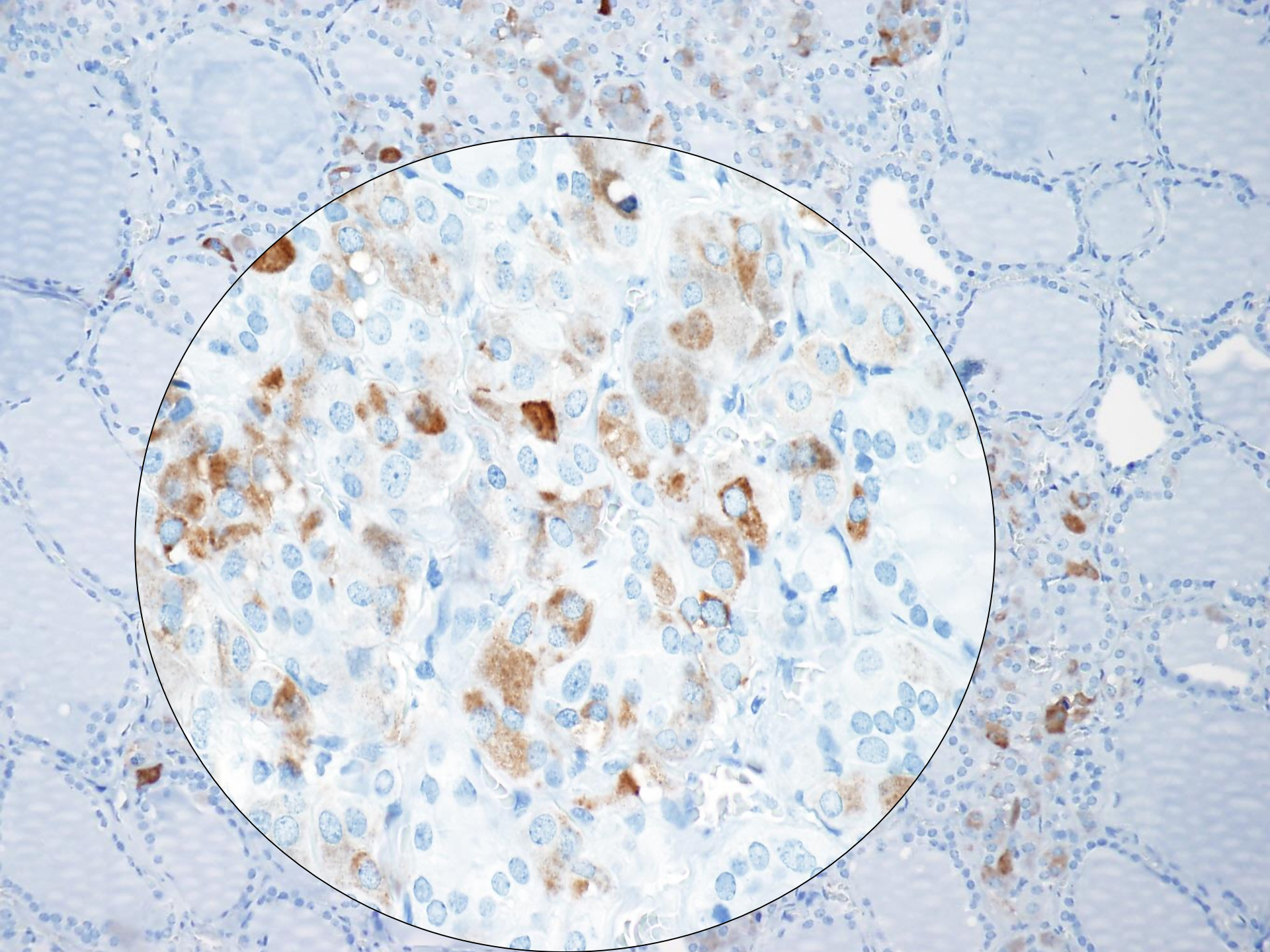
11109/07 55 é. Nő

Néhány hete észleli pm göbét

	MEN1 Wermer sy	MEN 2A Sipple sy	MEN 2B
Hypophysis	Adenomák		
MPM	HPL +++ Adenoma +	Hpl +	
Langerhans szigetek	HPL ++ Adenoma ++ CC +++		
MV	HPL	Pheochromo-cytoma ++	Pheochromo-cytoma +++
PM		C sejt hpl +++ Medull. Cc +++	C sejt hpl +++ Medull. Cc +++
Extraendocrin szervek			Mucocutan ganglioneuromak Marfanoid alkat
Genetikai hiba	MEN1 11q13	RET 10q11.1	RET ?


