



AZ EMLŐ PATHOLÓGIÁJA



WHO Classification of Tumours | **Breast Tumours**

5

IARC
2019

European guidelines for quality assurance in breast cancer screening and diagnosis *Fourth Edition*

2703
Boecker

Preneoplasia *of* the Breast

SAUNDERS

9822
SCHNITT
COLLINS

Biopsy Interpretation
of the Breast



8092
Silver

ATLAS OF BREAST PATHOLOGY

SAUNDERS

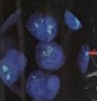
Sapino • Kulka Eds.



Breast Pathology

Schnitt
Collins

Biopsy Interpretation
of the Breast
3rd Edition



DIAGNOSTIC PATHOLOGY
BREAST

HICKS • LESTER



2275

Pathology
of the
Breast

22791
ROSEN

Rosen's Breast Pathology

Third
Edition



LWW

Carter
Interpretation of Breast Biopsies

a volume in the series
FOUNDATIONS IN
DIAGNOSTIC PATHOLOGY

Breast Pathology

O'Malley
Pinder



Diagnosis by Needle Core Biopsy

THIRD
EDITION



LWW

8842
Rosen
Hoda

Breast Pathology
Diagnosis by Needle Core Biopsy



WILLIAMS
& WILKINS

Silverstein

2475

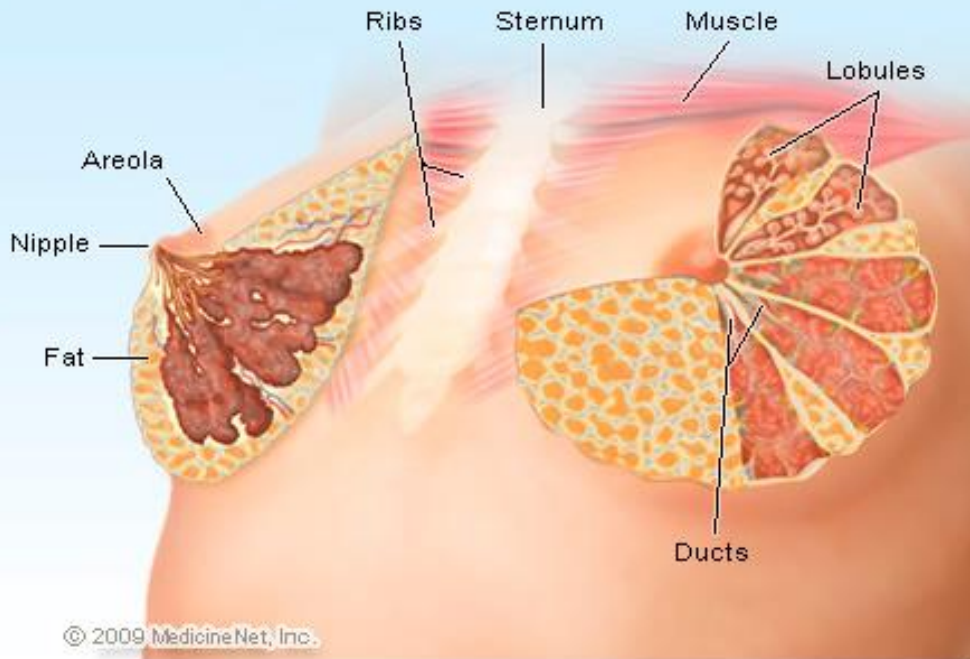
DUCTAL CARCINOMA IN SITU OF THE BREAST

The breast is all covered with skin
Having ducts stroma acini within
Contour round contour flat
Is a function of fat
It responds to the glands endocrine.

Breast cancer will mainly arise
From ducts microscopic in size
They spread to the nodes
Then take various roads
Hormones may growth supervise.

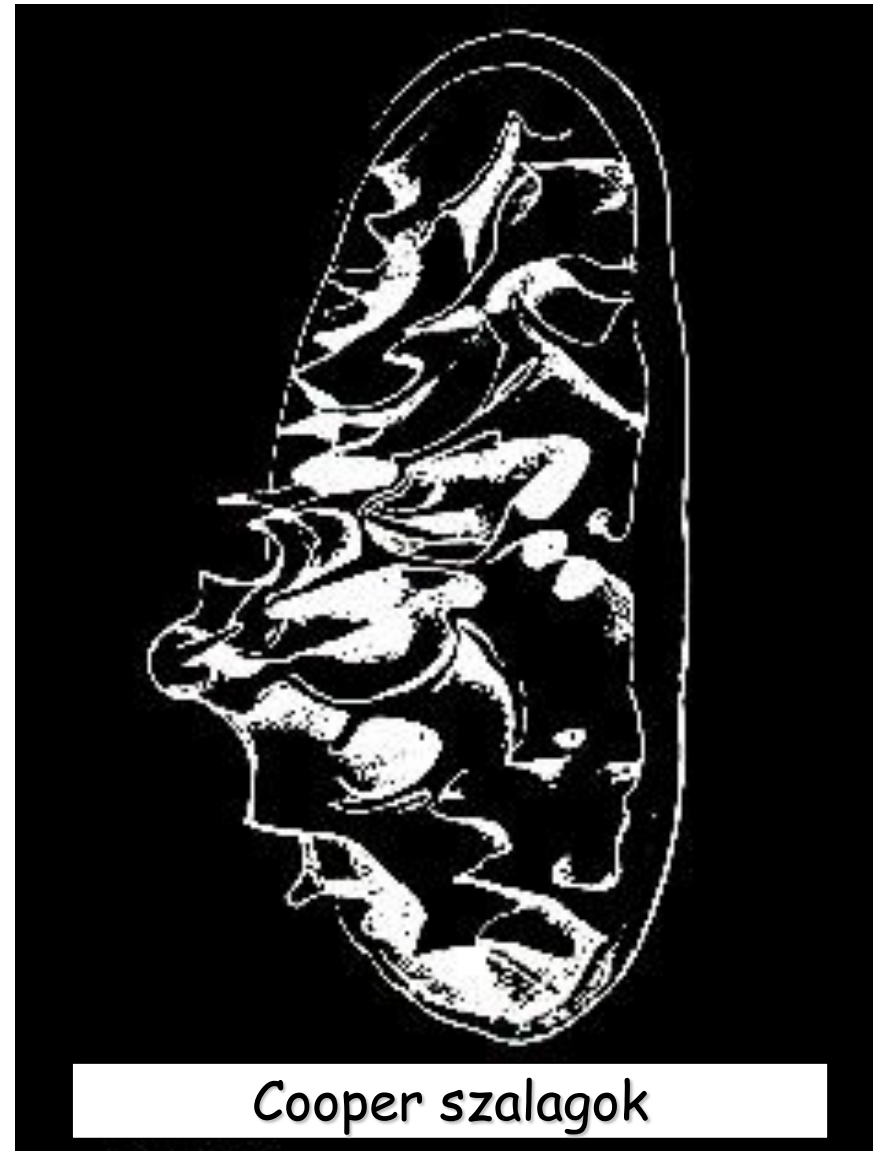
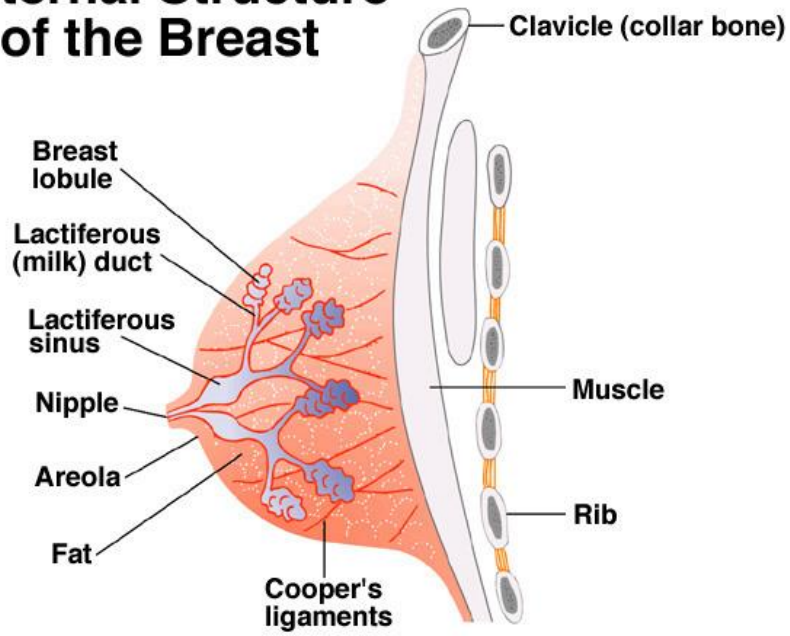
Scirrhus breast cancers are those
Where fibrosis is superimposed
On duct cells in stroma
A firm carcinoma
Calcium sometimes it shows.

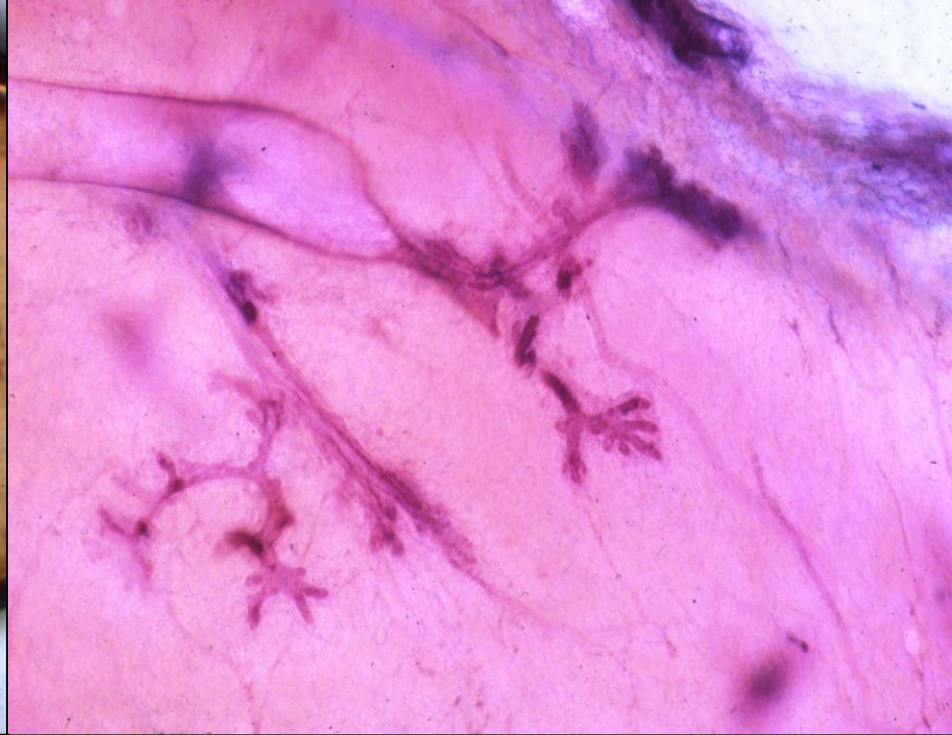
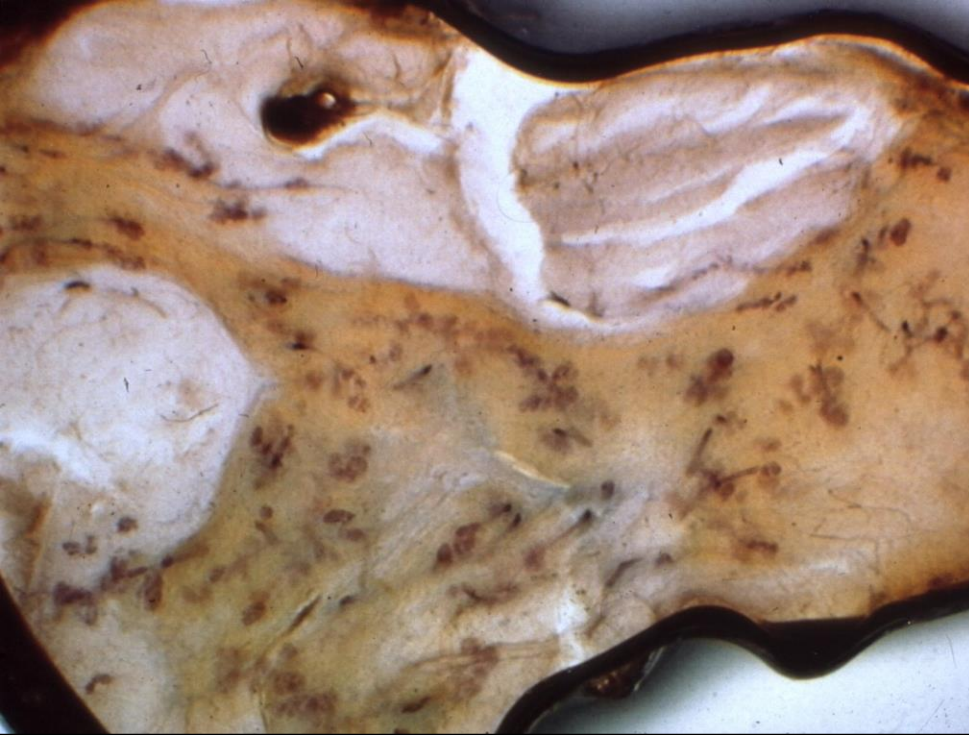
ANATÓMIA



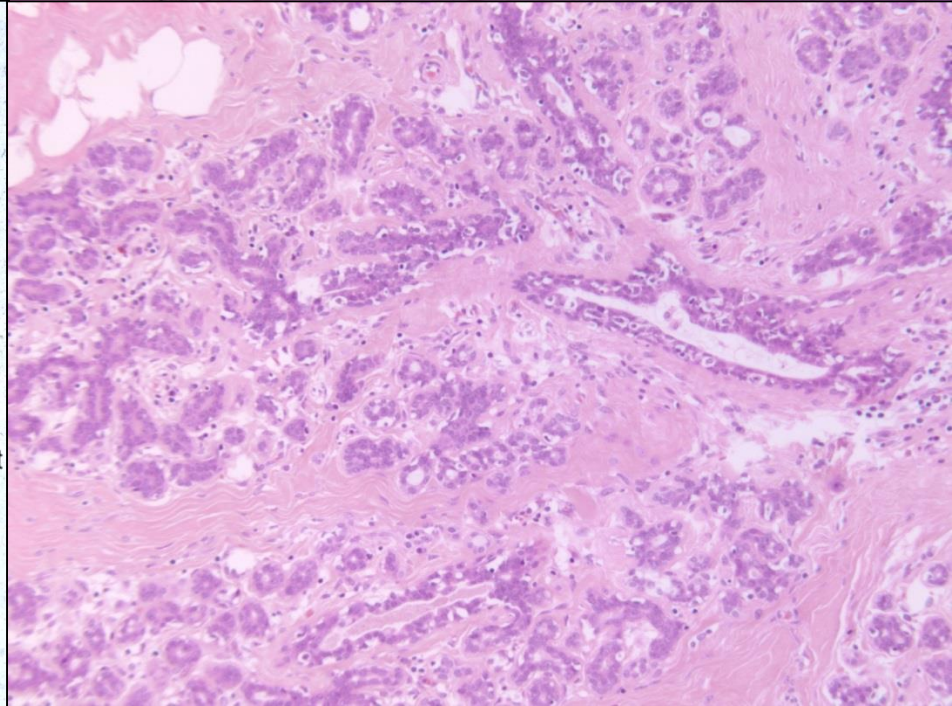
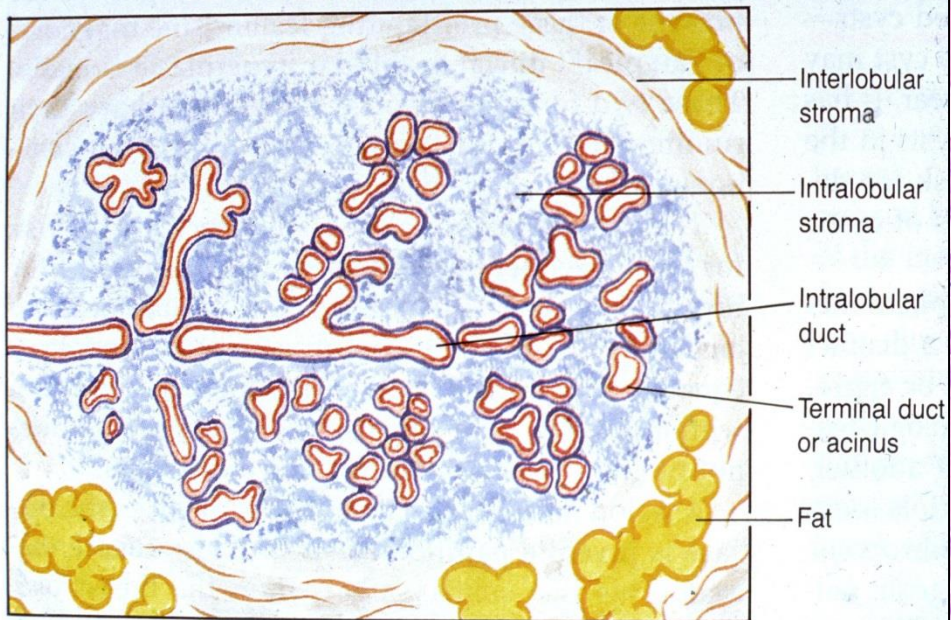
Hyde/DeLamater *Understanding Human Sexuality*, 6e. Copyright © 1997. The McGraw-Hill Companies, Inc. All Rights Reserved.

Internal Structure of the Breast





TERMINAL DUCT LOBULAR UNIT



ANATÓMIA

„Módosult” verejtékmirigy

Két részből áll:

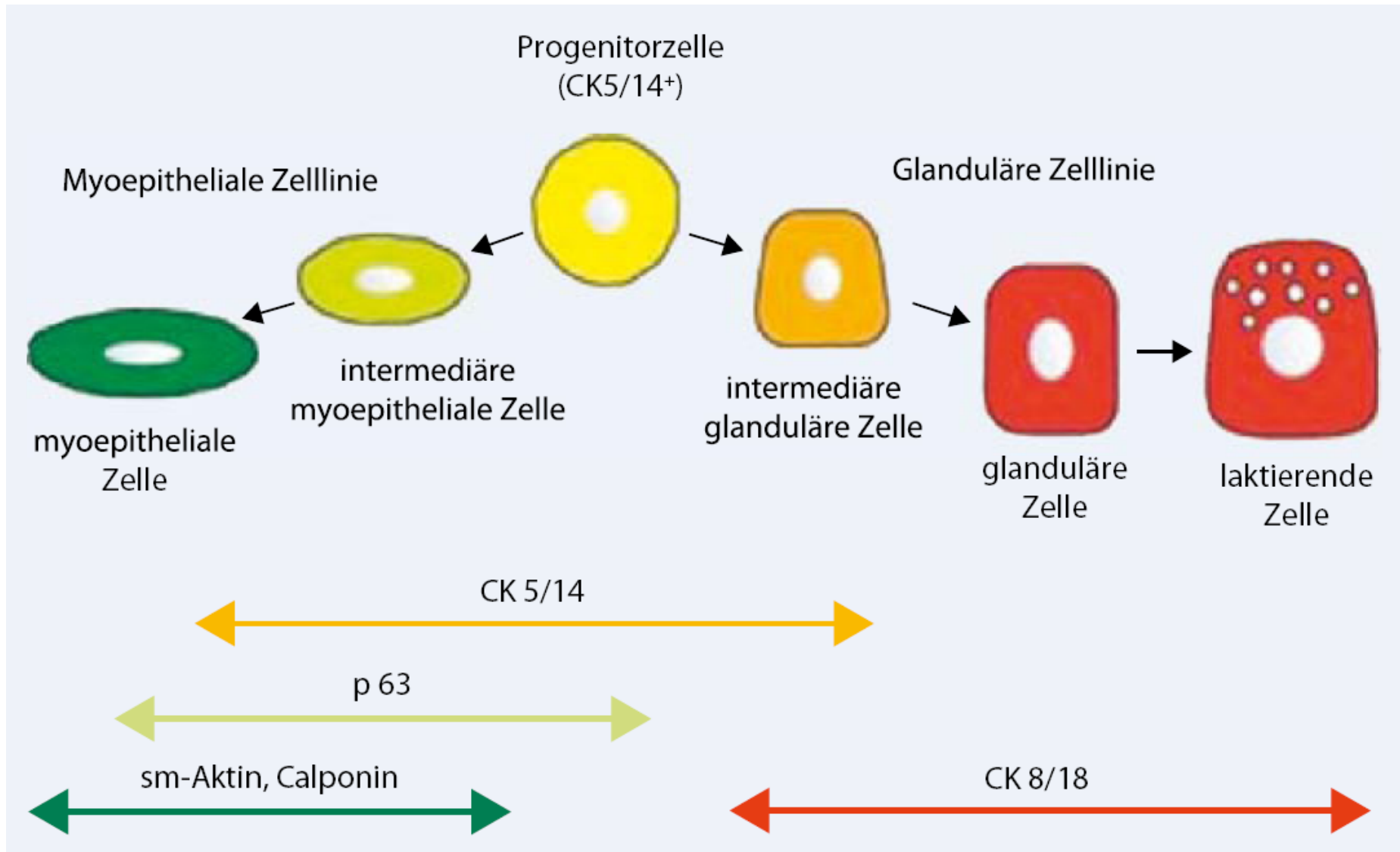
1. Terminalis Ductalis Lobularis
Egység (TDLU)

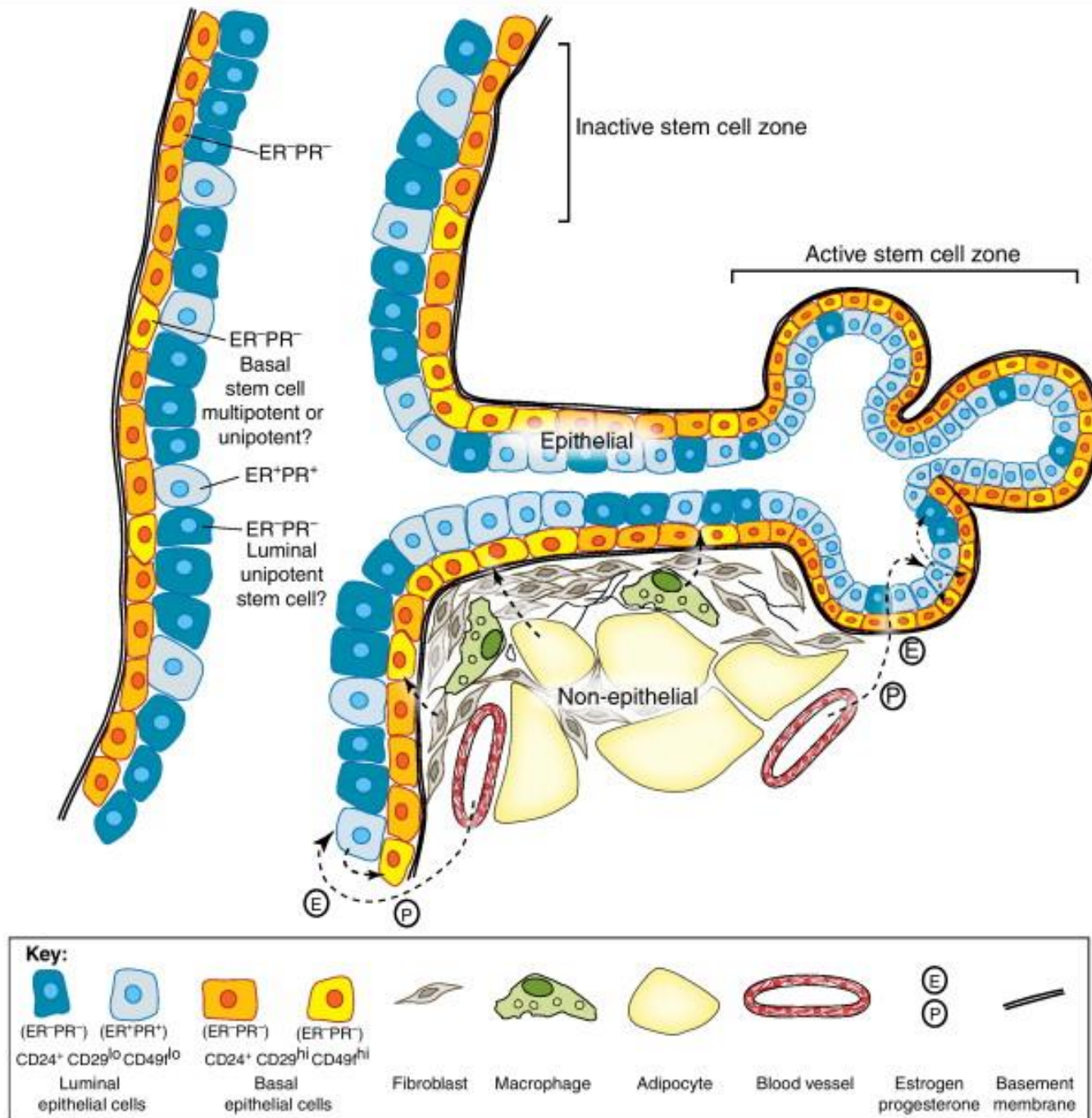
2. Nagy kivezetőcső rendszer

Speciális kétrétegű hám:

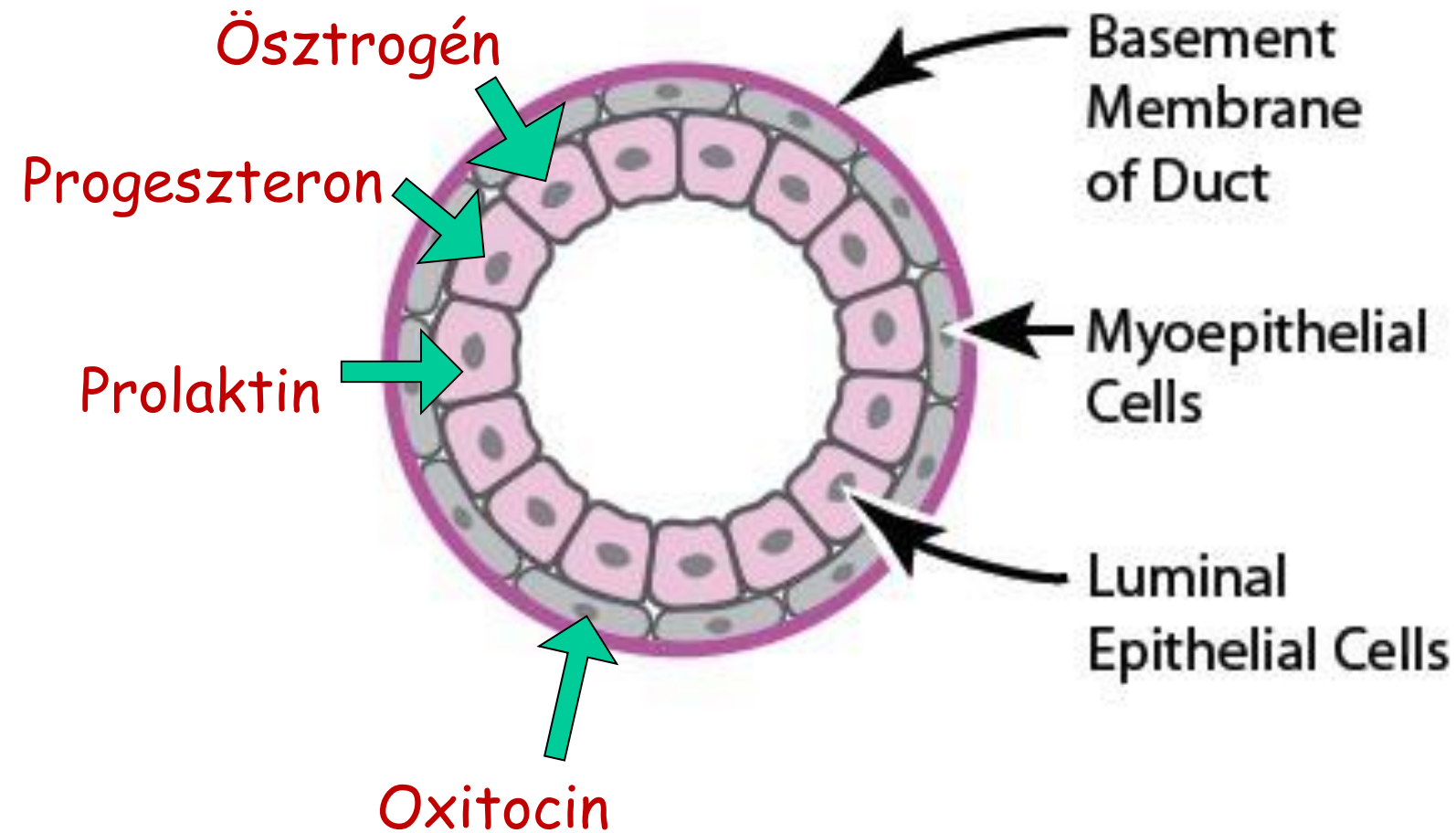
belső -- epithelialis sejtek

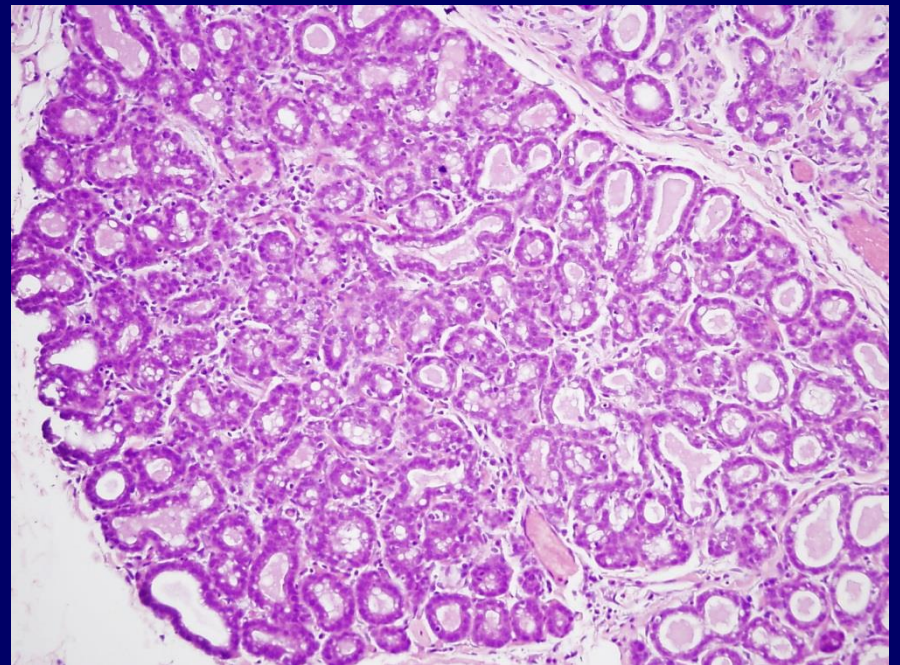
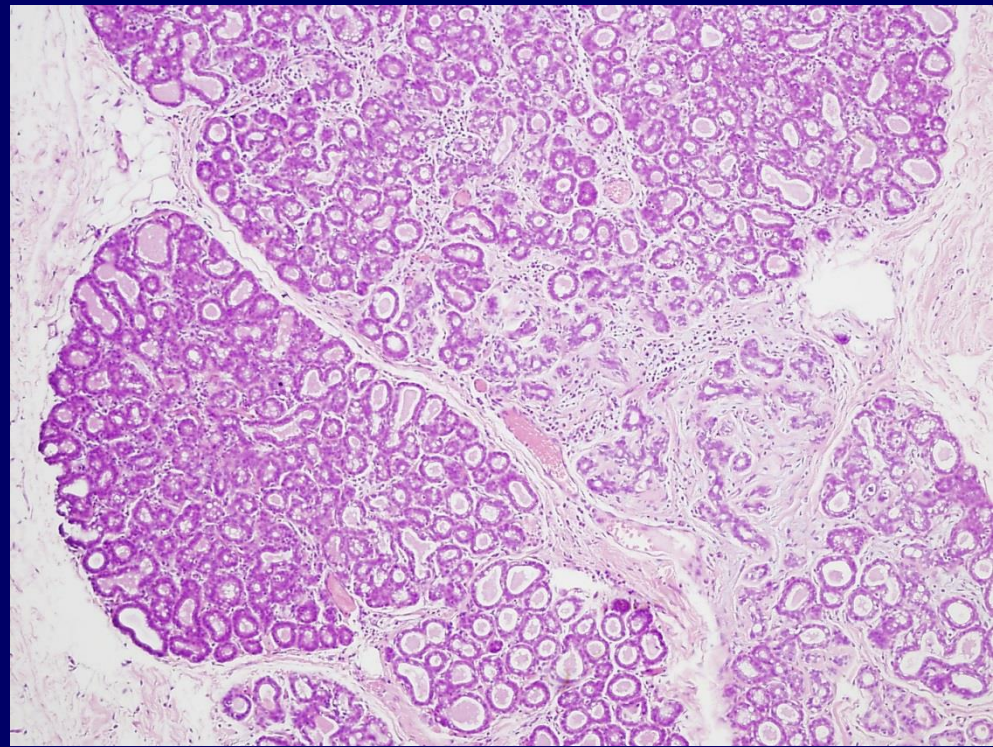
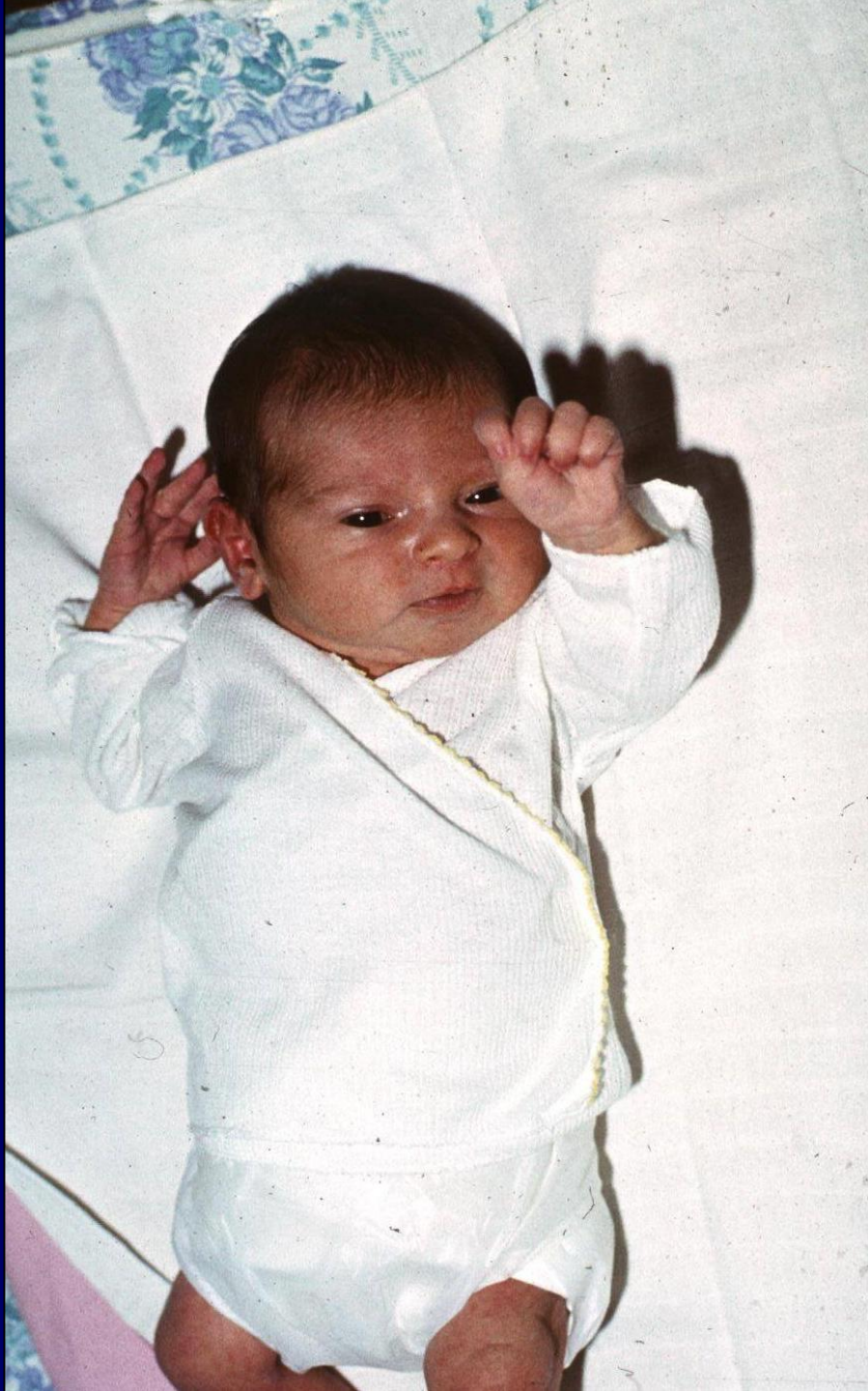
külső -- myoepithel sejtek





HORMONOK





AZ EMLŐ VIZSGÁLATA

ÖNVIZSGÁLAT: emlő és hónaljárok
KLINIKAI VIZSGÁLÓ MÓDSZEREK

Fizikális vizsgálat: emlő és hónaljárok

Radiológiai vizsgálatok:

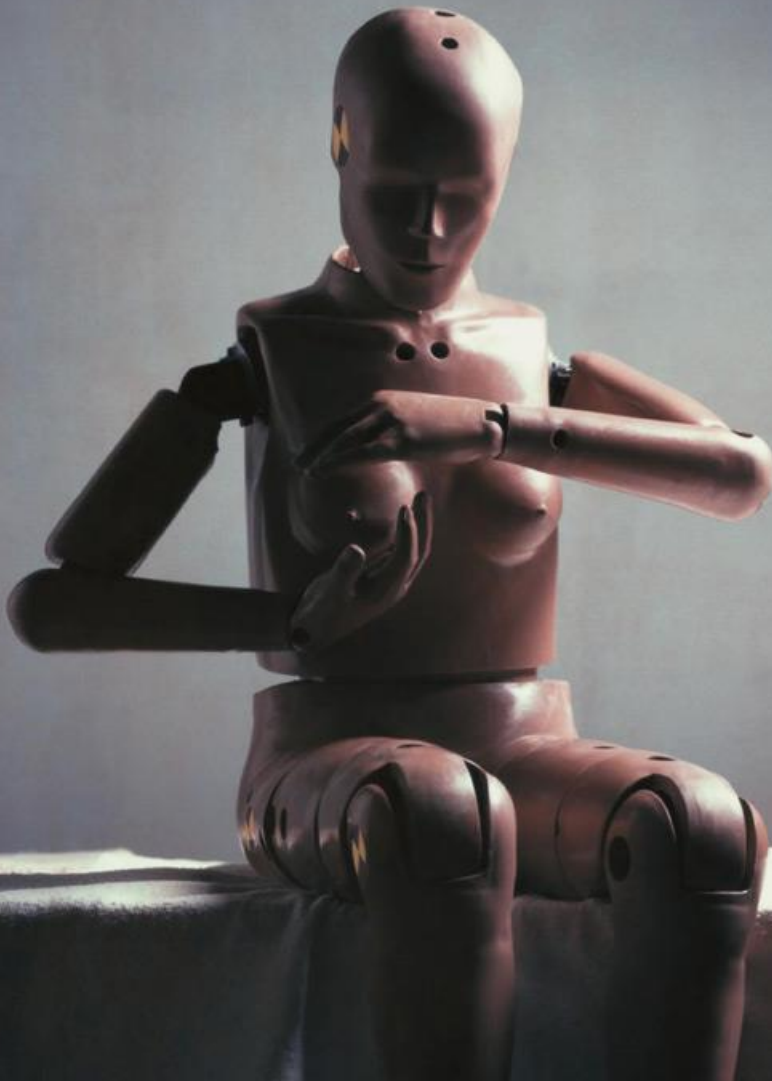
- mammográfia/digitális mammográfia/tomoszintézis
- ultrahang
- galactographia
- MRI: denz emlő, magas rizikójú fiatal betegek, multifokális tumor gyanúja/kizárása
- Igazolt malignus tumor esetén CT, PET-CT, ill. csontizotóp távoli áttét keresése/kizárása

Endoszkópos vizsgálat- és sebészet

Breast Self-Exam



www.mercedes-benz.nl



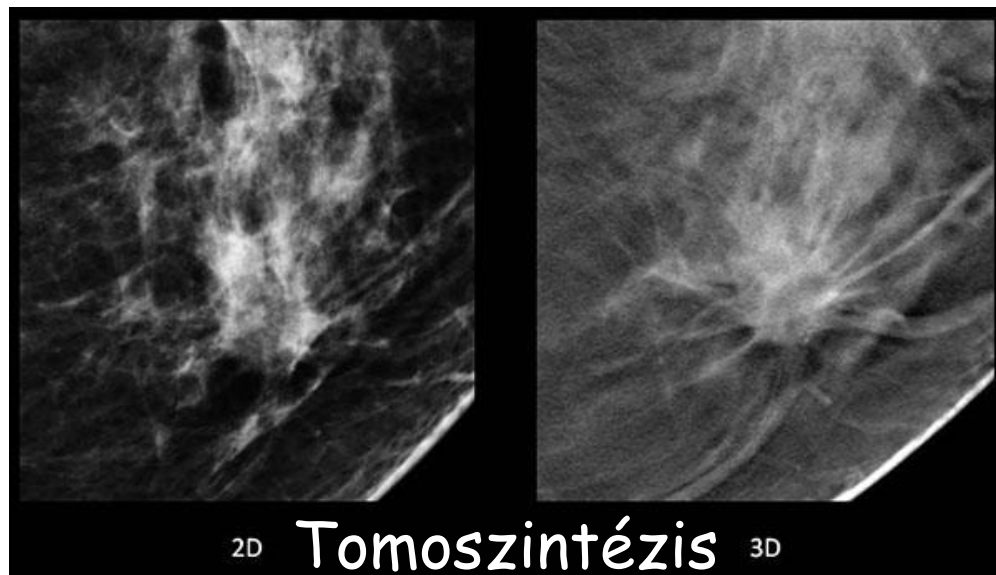
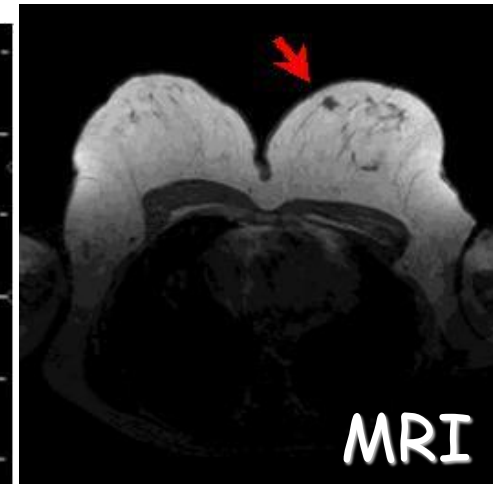
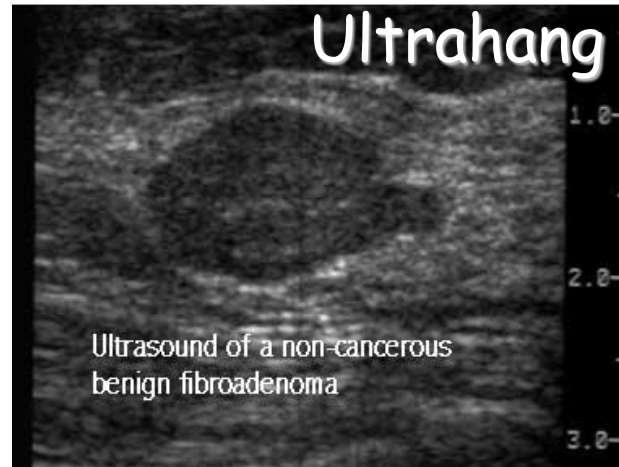
Unfortunately we can't test everything for you.

► Check your breasts for breast cancer once a month. For your safety's sake.