2790/09 II/1


14 éves kislány
MEN2 sy-s család
RET mutáció
Profilaktikus pm eltávolítás

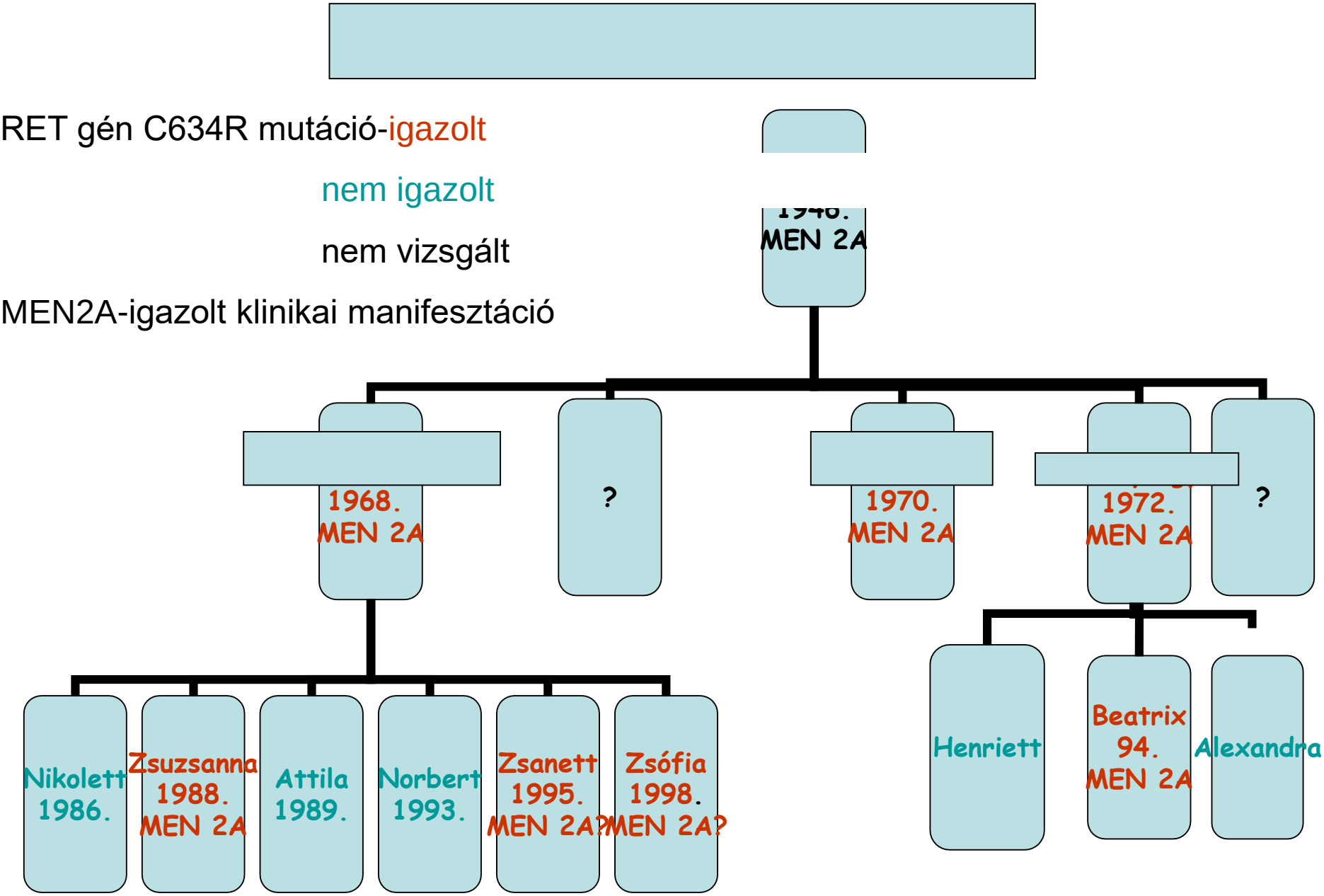


RET gén C634R mutáció-igazolt