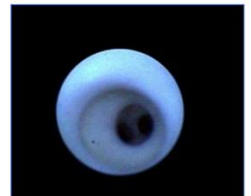
Mercedes-Benz

KÉPALKOTÓ VIZSGÁLATOK



Ductoscopia

A normál



B papilloma



c In situ cc



Pathológiai vizsgálatok:

FNAB (aspirációs finomtű biopszia)

core biopszia (szövethenger)

Intraoperatív fagyasztott metszet és/vagy

cytológiai vizsgálat: nagyon ritkán szükséges

specimen mammográfia - szűrésen felfedezett
elváltozások esetén

beágyazott anyag: végleges dg

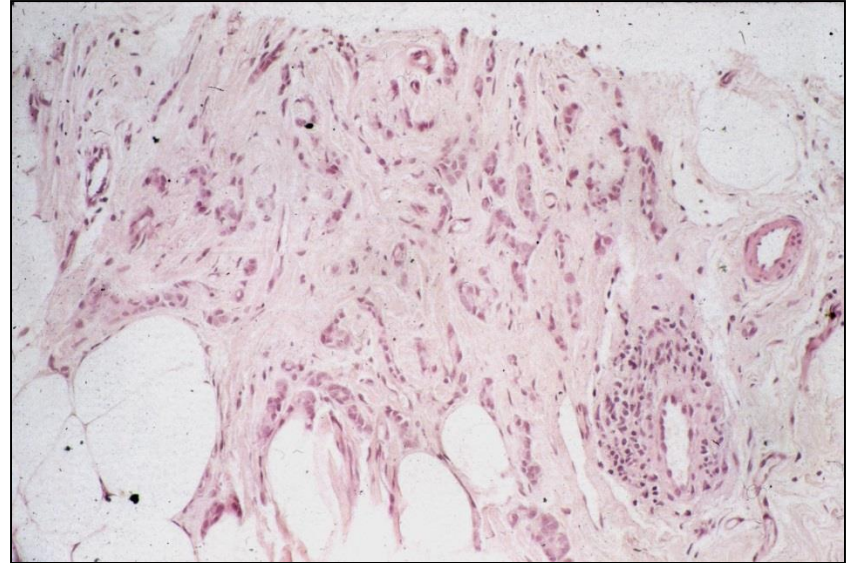
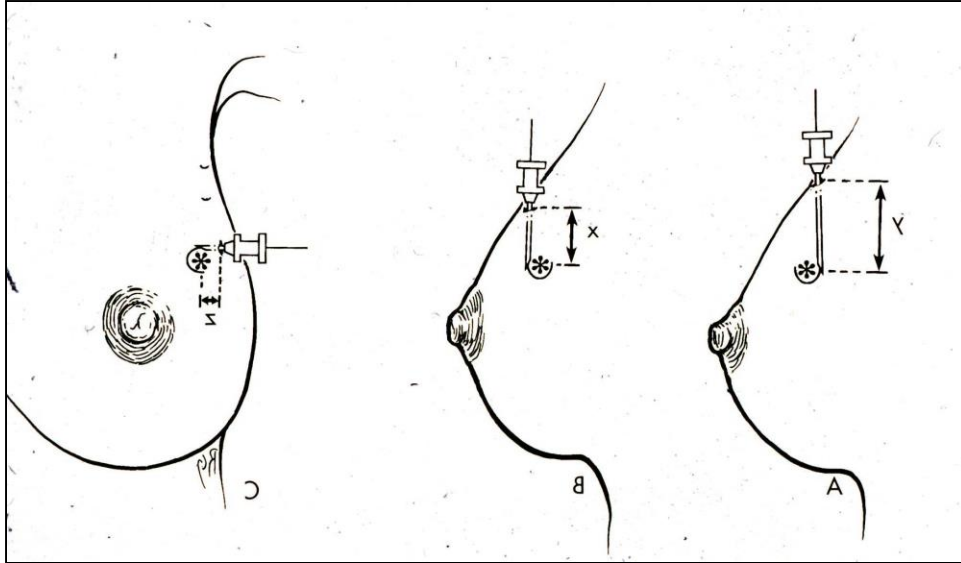
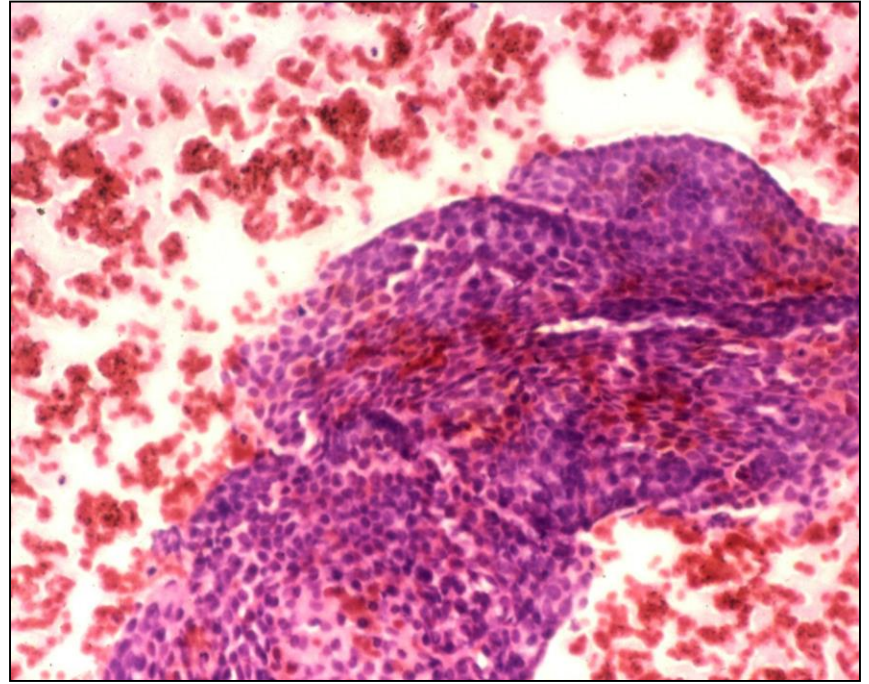
prognosztikus és

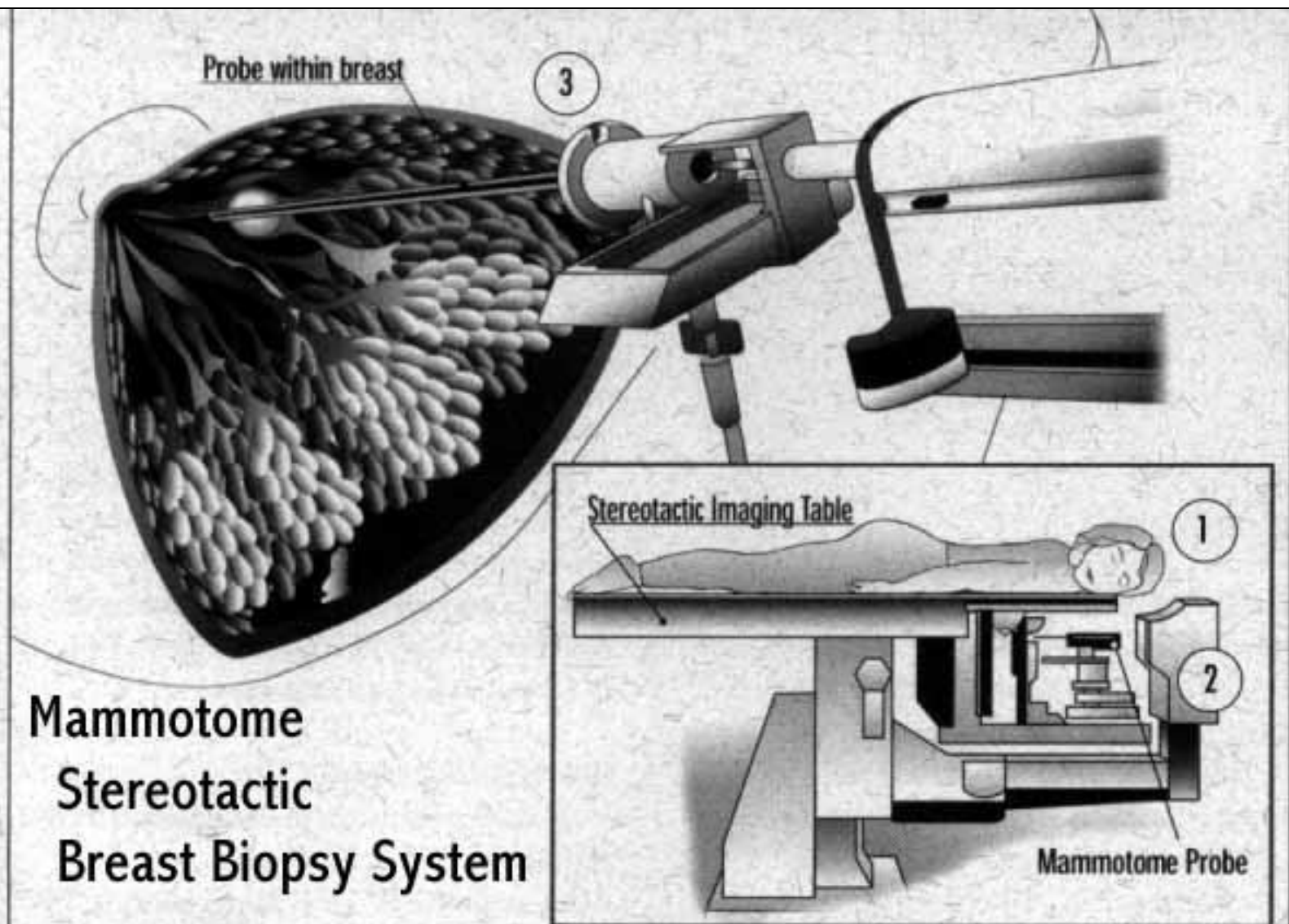
prediktív faktorok

Egyéb: molekuláris patológiai vizsgálatok:

FISH,

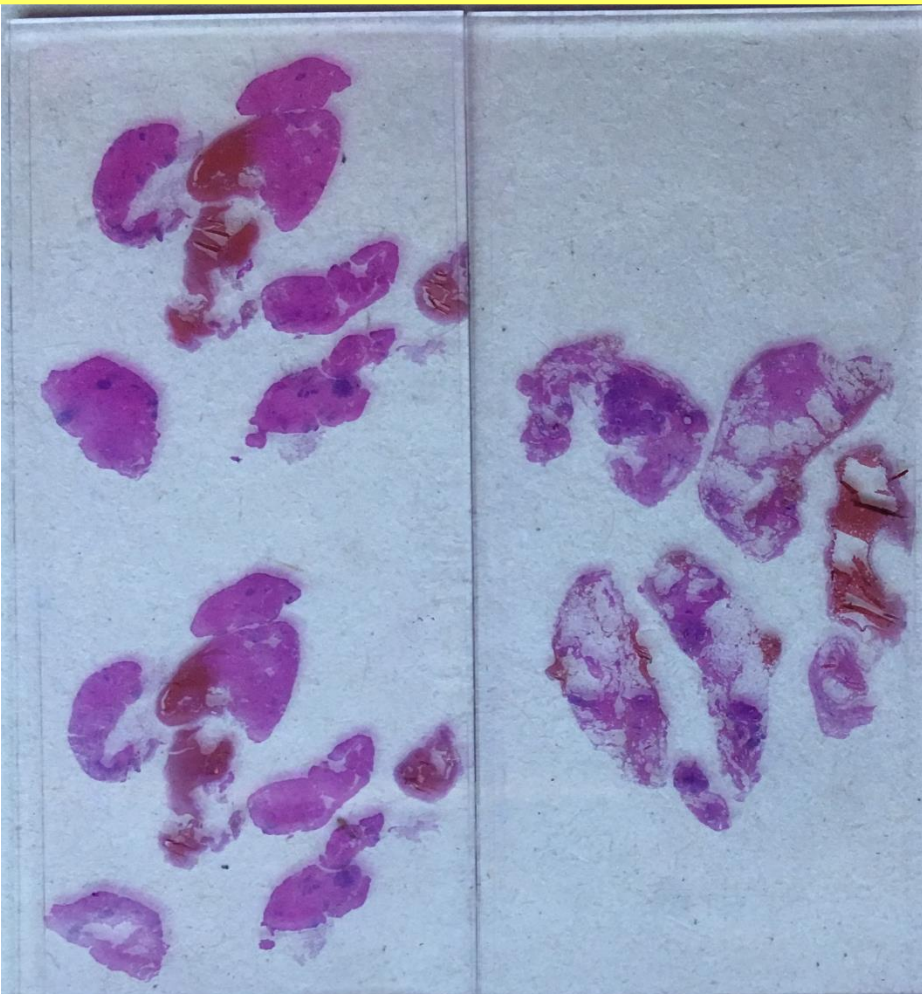
Multigén teszt (pl. Oncotype DX, Mammaprint)





Courtesy of Biopsy

1) Patient lies face down with breast inserted through hole. 2) Stereo x-rays project images on a computer to guide probe to lesions. 3) After probe is inserted into the breast, a vacuum system is turned on and a tiny cutting device cuts a piece of tissue and draws it into the hollow probe for removal.



Melly

2s

Vakuum asszisztált biopszia



rdy

Core
biopszia

BIMBÓVÁLADÉKOZÁS

**TAPINTHATÓ
CSOMÓ**

CYSTA

INTRACYSTICUS

PAPILLOMA

INTRADUCTALIS

FIBROCYSTÁS
„BETEGSÉG”

ZSÍRNECROSIS

LIPOPHAG GRANULOMA

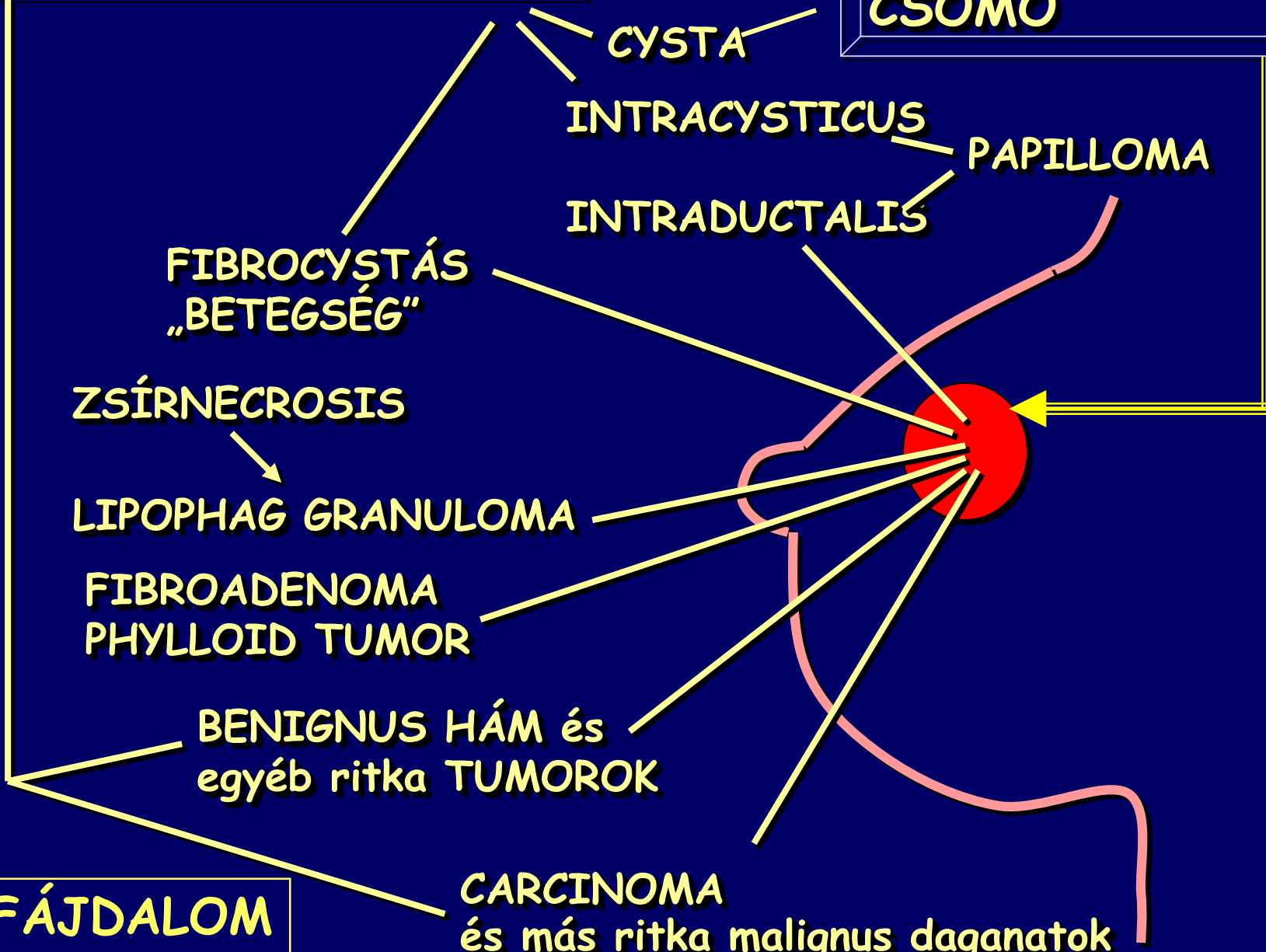
FIBROADENOMA
PHYLLOID TUMOR

BENIGNUS HÁM és
egyéb ritka TUMOROK

FÁJDALOM

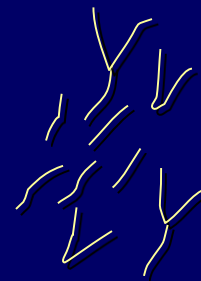
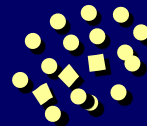
CARCINOMA
és más ritka malignus daganatok

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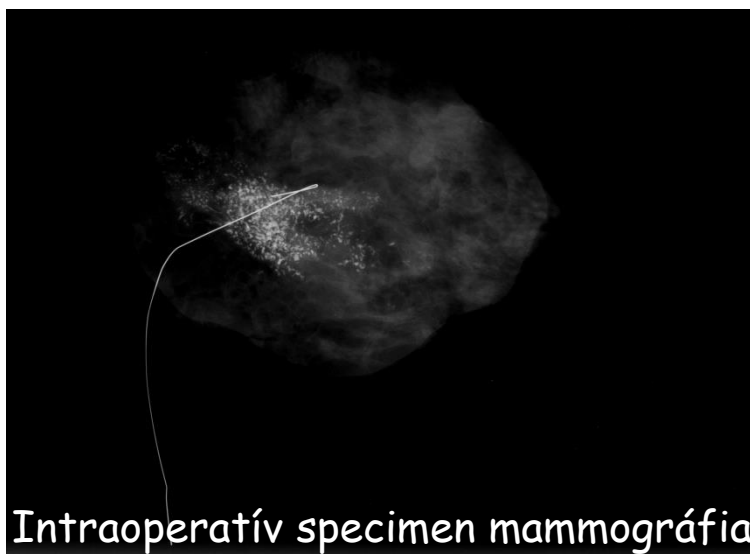
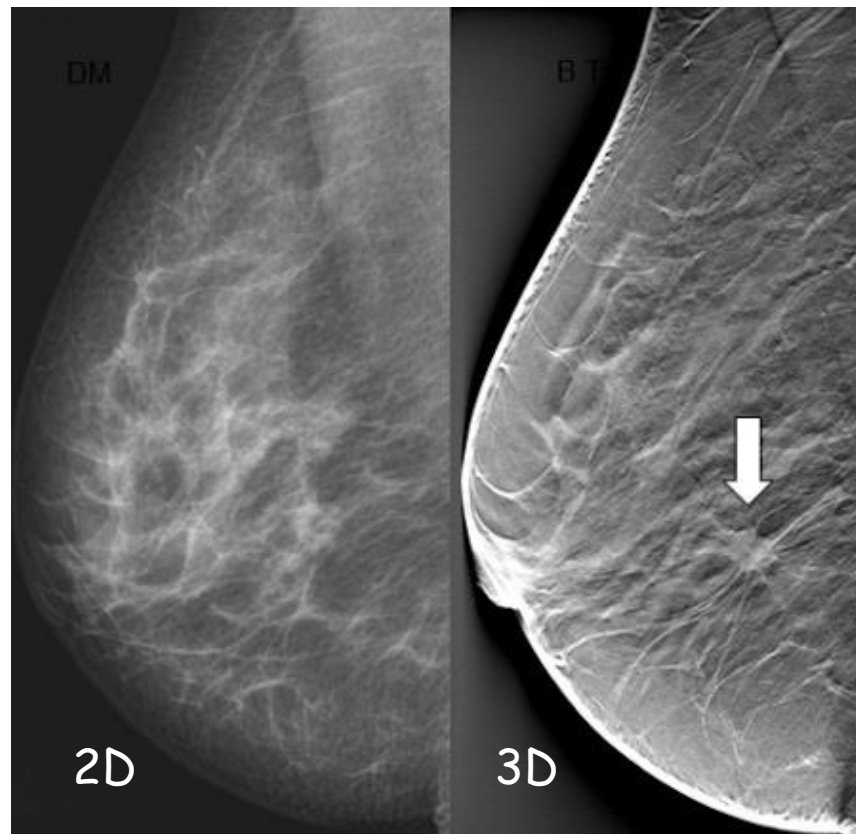
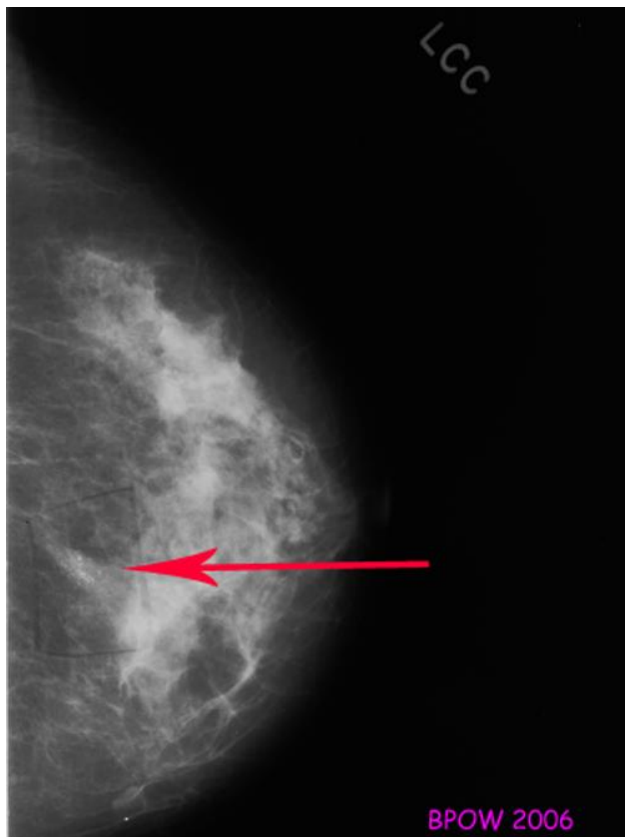
SZŰRÉS: NEM TAPINTHATÓ ELVÁLTOZÁSOK