nem igazolt

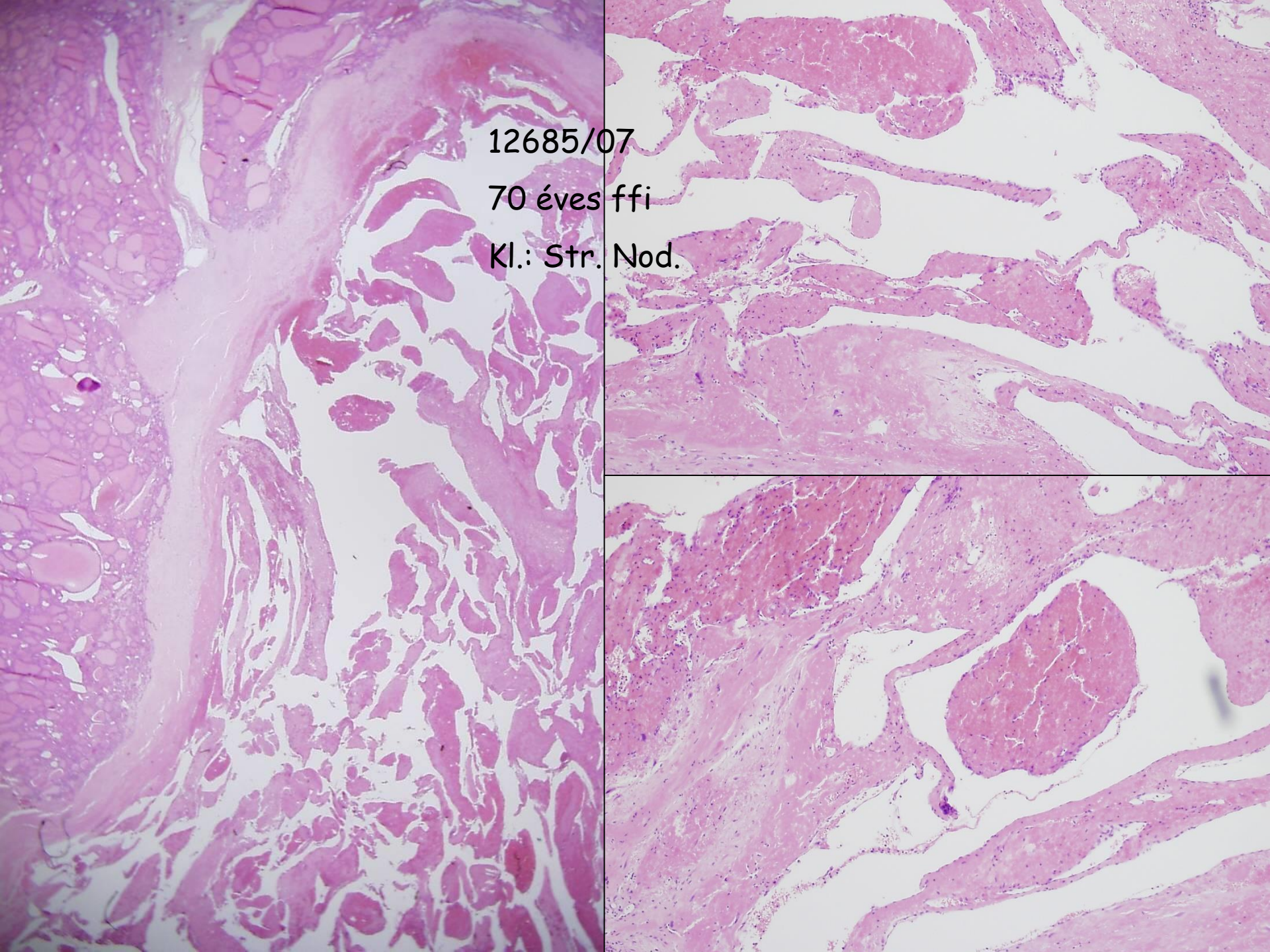
nem vizsgált

MEN2A-igazolt klinikai manifesztáció

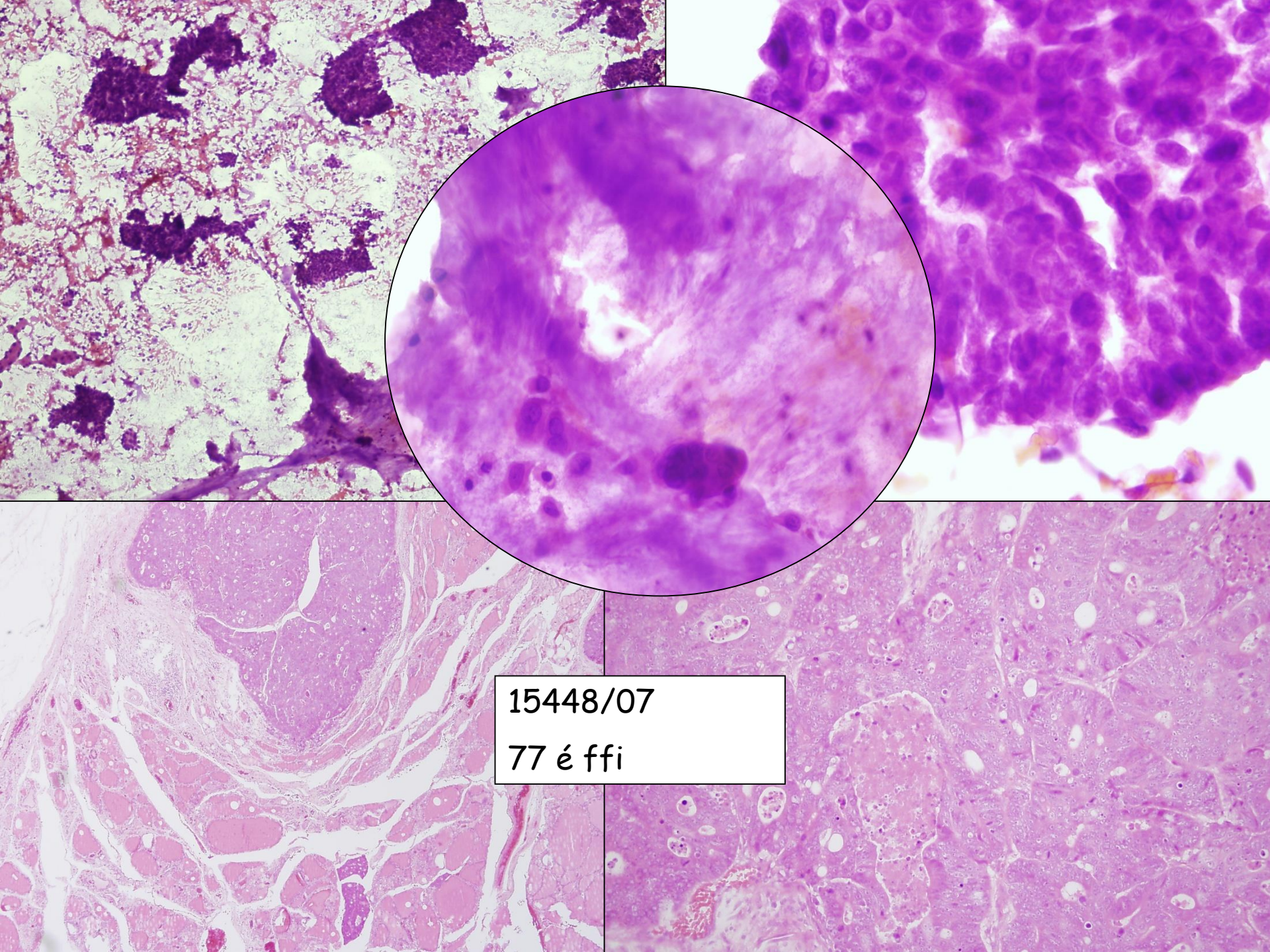


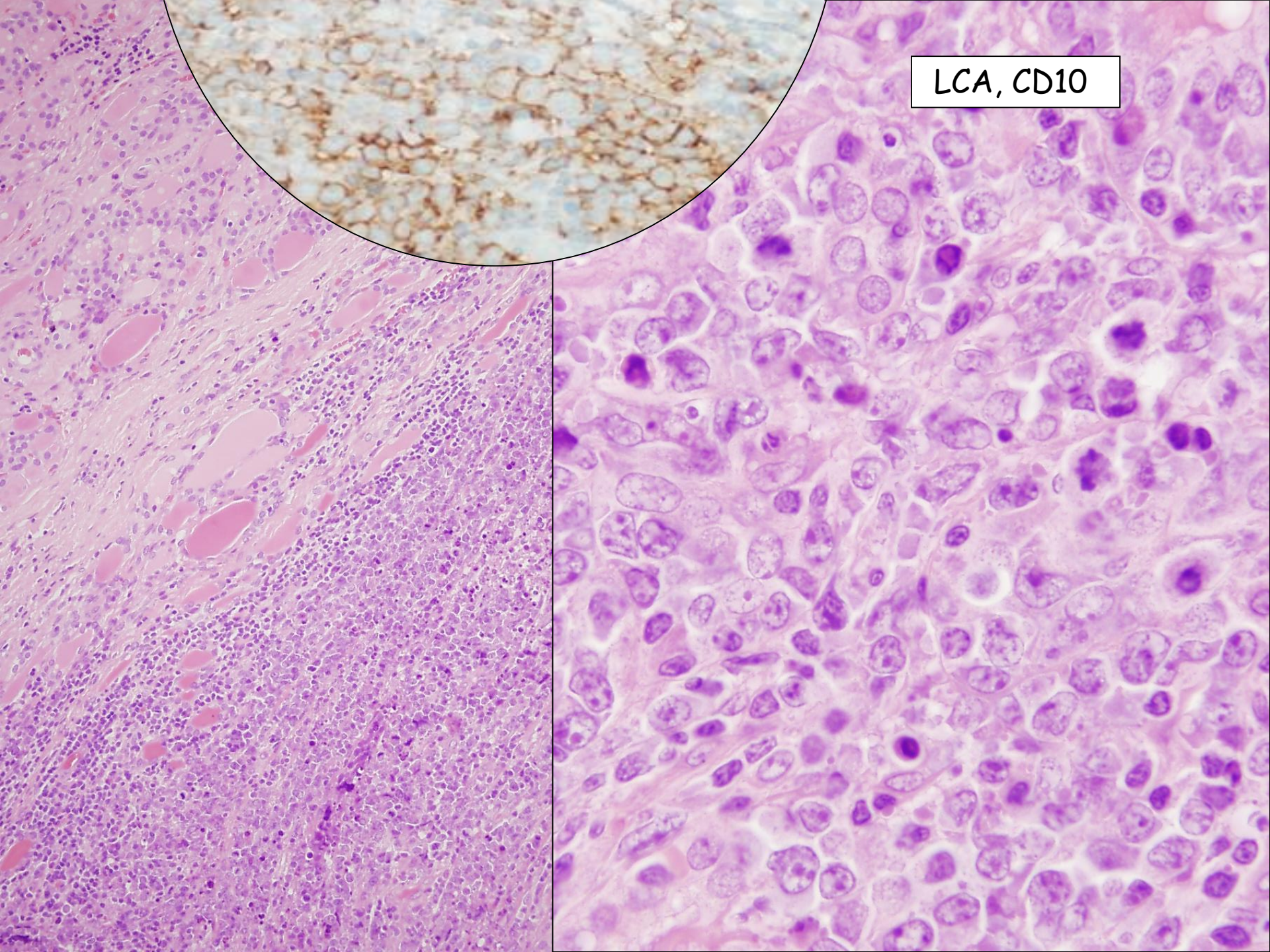
Egyéb daganatok

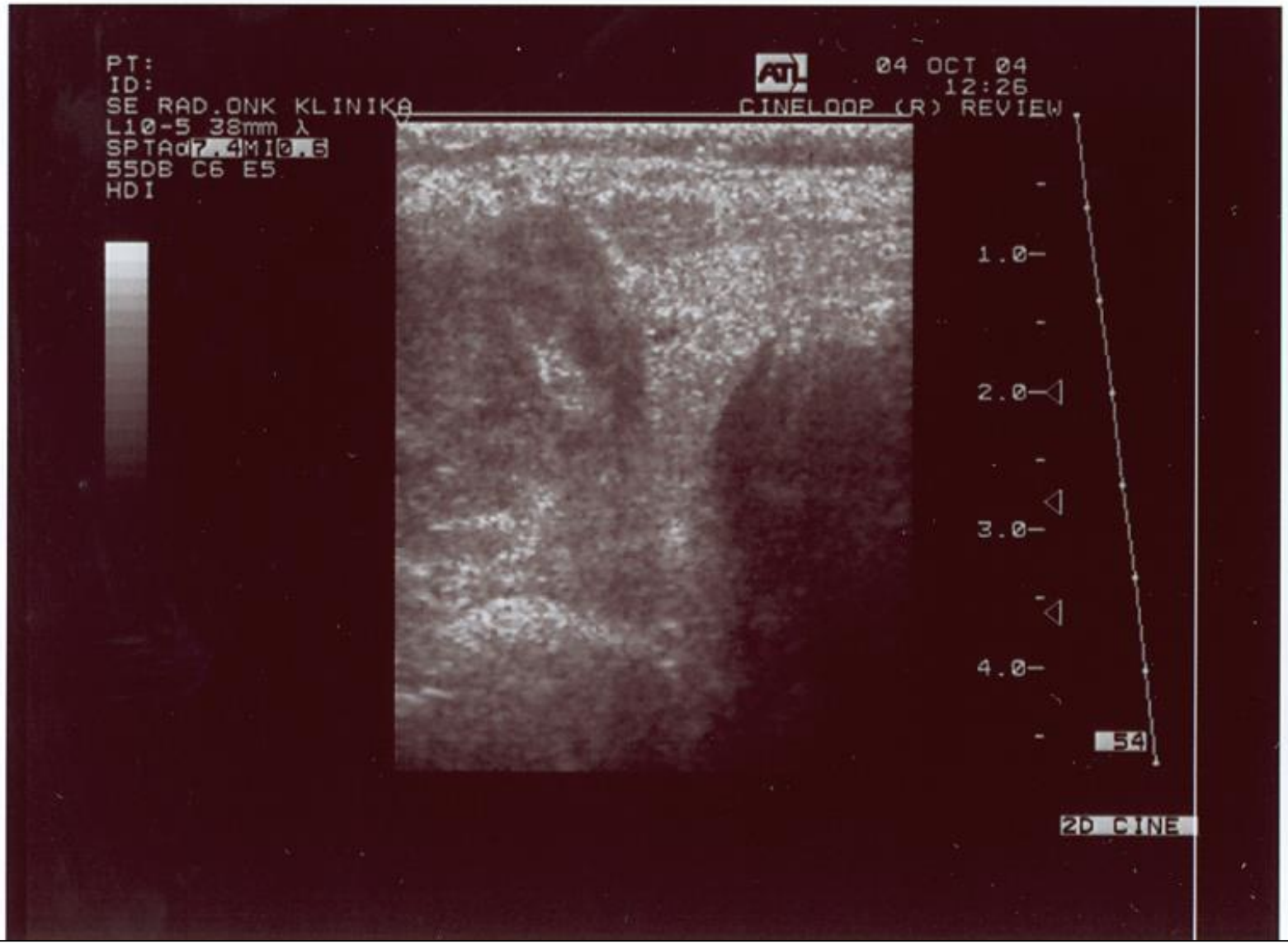
Mesenchymalis tumorok
Lymphomák
Metastasisok (ritka)


12685/07
70 éves ffi
Kl.: Str. Nod.