„gyanús”
mikrocalcifikáció



„malignus”
mikrocalcifikáció

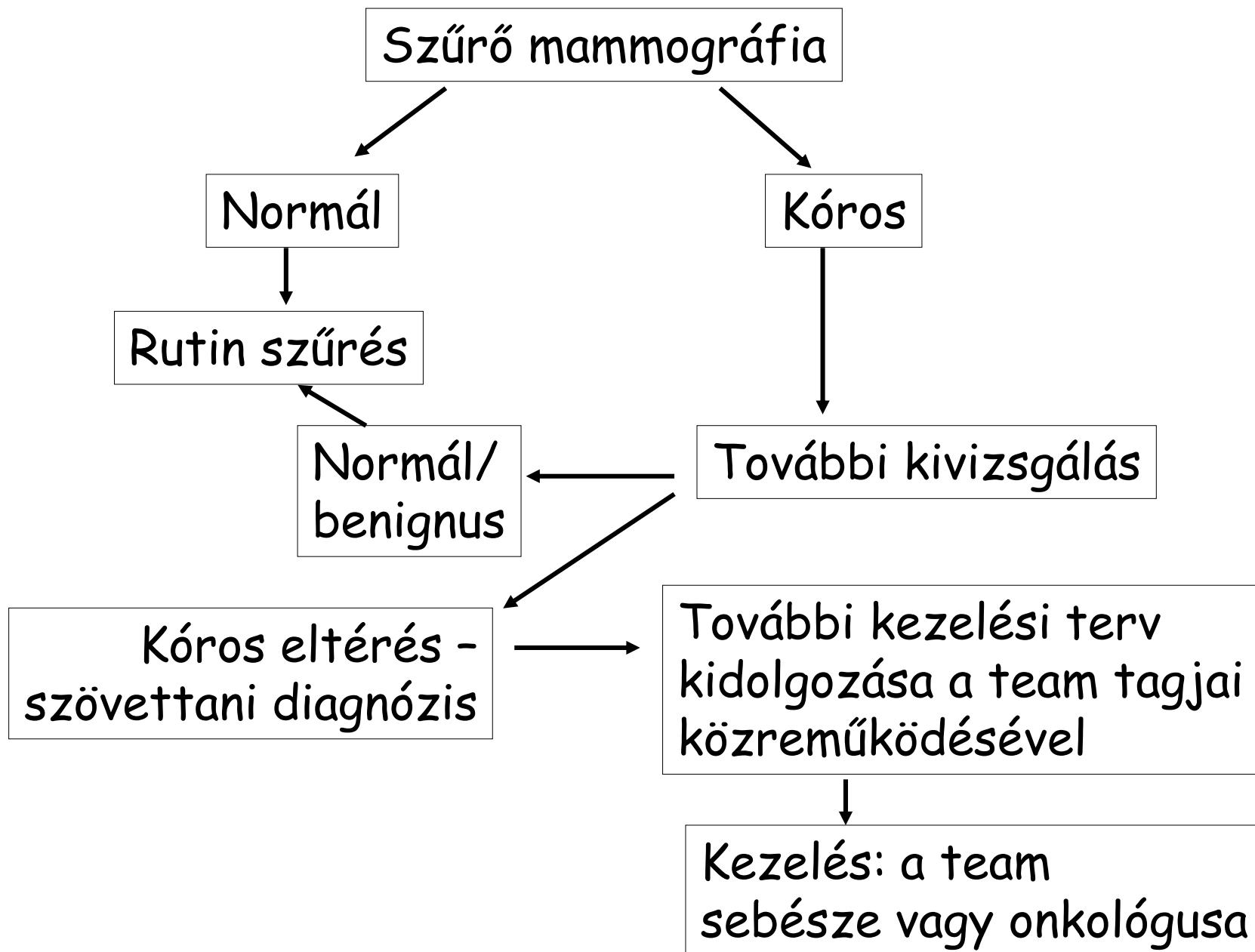
Eredmény: kis invazív cc-k,
in situ cc-k (DCIS, LCIS),
ADH és szokatlan benignus
elváltozások

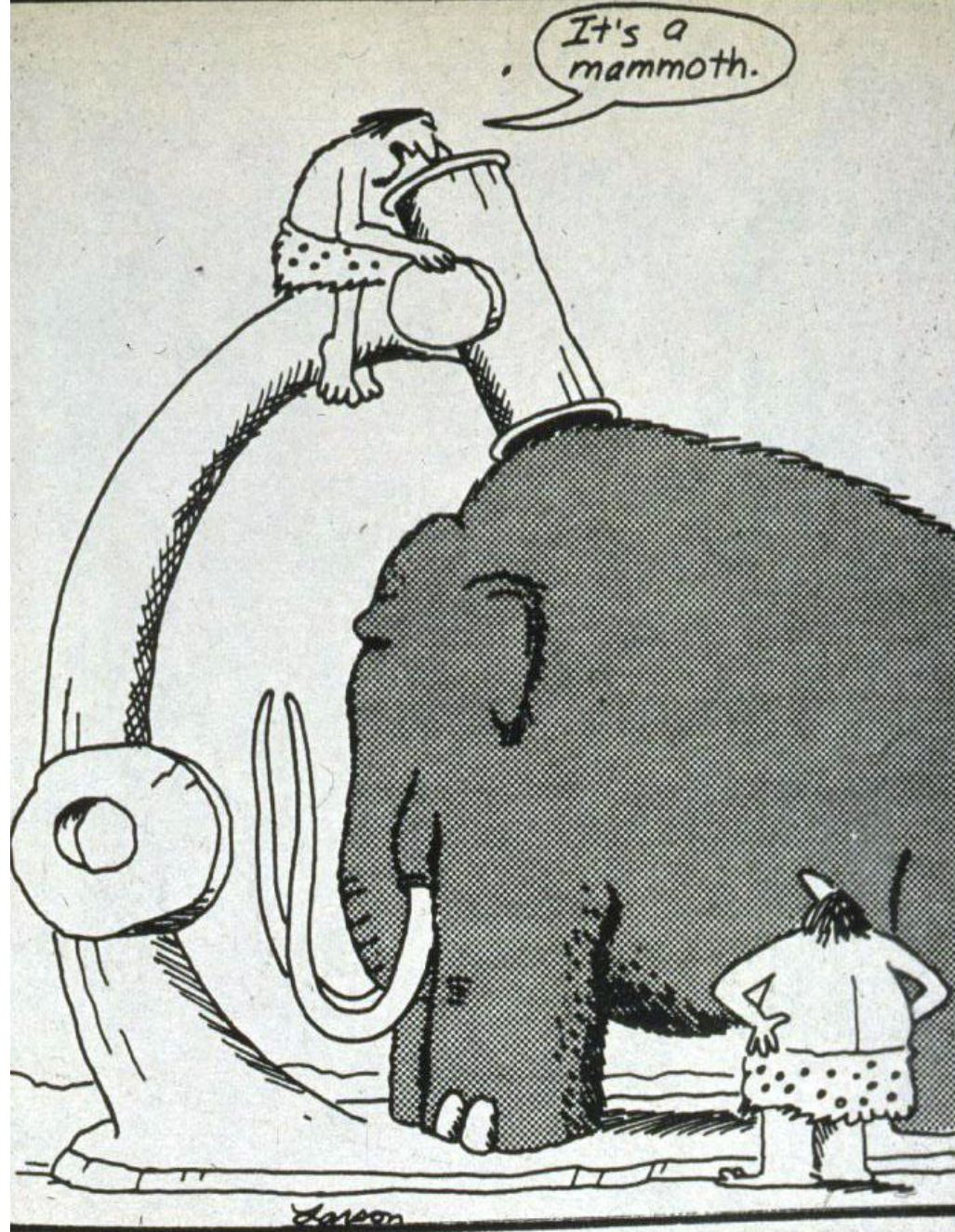


Diagnosztikus triász

- Fizikális vizsgálat
- Képalkotó vizsgálat(ok)
- Aspirációs cytológia vagy core biopszia

Egybehangzó eredményük egyértelmű,
biztos döntést tesz lehetővé.

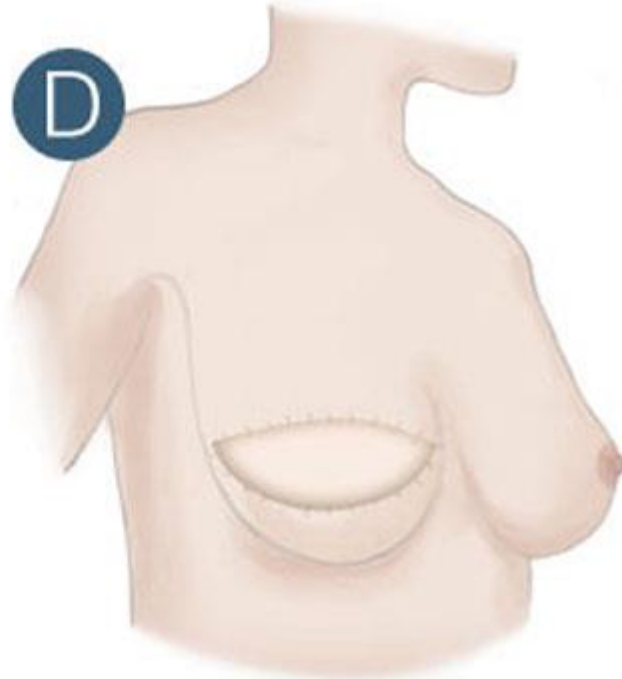
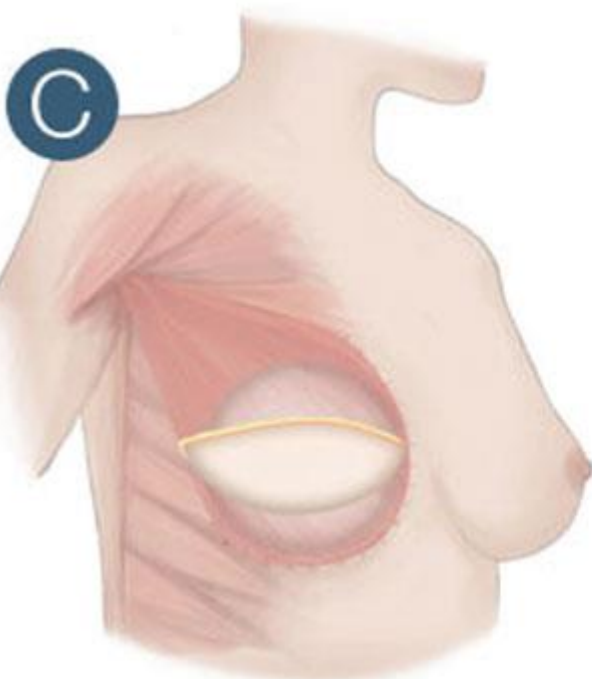
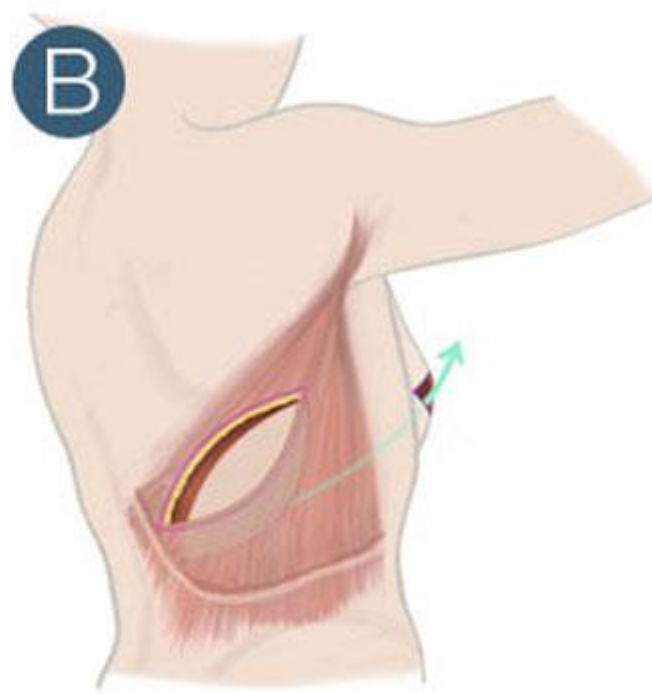
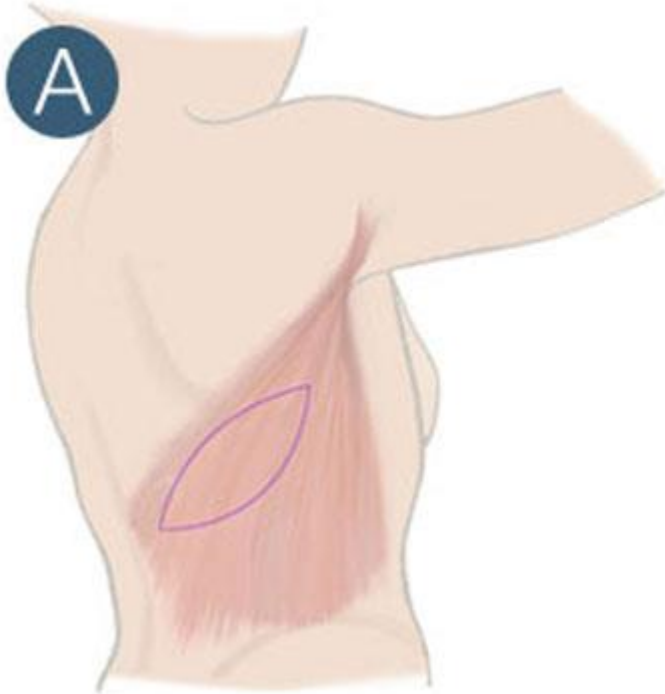




Early microscope

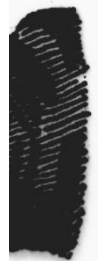
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FIBROCYSTÁS BETEGSÉG/elváltozások

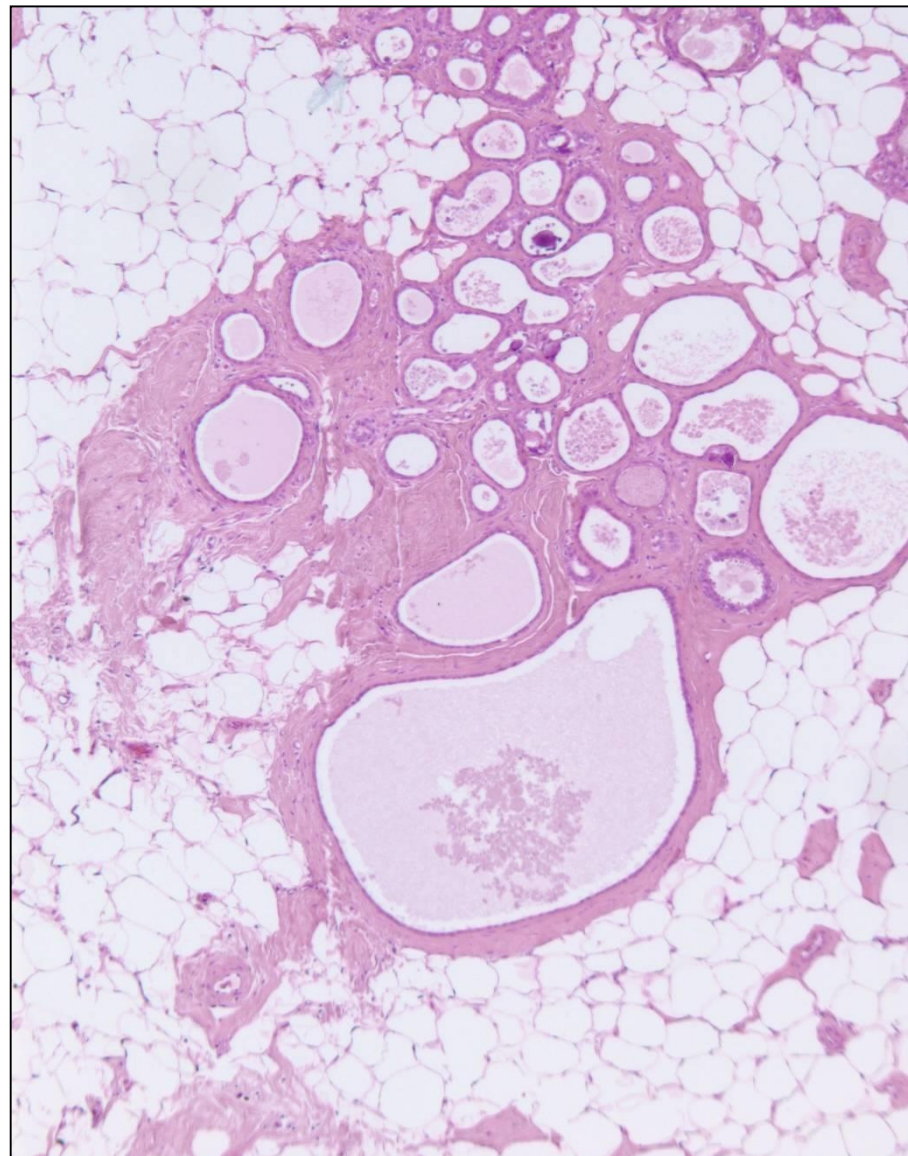
Kor: 25 - 45 év

etiológia: ?

Morfológia:

FIBROSIS

**DUCTUSOK - DUCTULUSOK TÁGULATA
LOBSEJTES BESZŰRŐDÉS**



FIBROCYSTÁS BETEGSÉG/elváltozások

Egyéb elváltozások:

Apocrin metaplasia

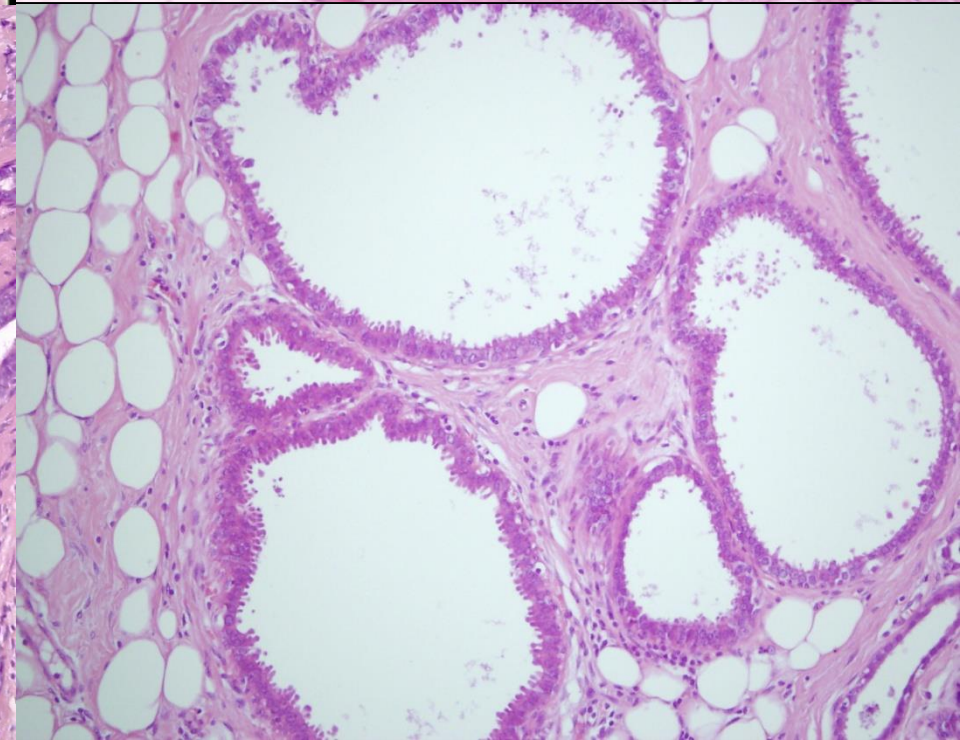
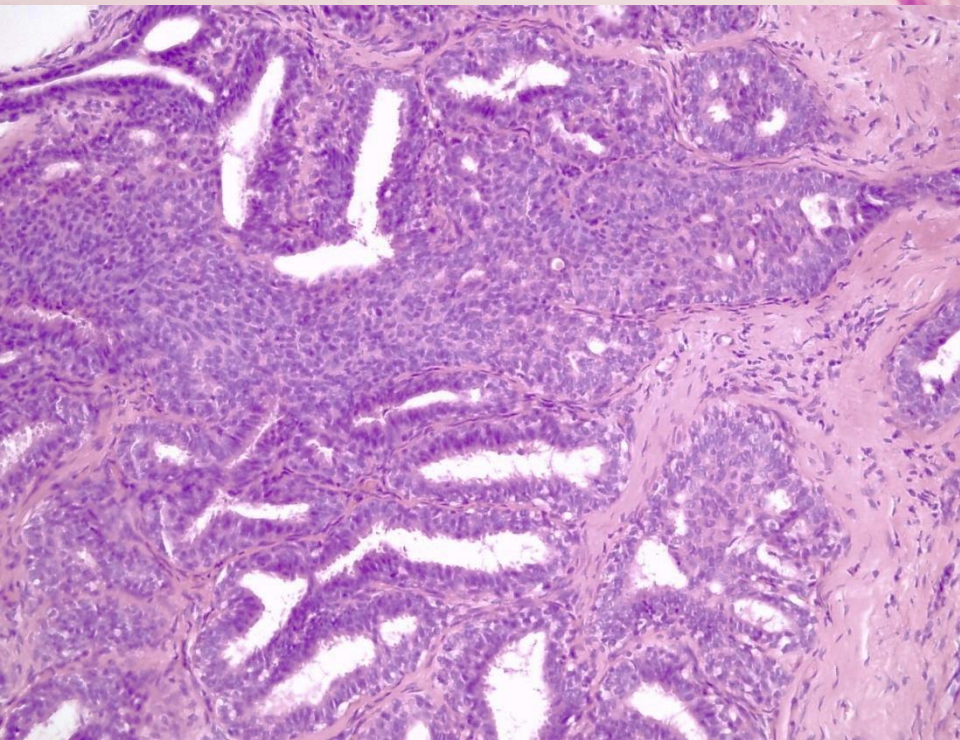
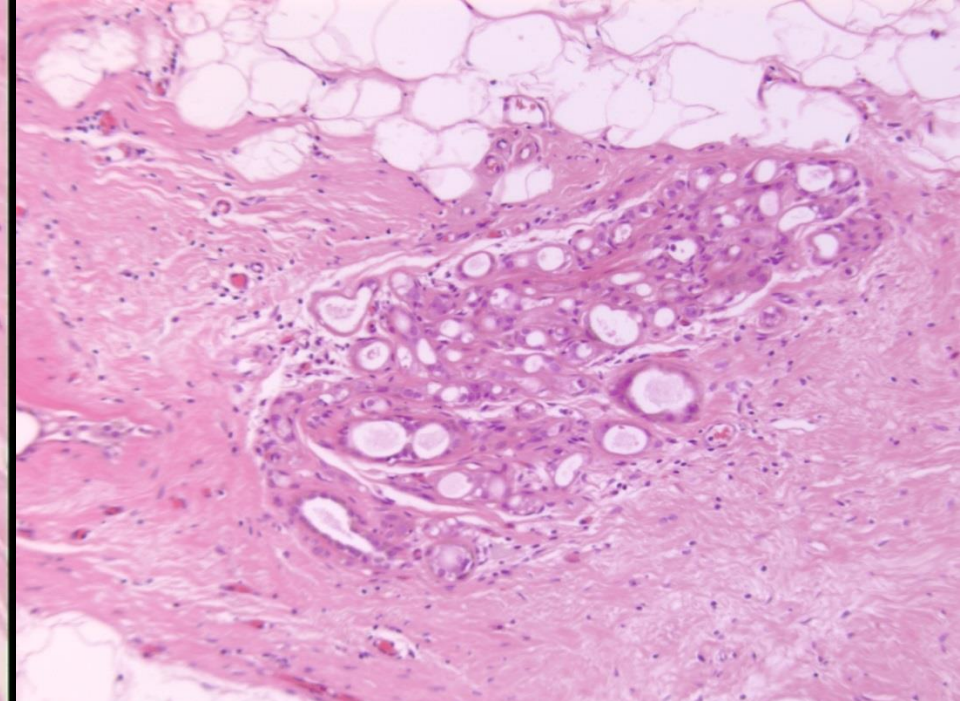
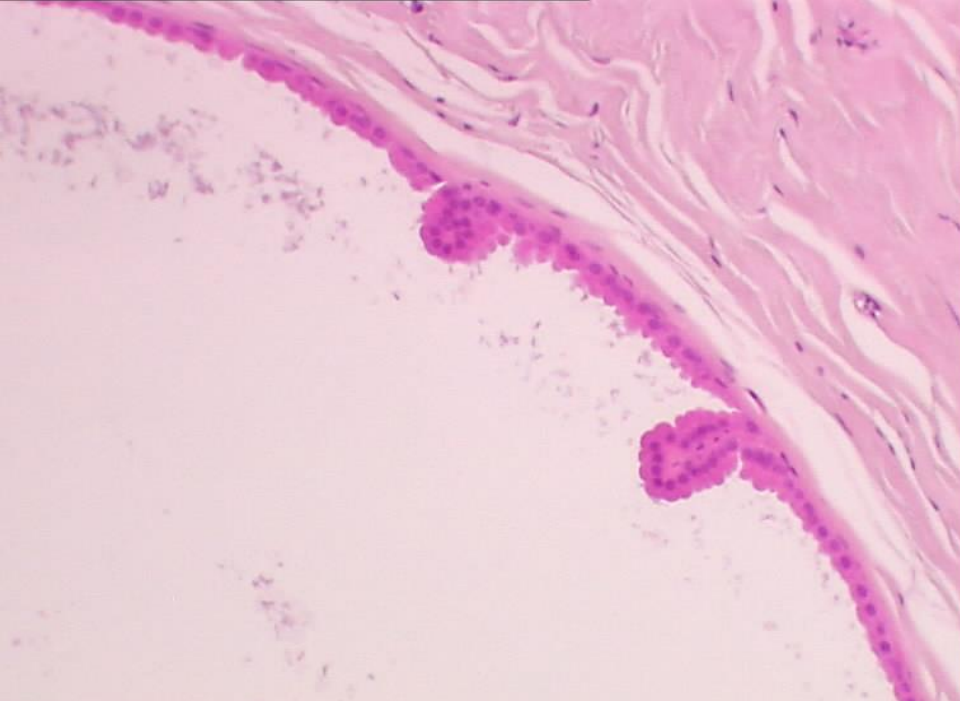
Hengersejtes átalakulás

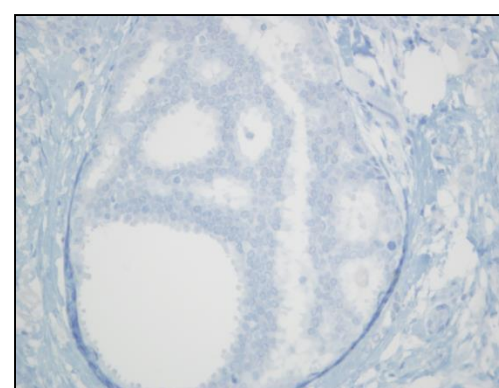
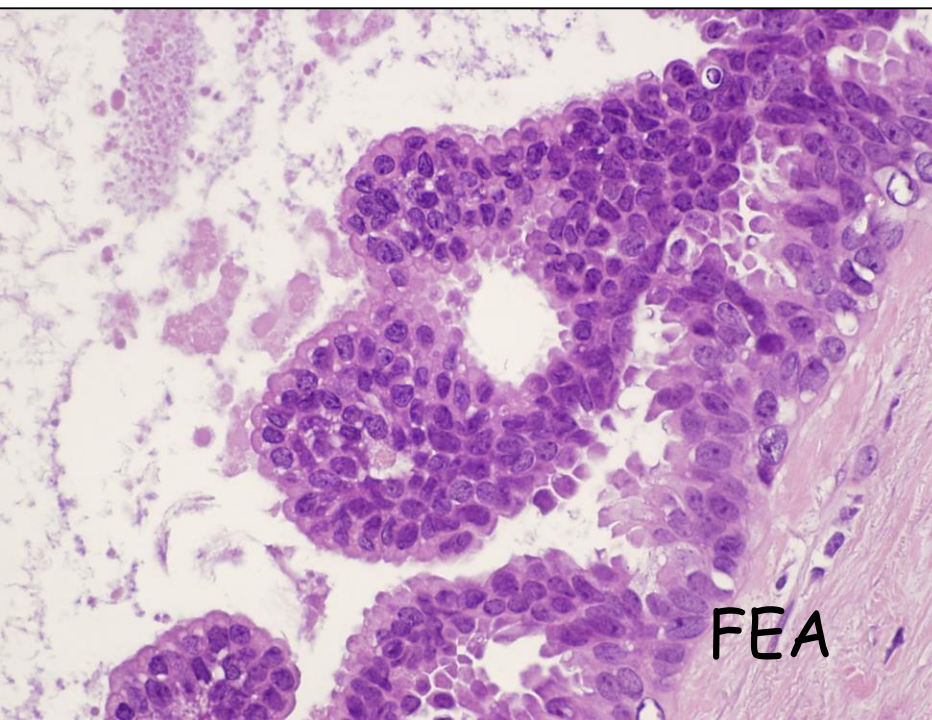
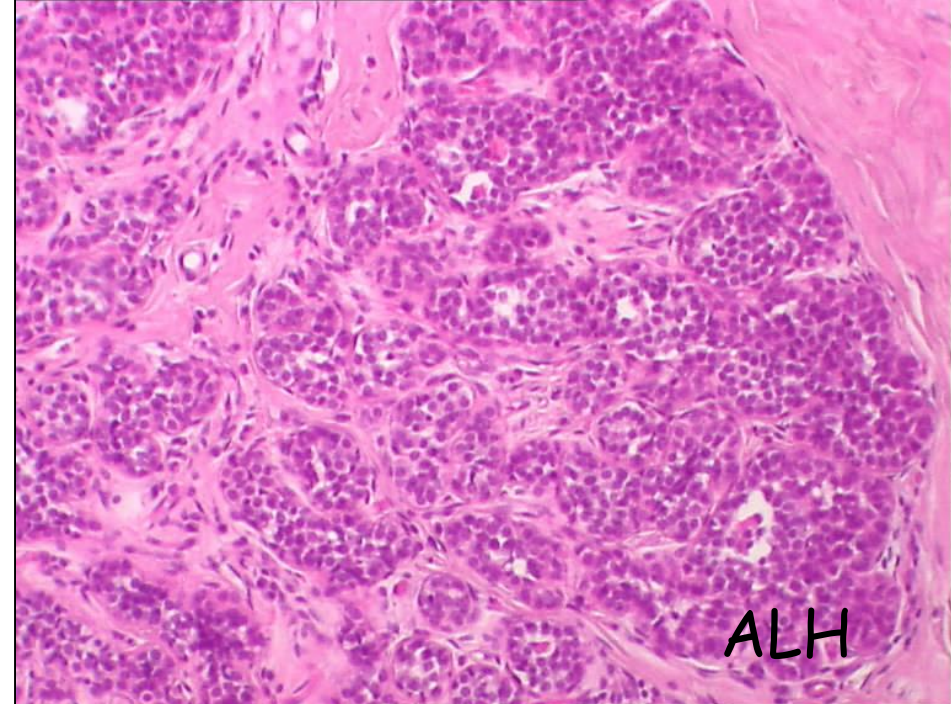
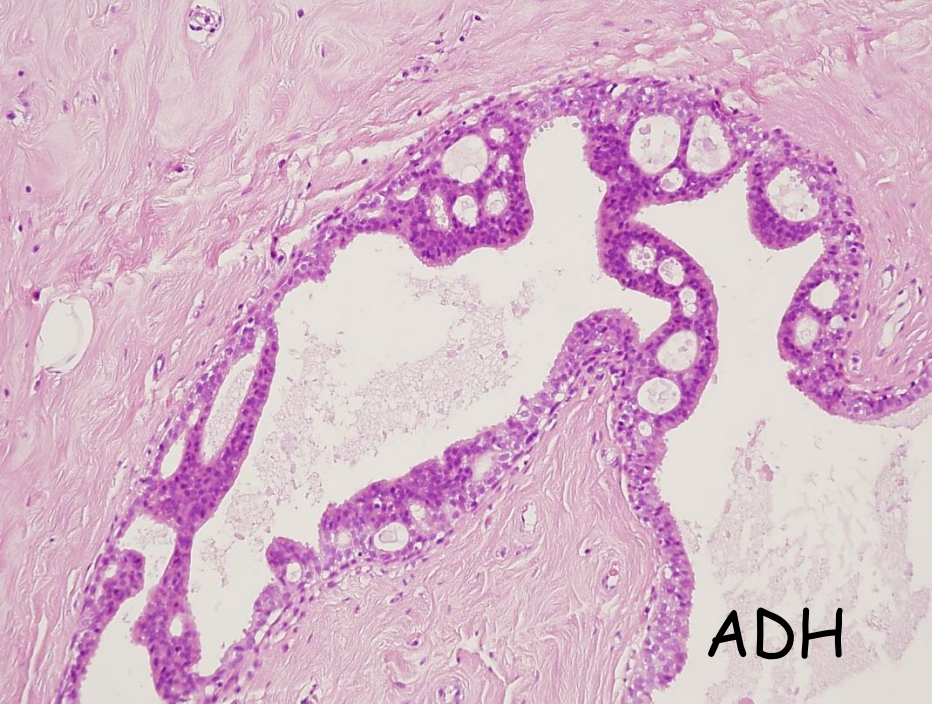
stb.