Metastasisok

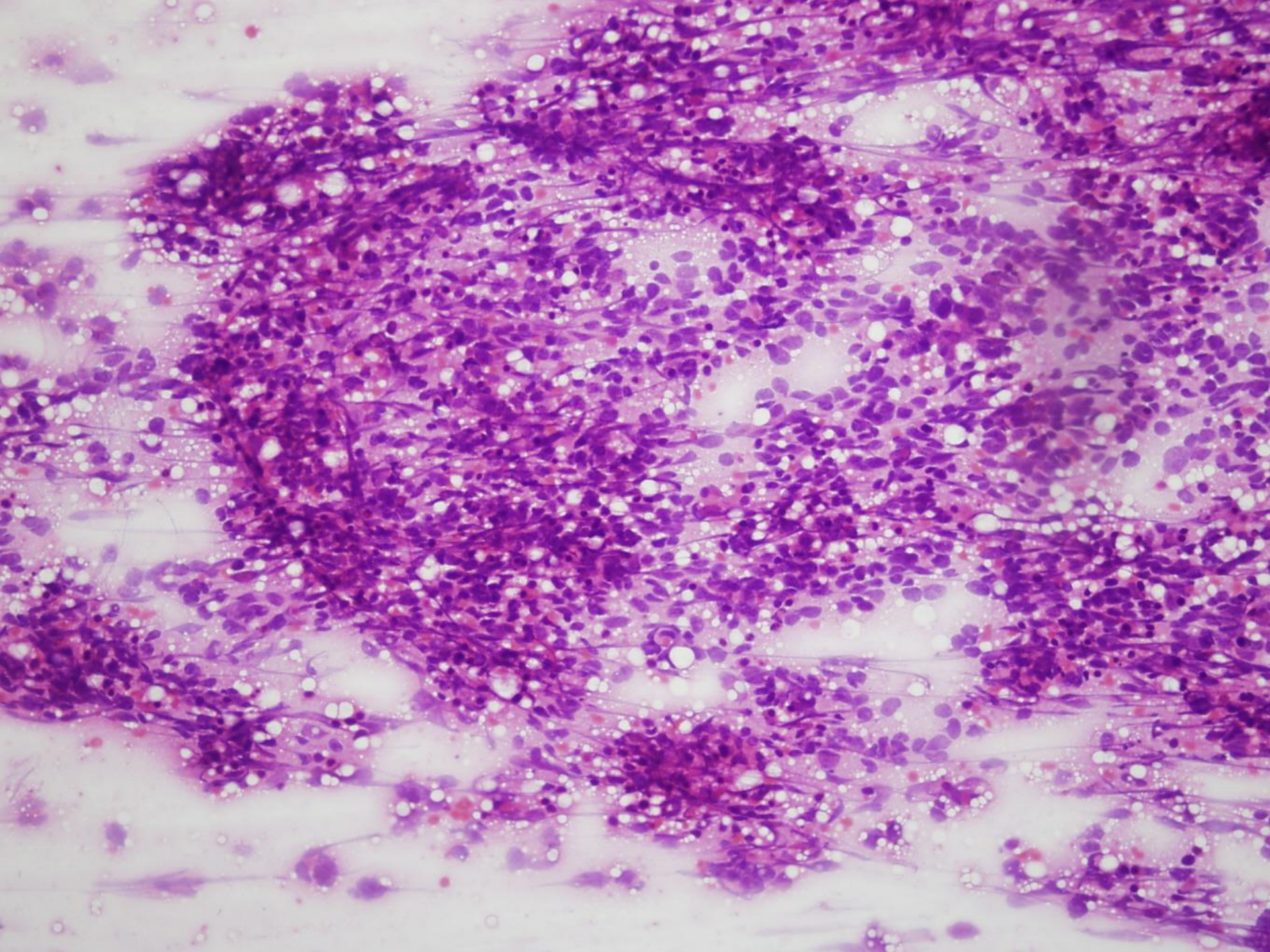

15448/07
77 é ffi

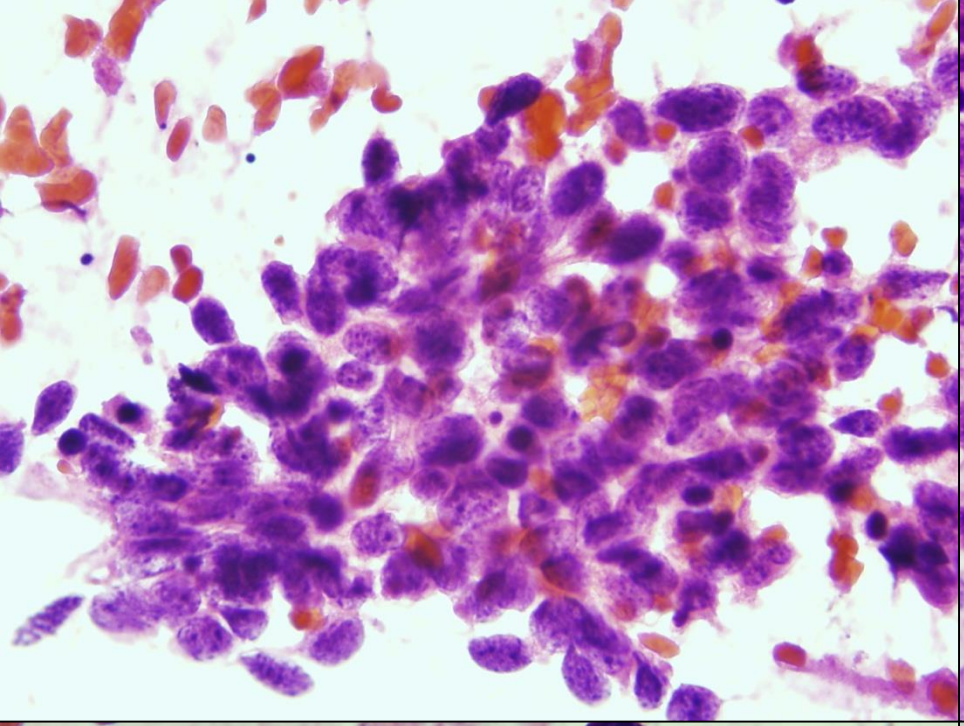

LCA, CD10

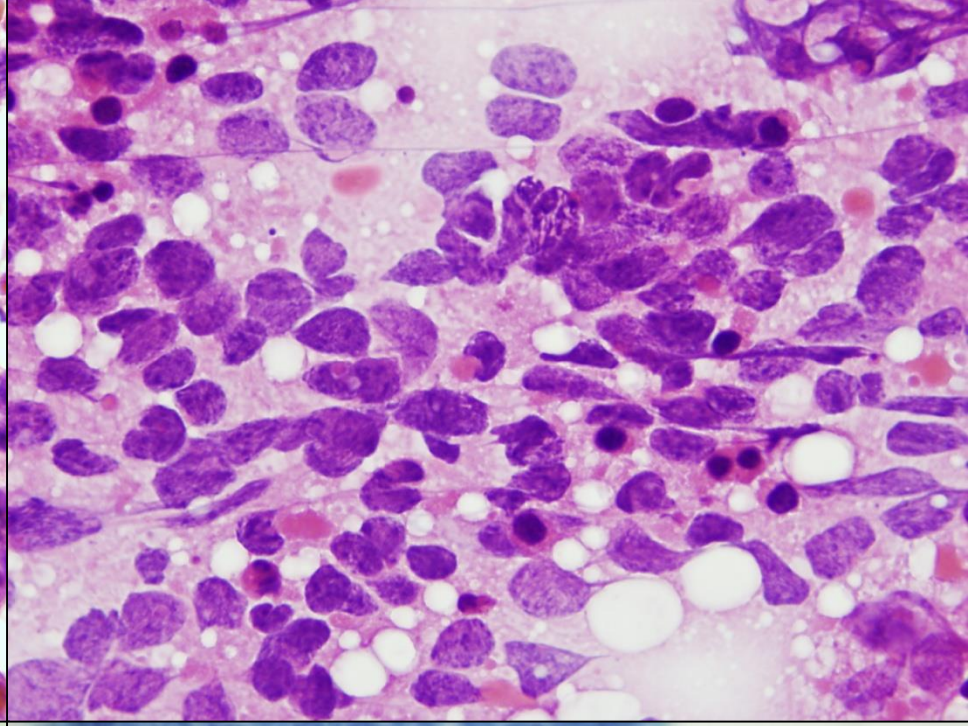


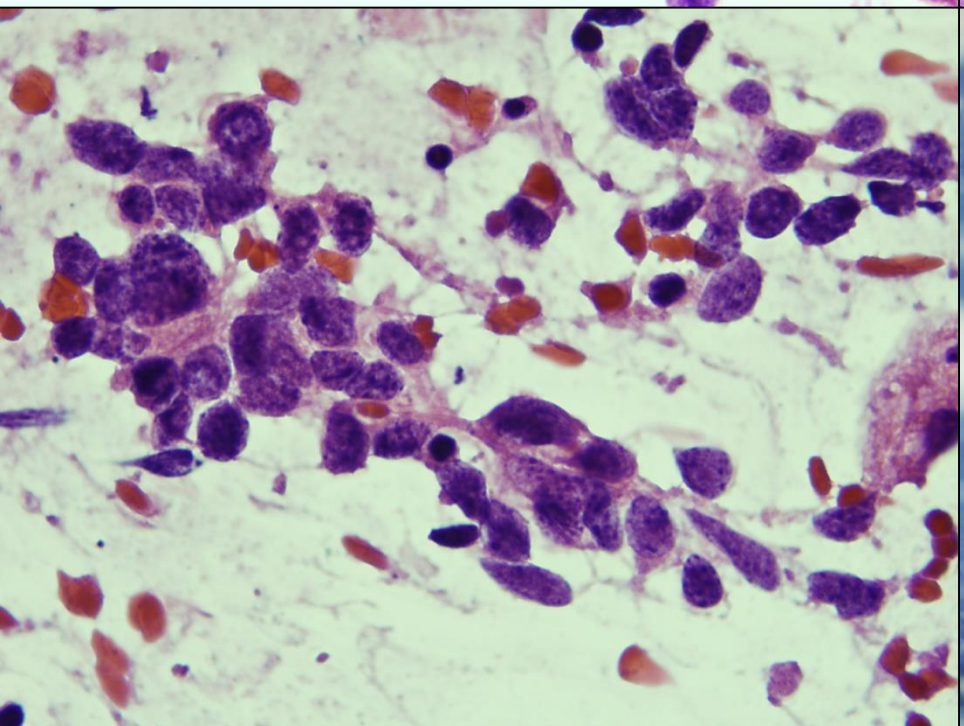
64 éves nő

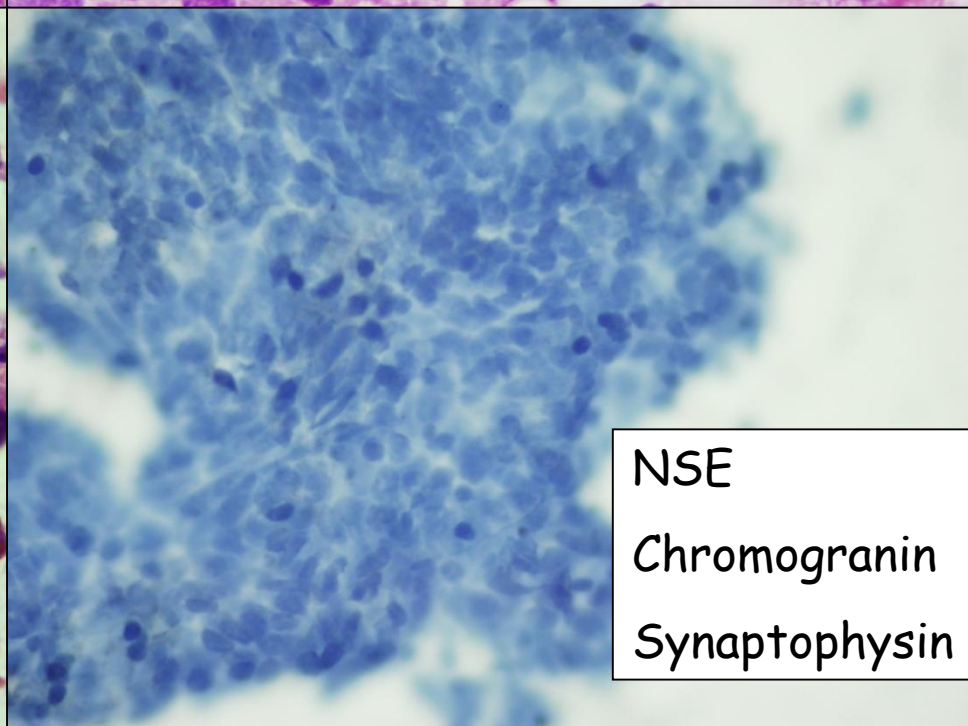
Hirtelen növekvő PM göb.