HÁMHYPERPLASIA = EPITHELIOSIS

ductalis vagy lobularis

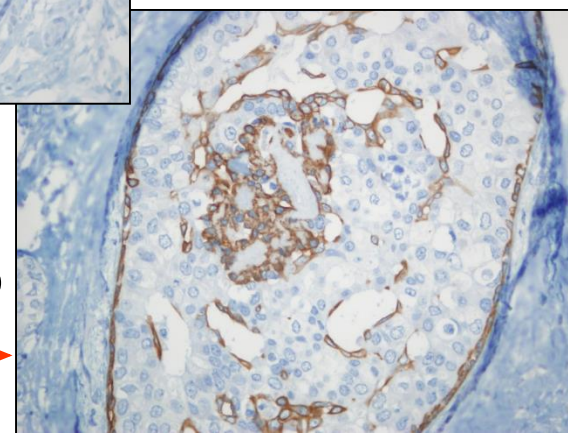
típusos vagy atípusos

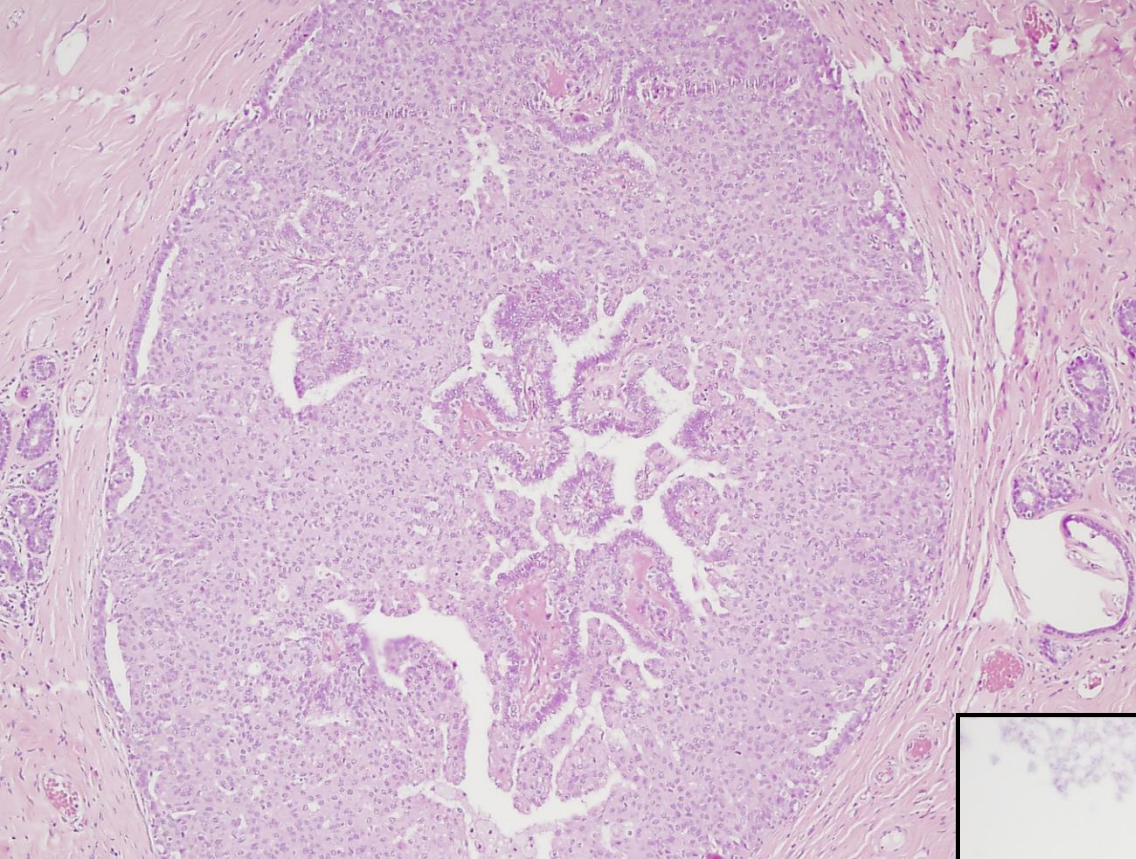




ADH: CK5/6
negatív

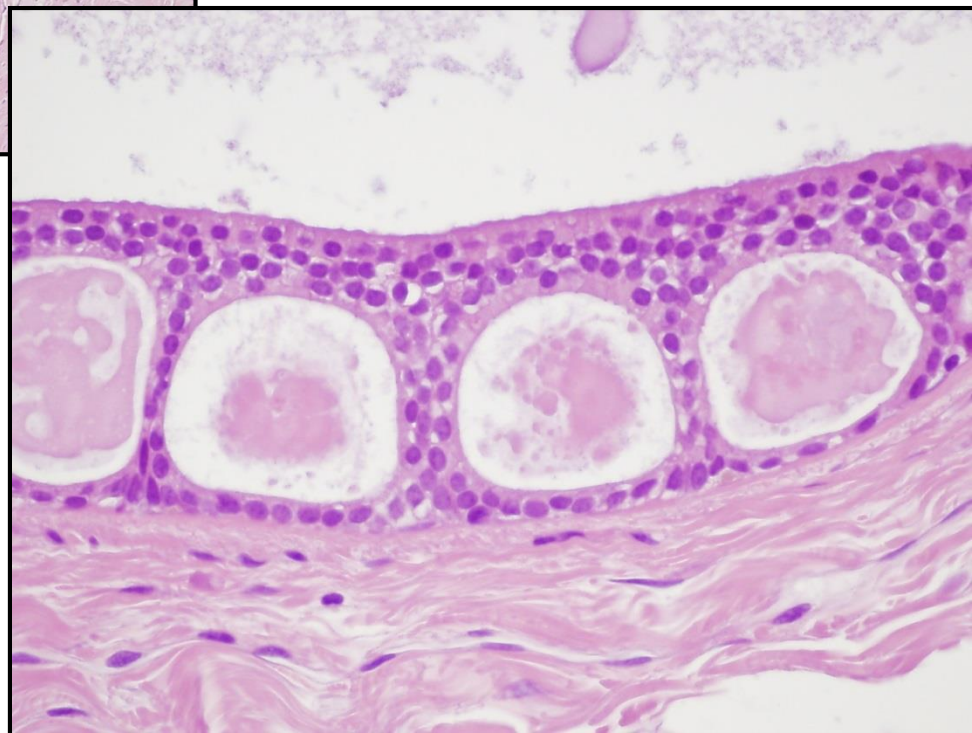
UDH: CK5/6
pozitív





Florid, szokványos
ductalis hámhyperplasia

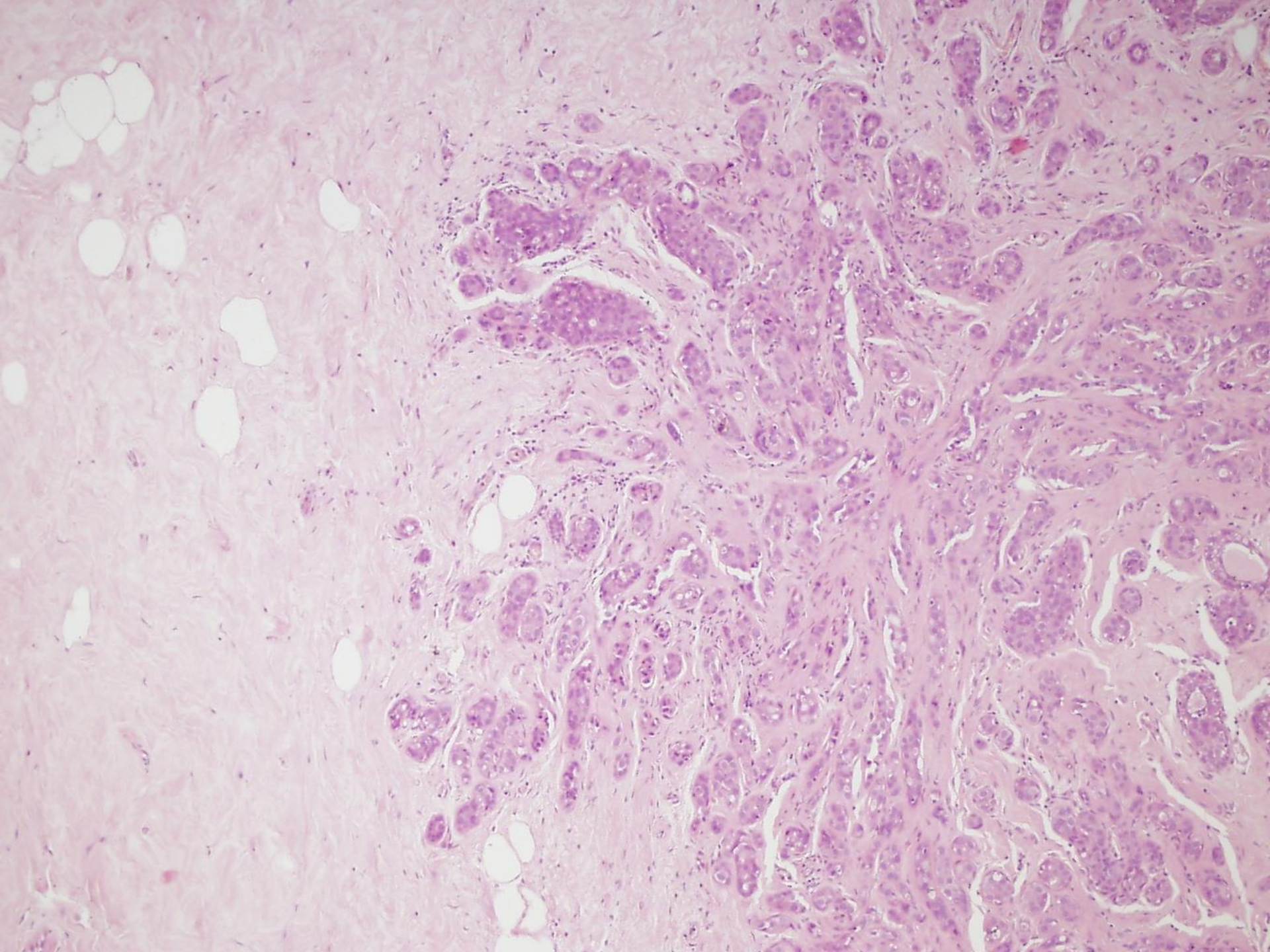
Atypusos ductalis
hámhyperplasia

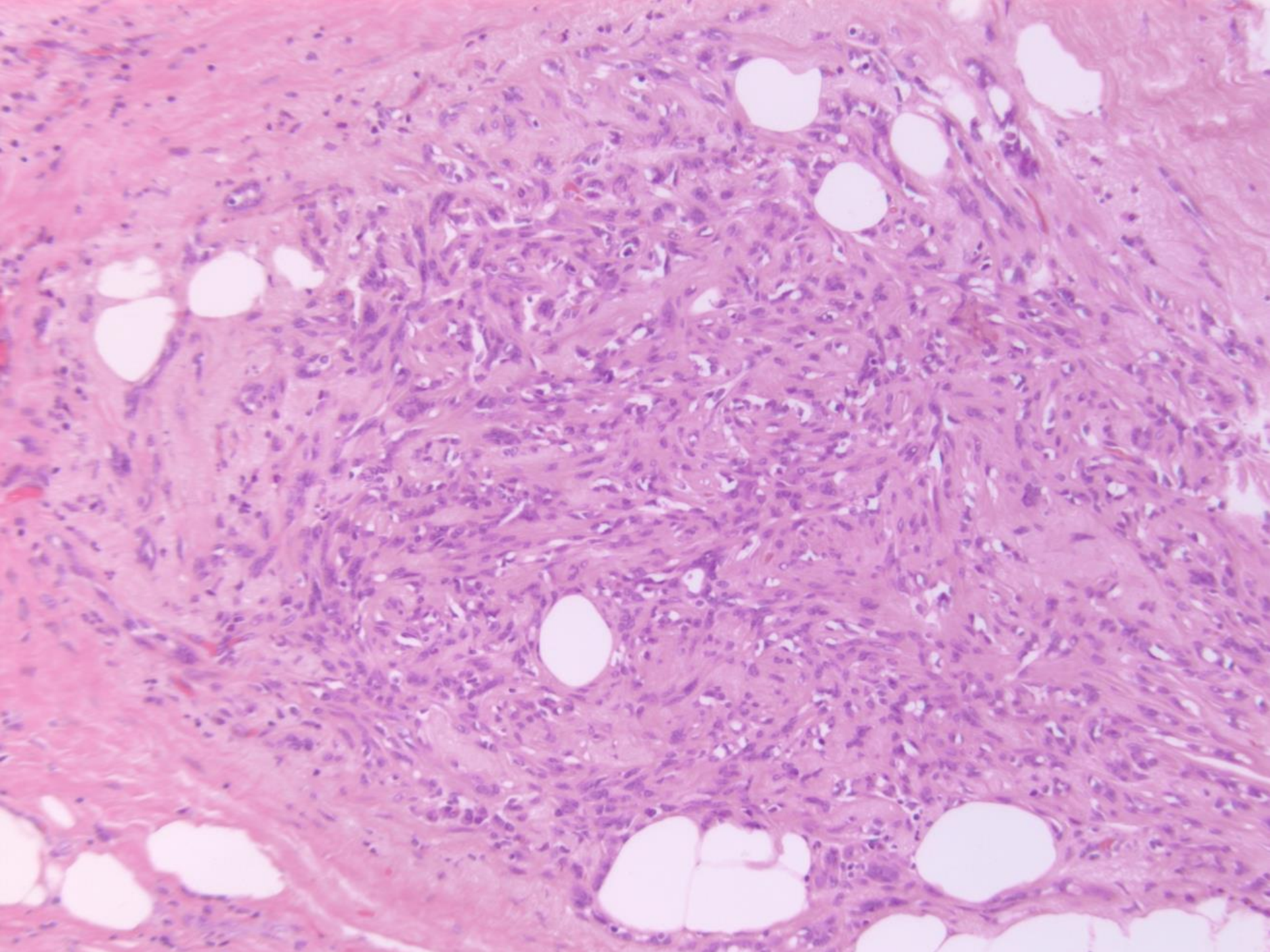


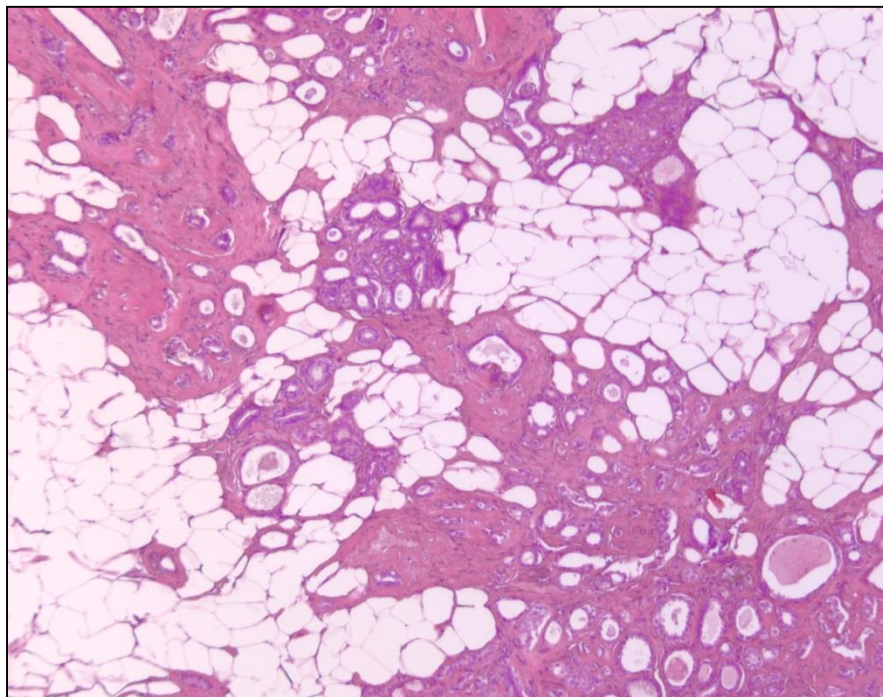
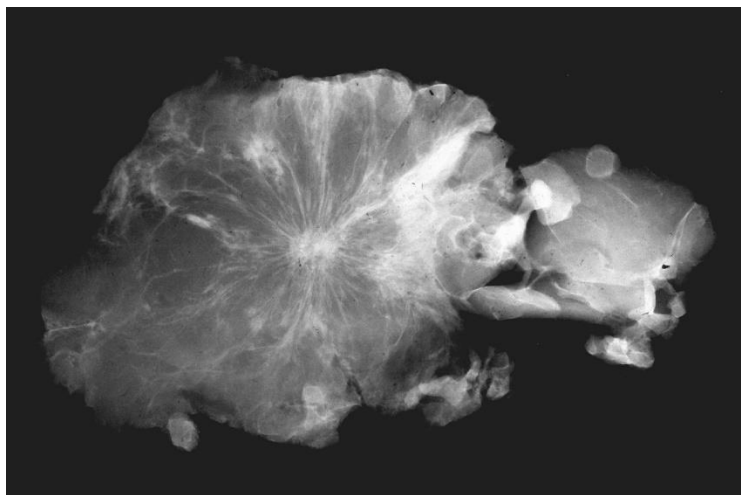
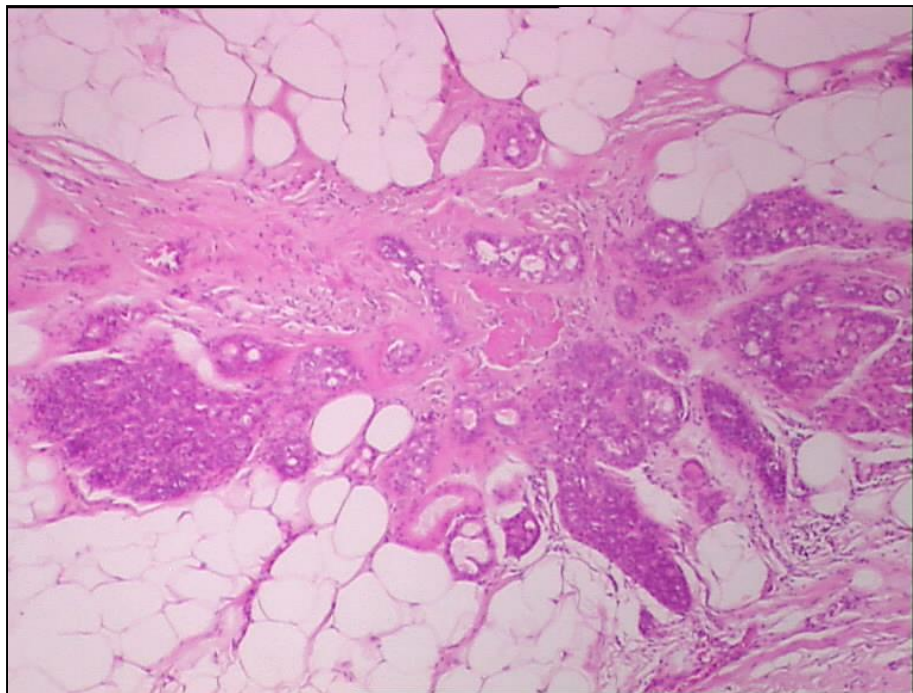
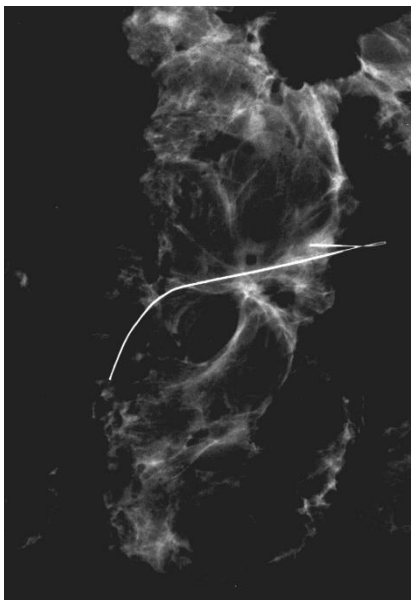
SCLEROTIZÁLÓ ELVÁLTOZÁSOK

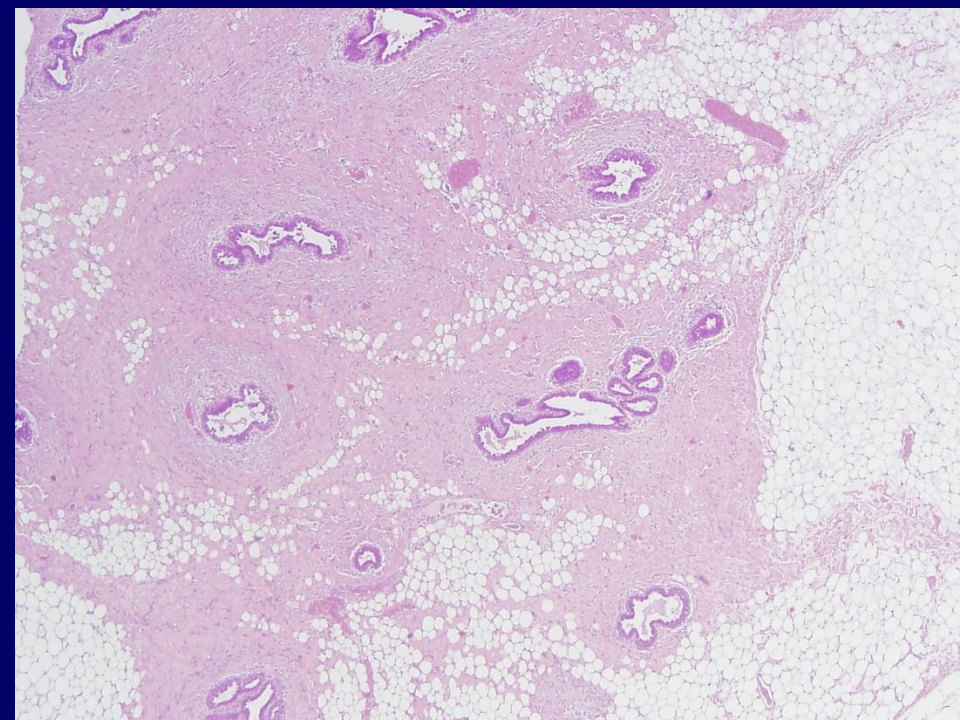
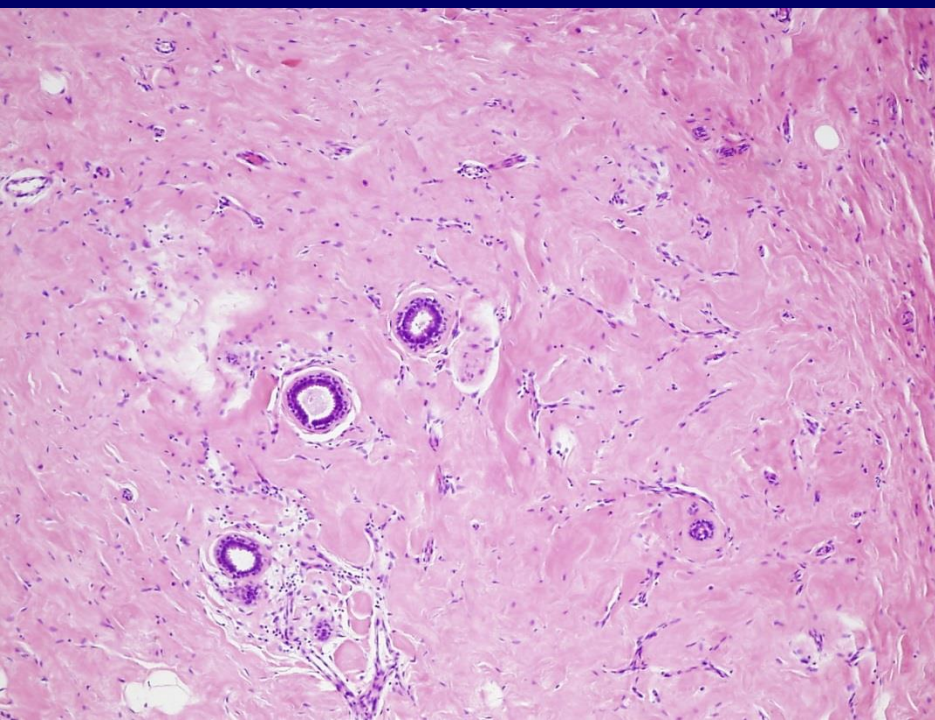
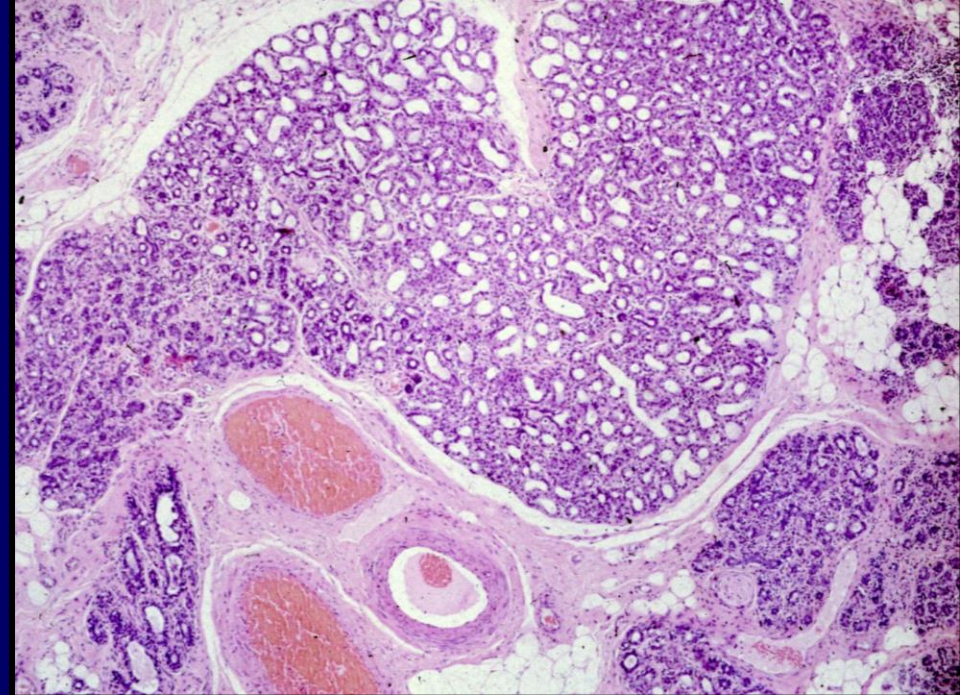
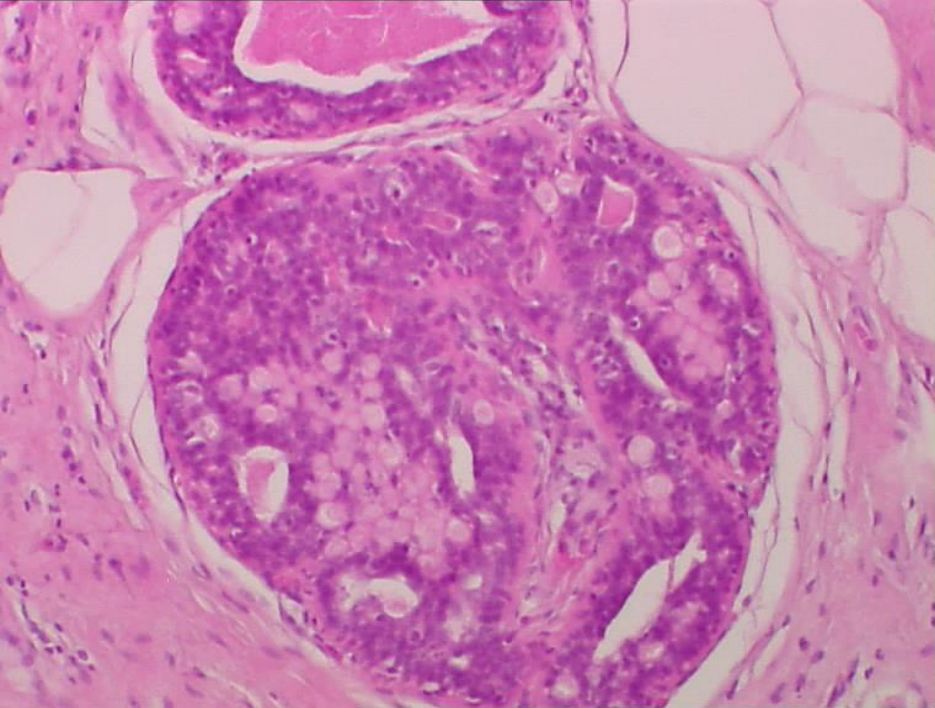
Sclerotizáló adenózis

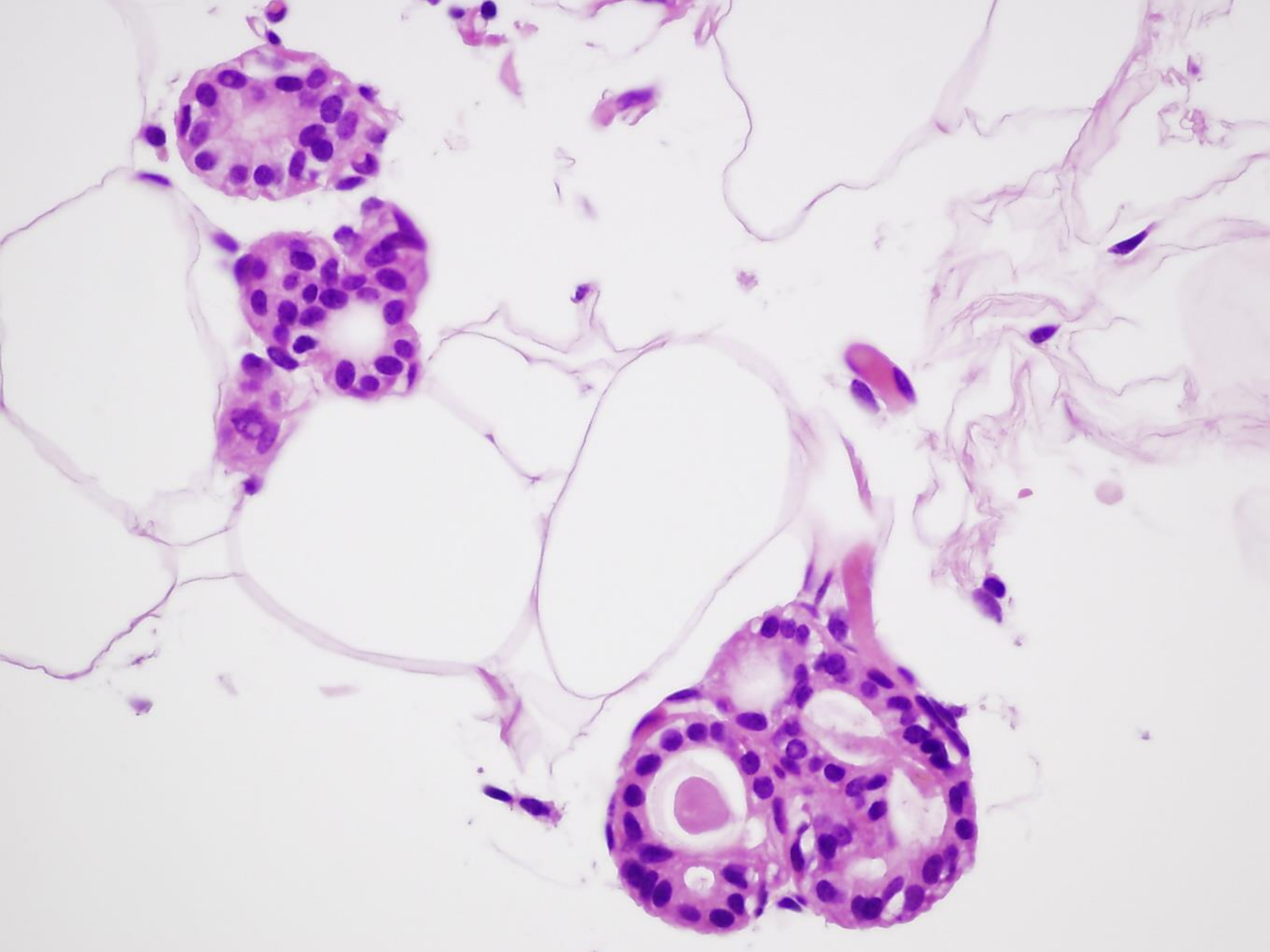
Sugaras heg (Radial scar) és CSL
(Complex Sclerosing Lesion)