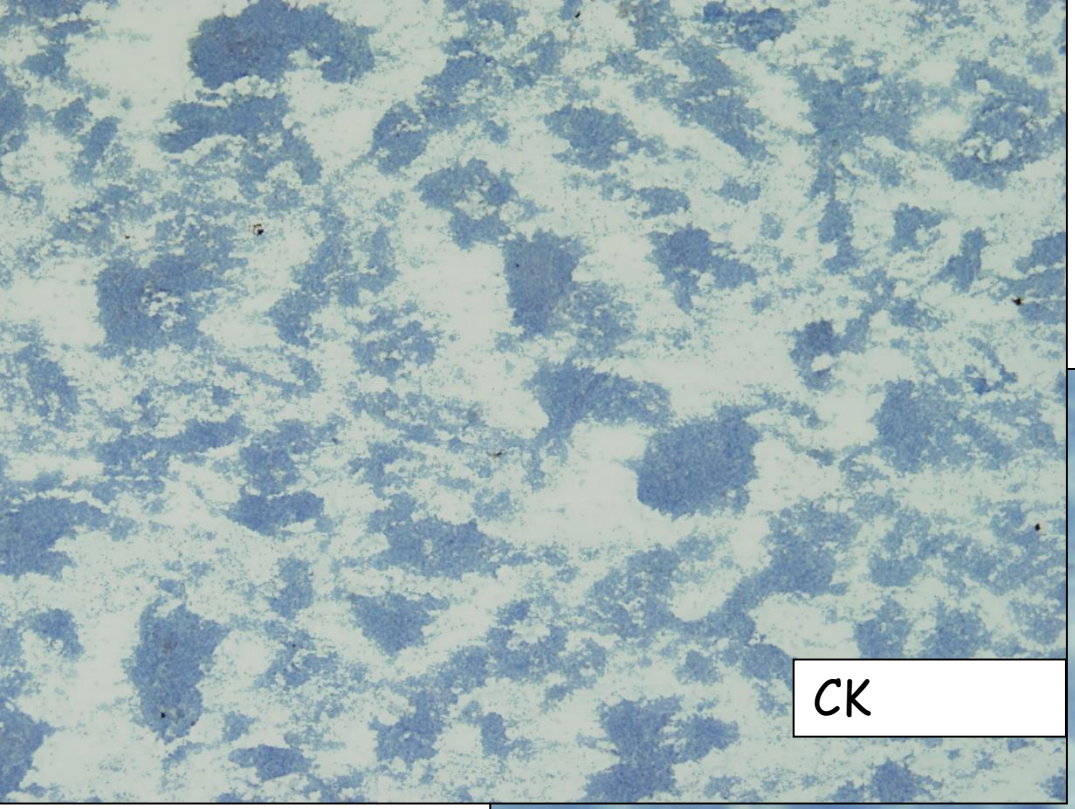


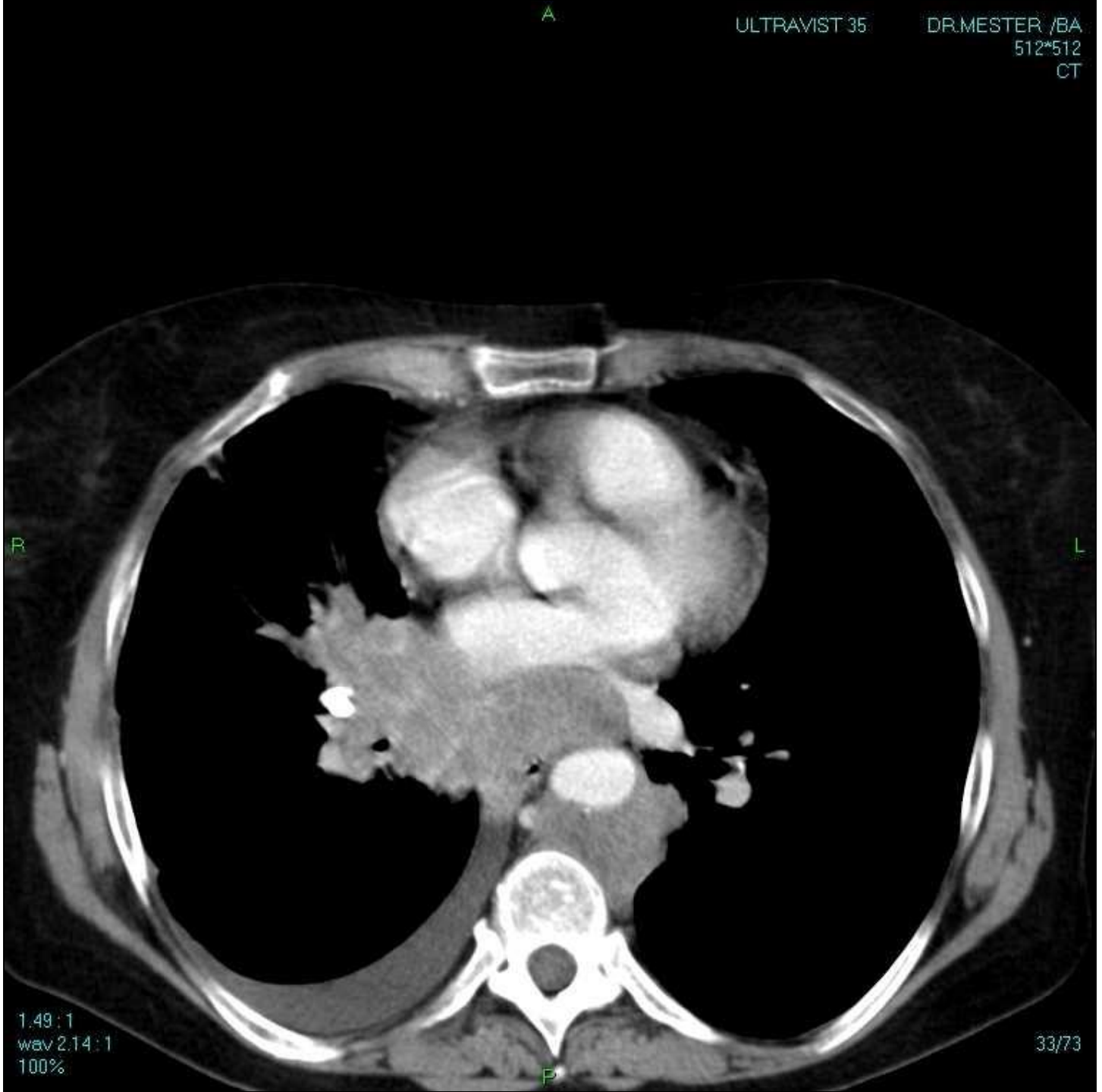


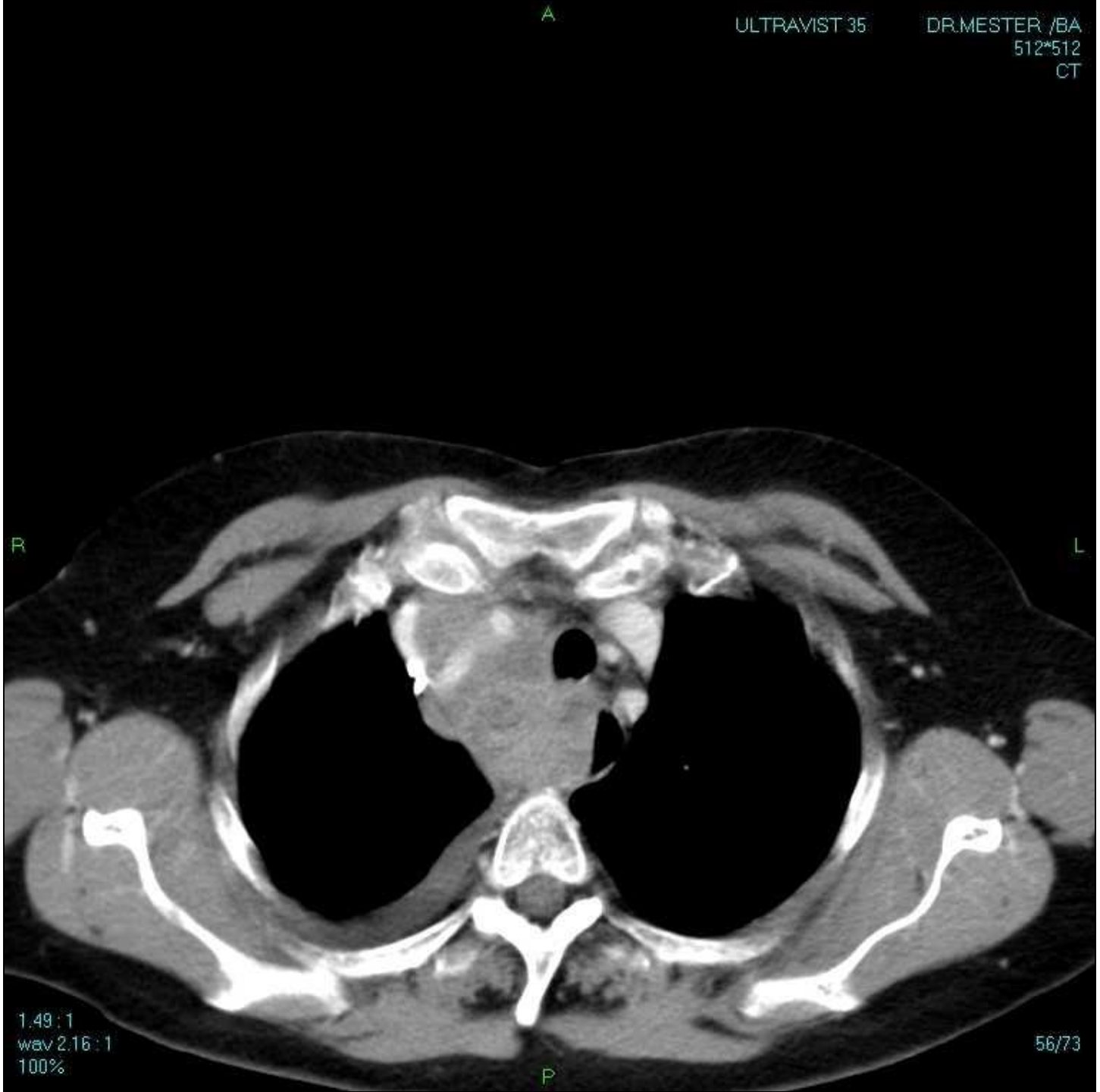


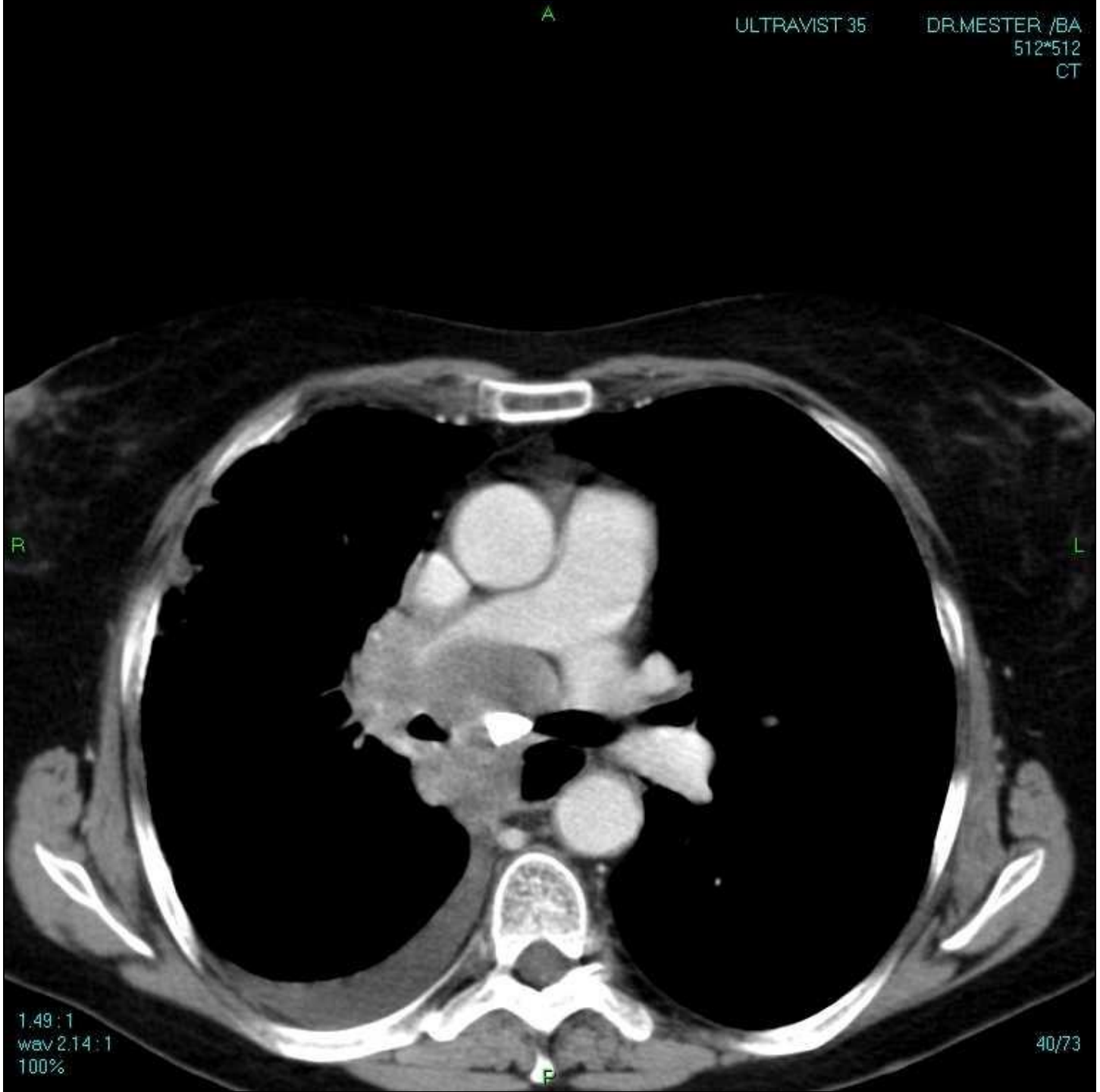



NSE
Chromogranin
Synaptophysin


CK


A
ULTRAVIST 35
DR.MESTER /BA
512*512
CT
R
L
1.49 : 1
wav 2.14 : 1
100%
P
33/73


A
ULTRAVIST 35
DR.MESTER /BA
512*512
CT
R
L
1.49 : 1
wav 2.16 : 1
100%
56/73
P


A
ULTRAVIST 35
DR.MESTER /BA
512*512
CT
R
L
1.49 : 1
wav 2.14 : 1
100%
P
40/73


A
ULTRAVIST 35
DR.MESTER /BA
512*512
CT
R
L
1.49 : 1
wav 2.28 : 1
100%
62/73
P