CYSTÁK

Leggyakrabban fibrocystás betegség
része

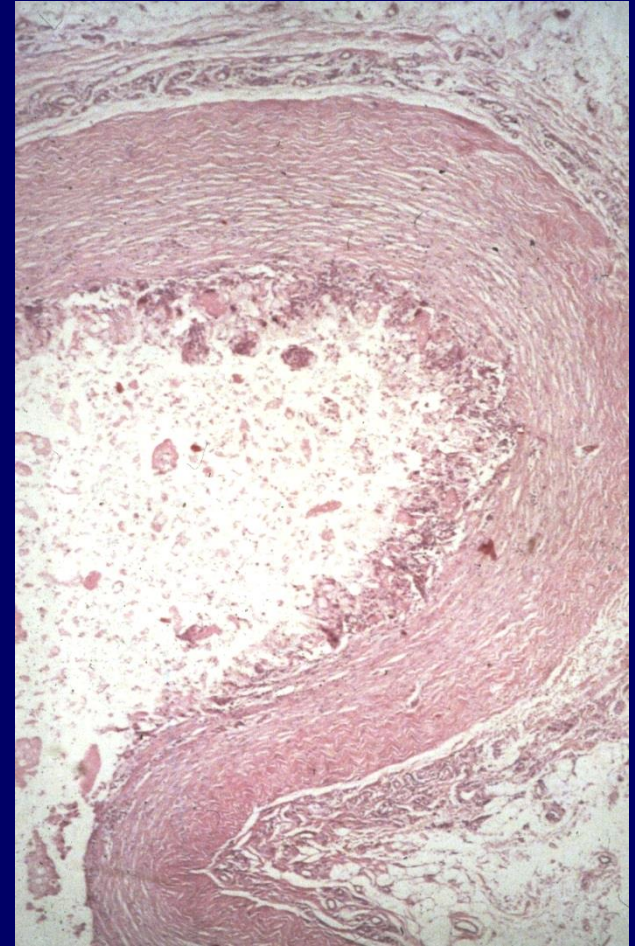
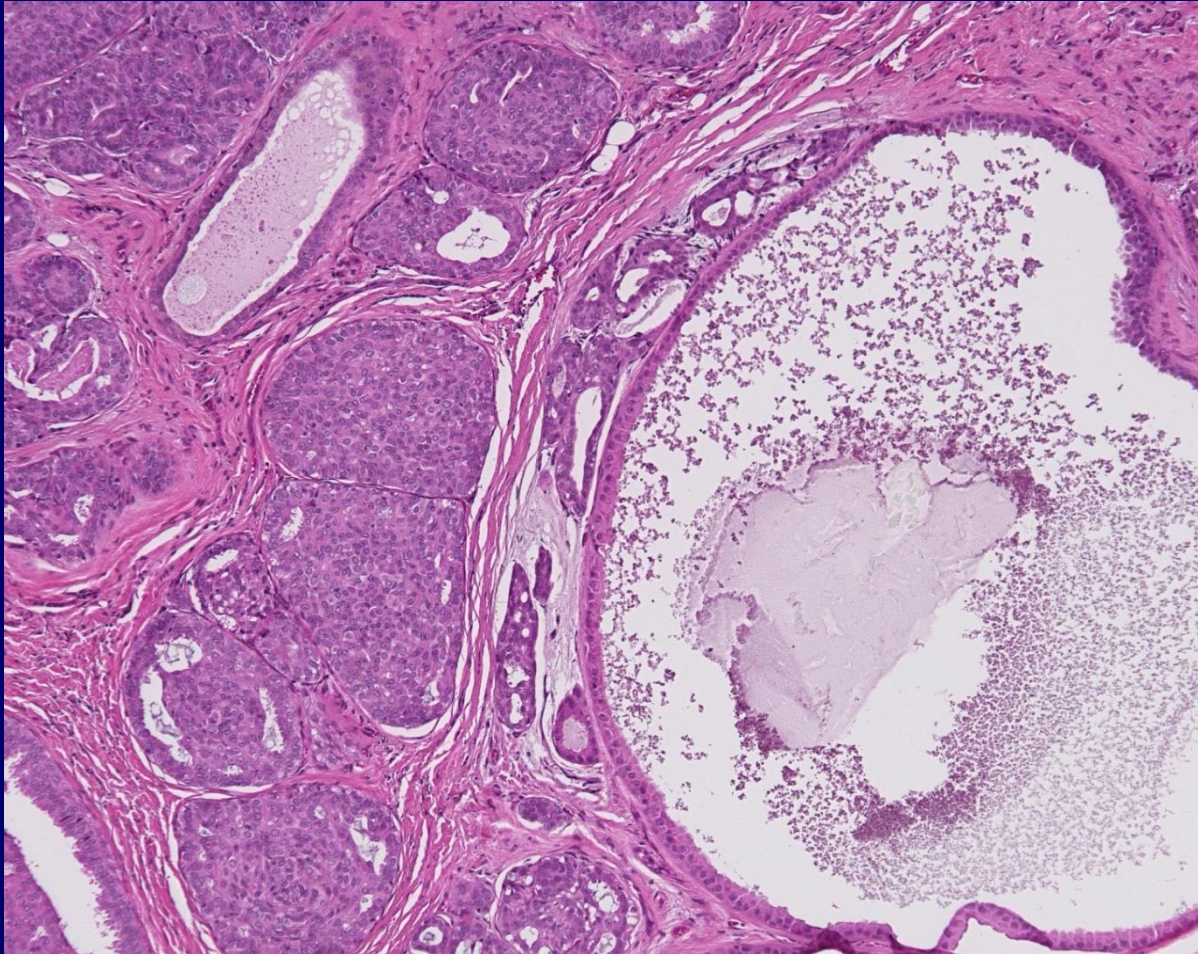
Eredete szerint: tenziós v. retenciós

Hámbélés van v. nincs

Papillaris tumor alakulhat ki az üregében
(Intracysticus papilloma)

Speciális forma: galaktokele

(nagy kivezetőcső elzáródása ... dilatáció...
ruptura...gyulladás...tályog lehet)



EMLŐGYULLADÁSOK

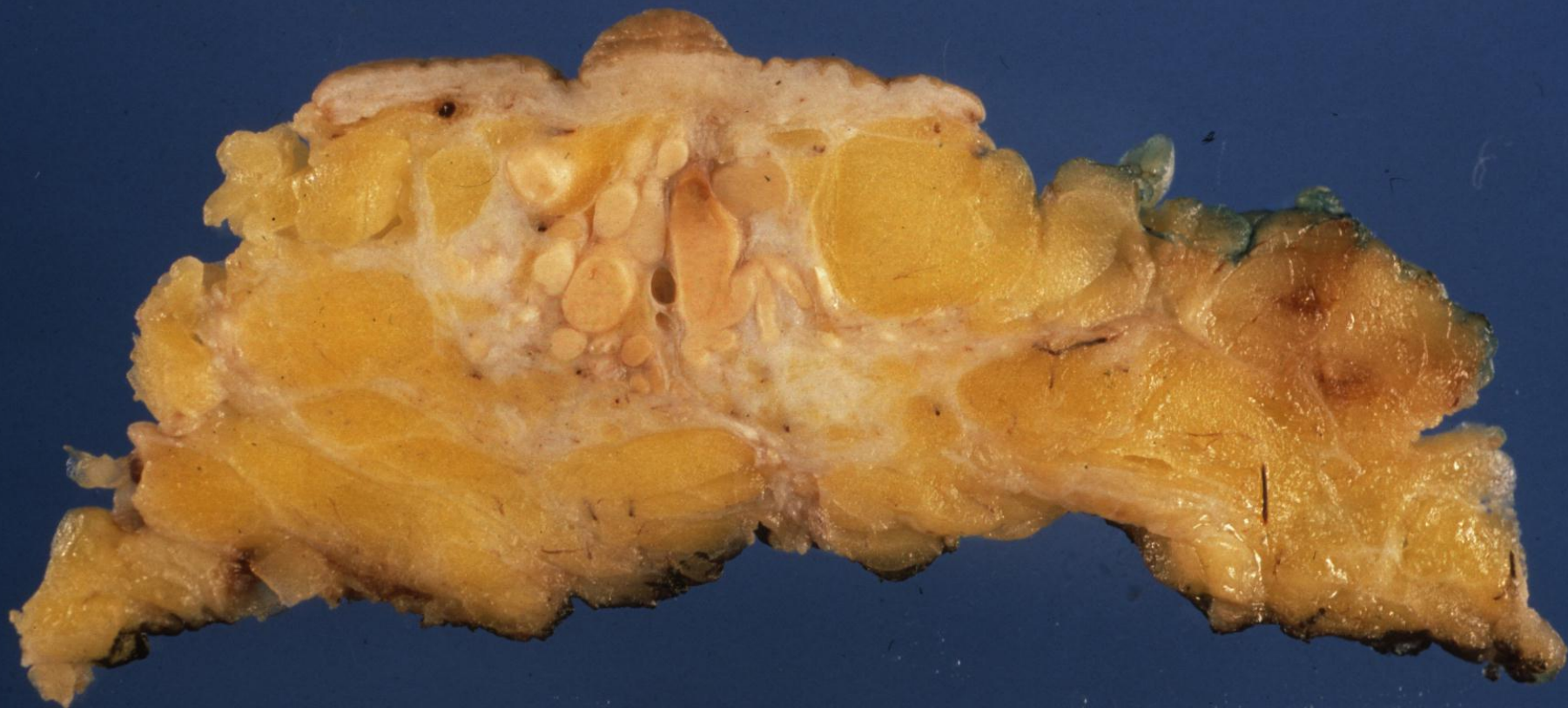
Plazmasejtes mastitis - Duktektázia
(Carcinomát utánozhat az emlőbimbó
behúzódása miatt)

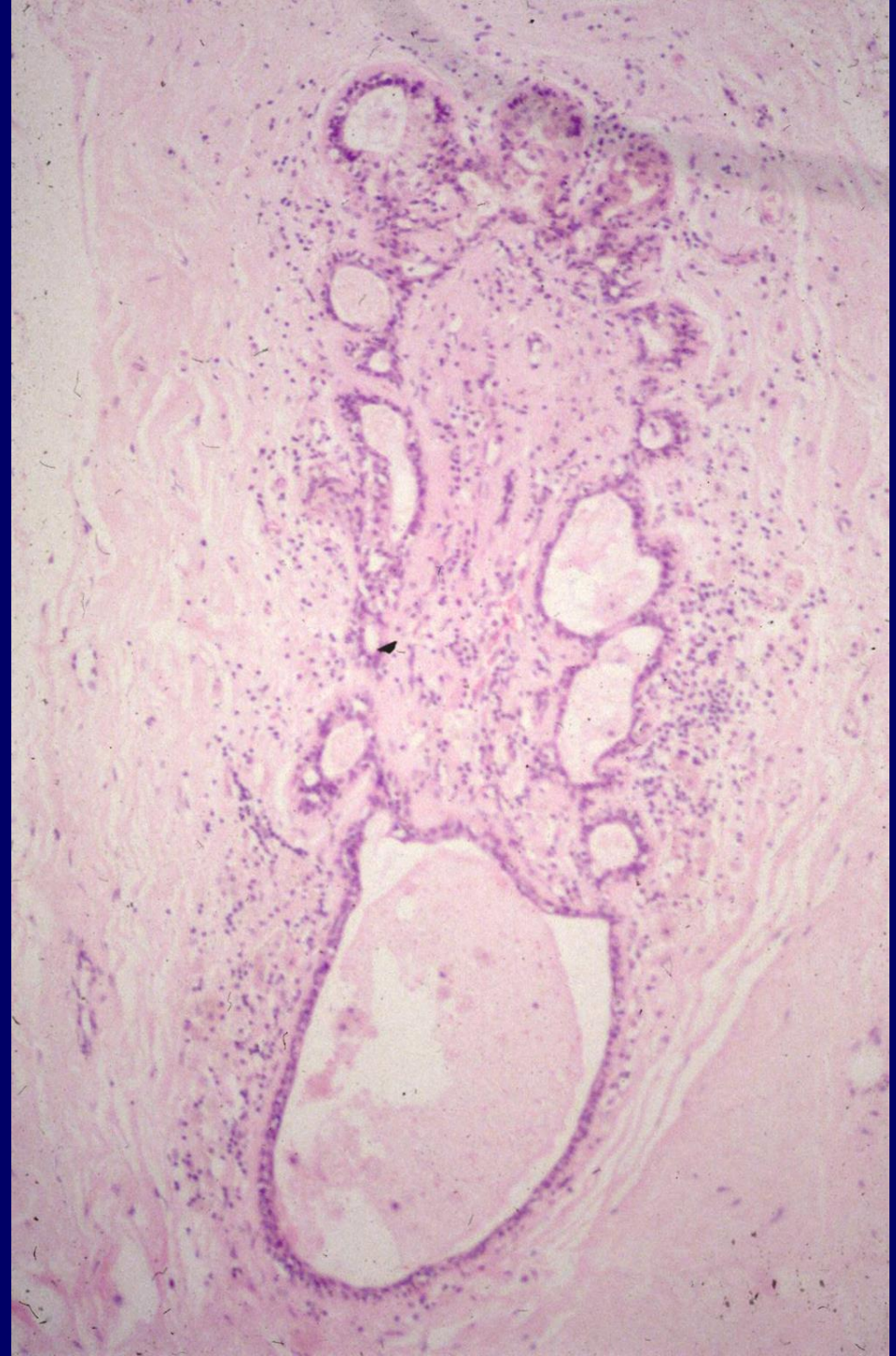
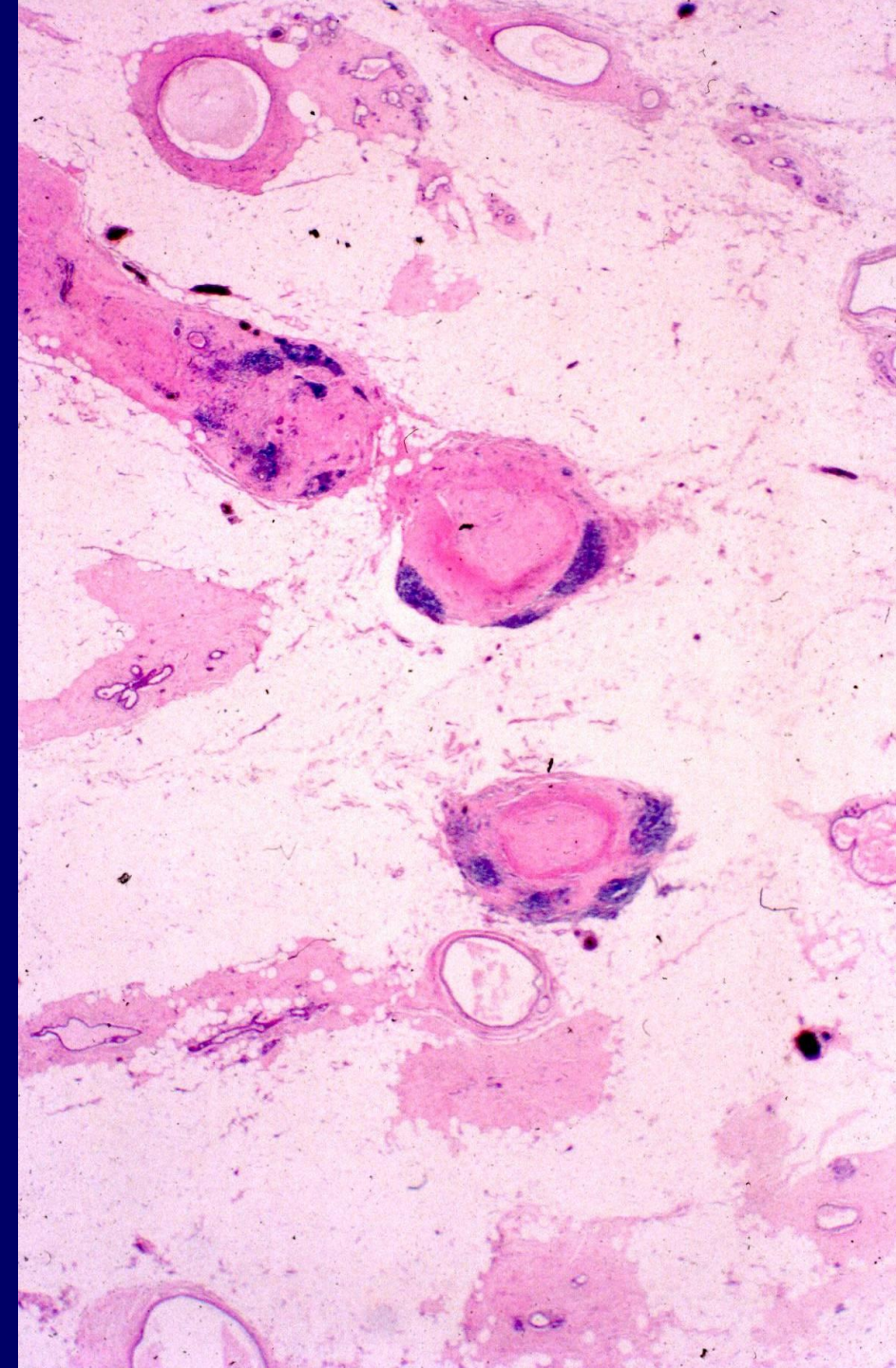
Szoptatás idején fellépő akut gyulladások
(sepsishez vezethet)

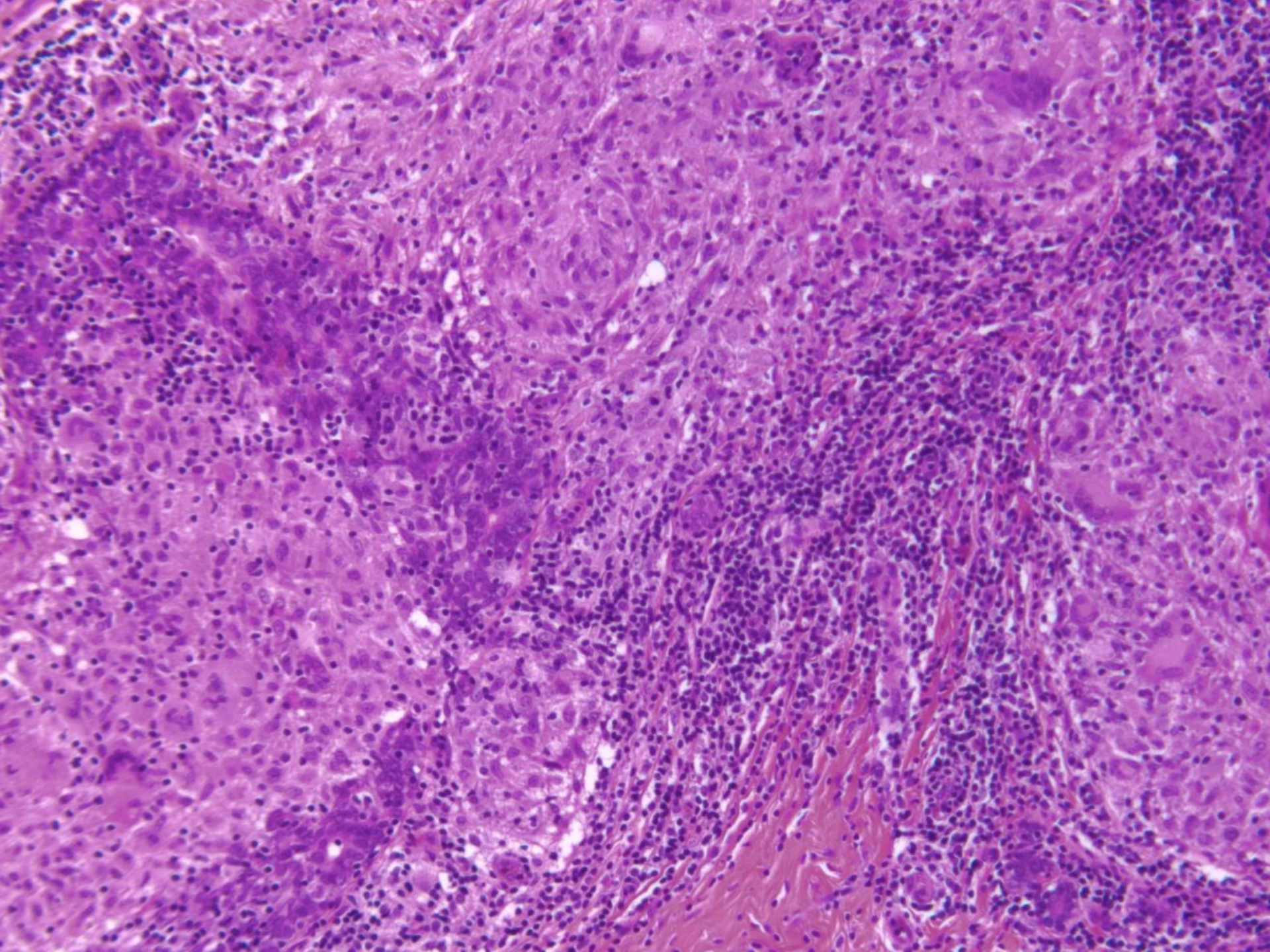
Granulomatозus mastitisek
(idiopathiás, tbc, silicon stb.)

Lymphocytás lobulitis
(diabetes!!)

MÁV 628/99







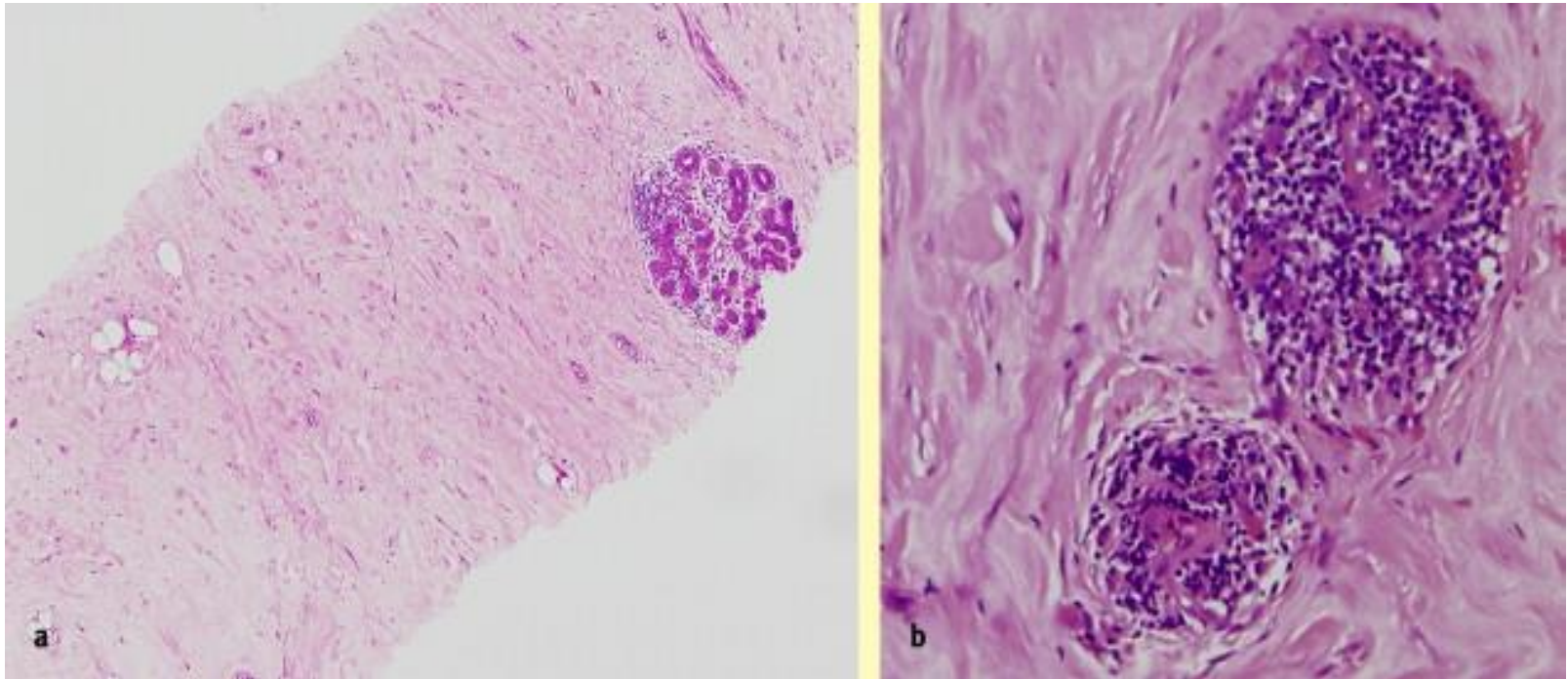


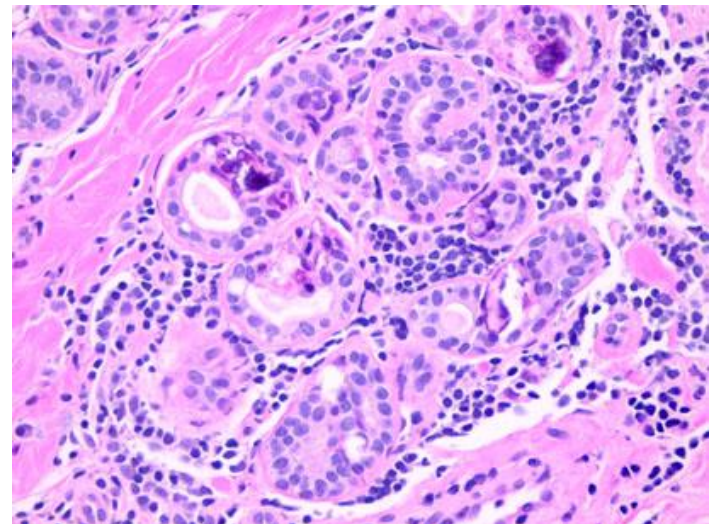
Figure1 Diabetic mastopathy. a Core biopsy showing stromal fibrosis and perilobular lymphocytic infiltration. b Detail of perilobular lymphocytic infiltrate.

Ian Wilkinson , Jeremy Thomas

Breast diseases associated with systemic medical disorders

Diagnostic Histopathology Volume 15, Issue 8 2009 402 - 408

<http://dx.doi.org/10.1016/j.mpdhp.2009.05.004>



LIPOFÁG GRANULOMA

Trauma

Fibrocystás betegségben

Malignus tumor kezelése után v. tumor
mellett, mintavétel után is

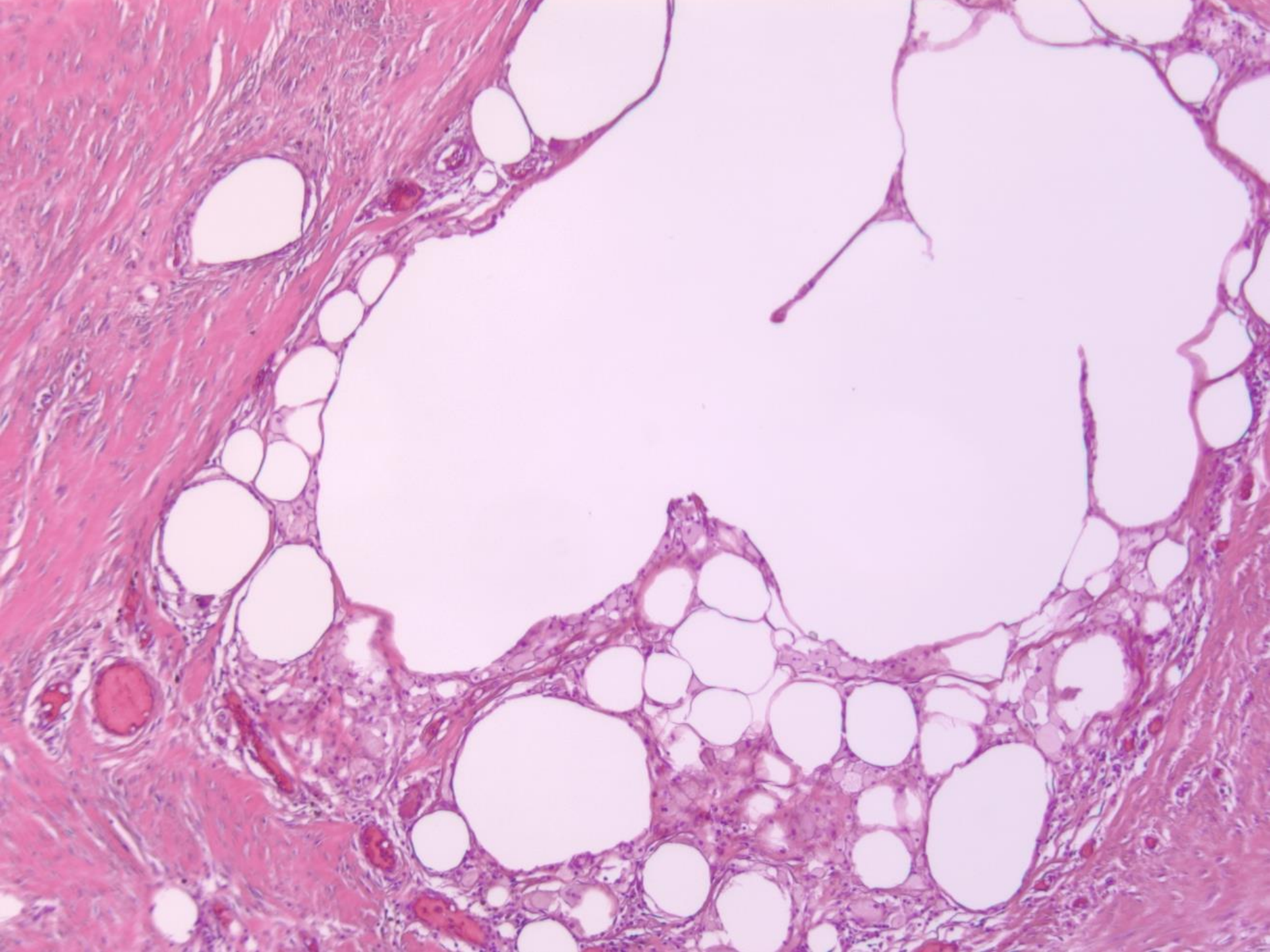
Jellemző:

habos cytoplasmájú macrophagok

óriássejtek

lobsejtek

fibrózissal gyógyul



FIBROADENOMA

KOR: 20 - 35

Kombinált, hám és kötőszövet eredetű
benignus tumor

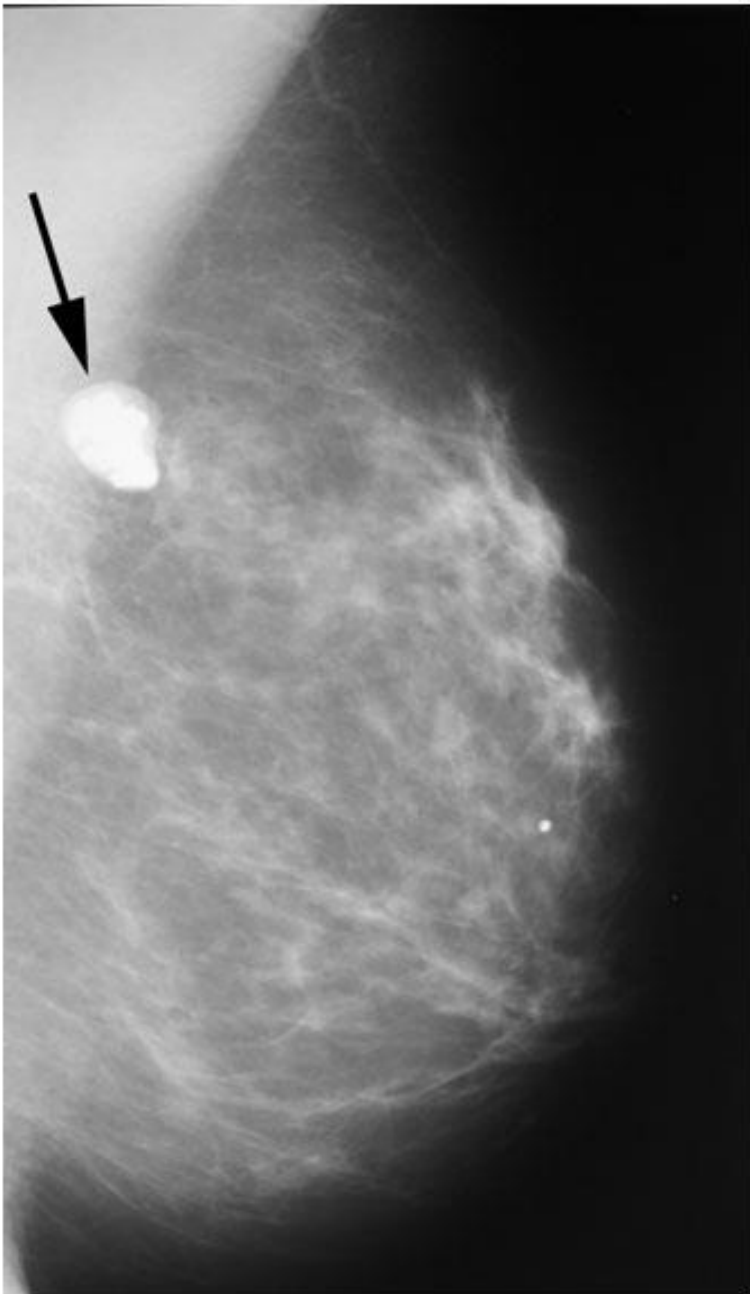
Szövettan:

intracanalicularis és/vagy pericanalicularis

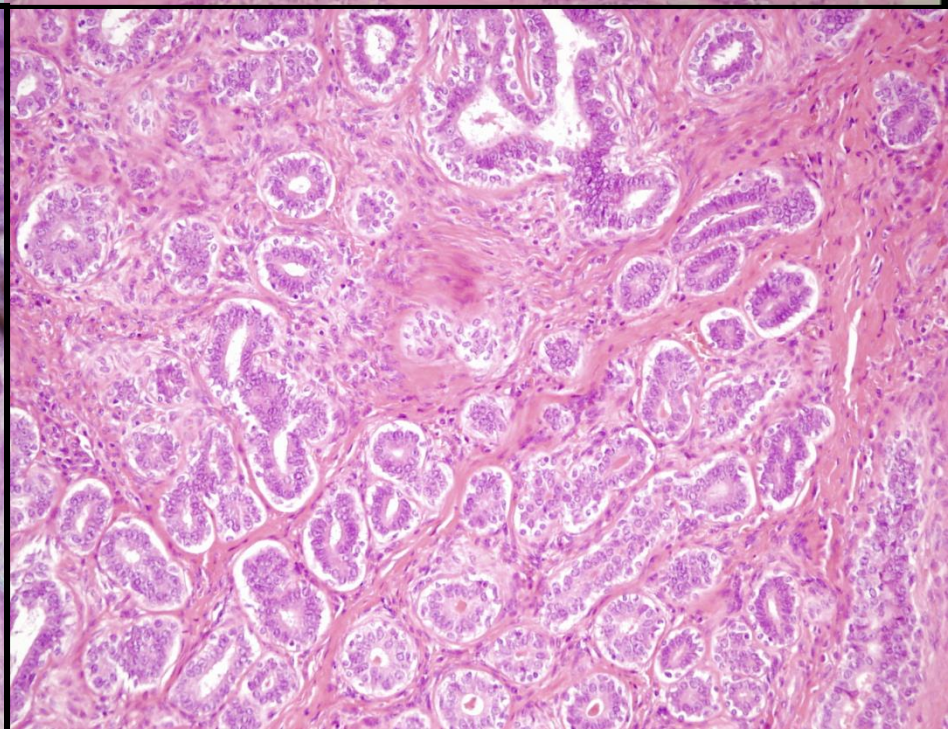
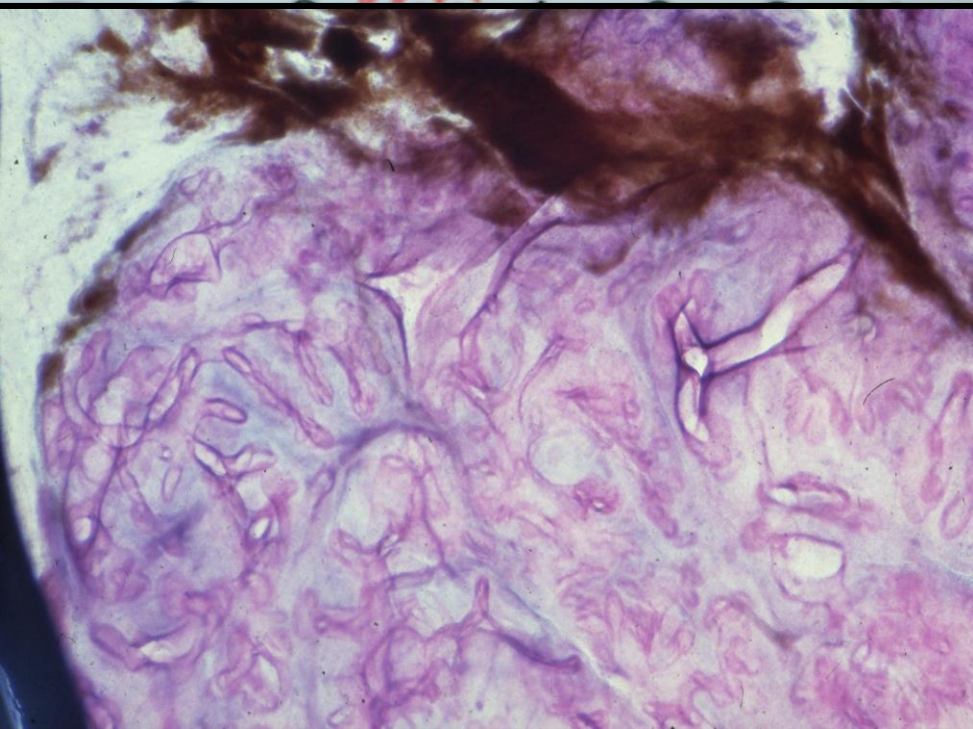
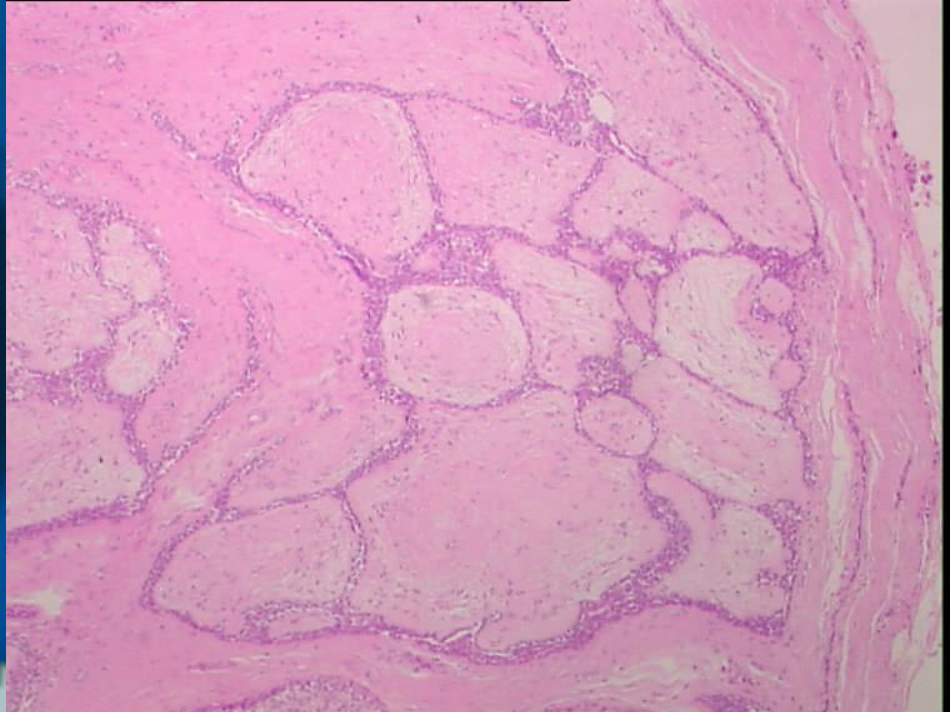
Variáns: óriás v. juvenilis fibroadenoma

Malignus tumor fibroadenómából ritka

(általában lobularis carcinoma, de környezetében lévő
malignus tumor ráterjedhet)



Mammographiás kép



PHYLLOID TUMOR

KOR: 45<

Nagy méretű, torzító

Kombinált hám- és kötőszövet eredetű
tumor

Jellemző:

hypercellularis stroma
recidiva hajlam

WHO

- Benignus
- Borderline
- Malignus

Rosen és mások

Benignus

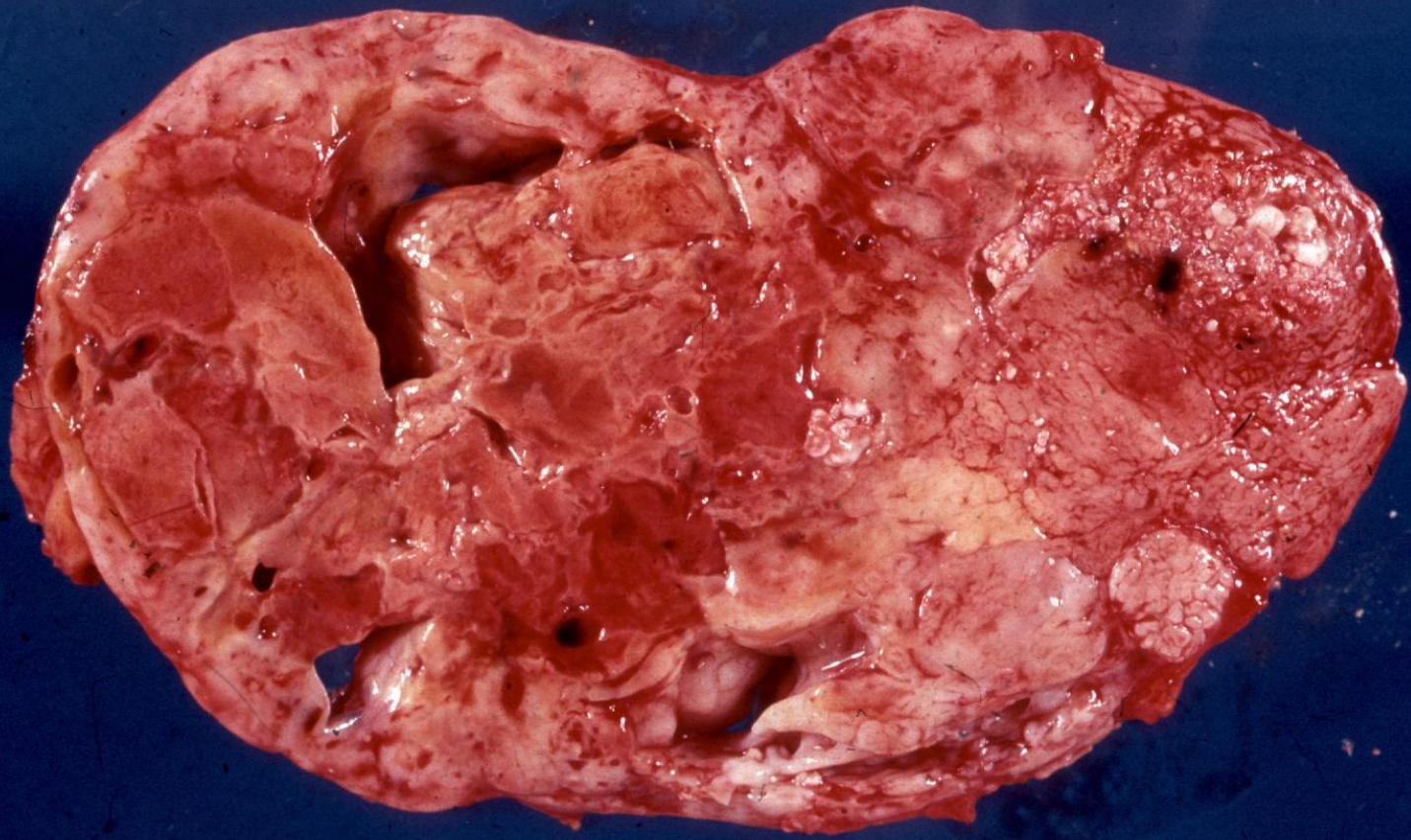
Low grade

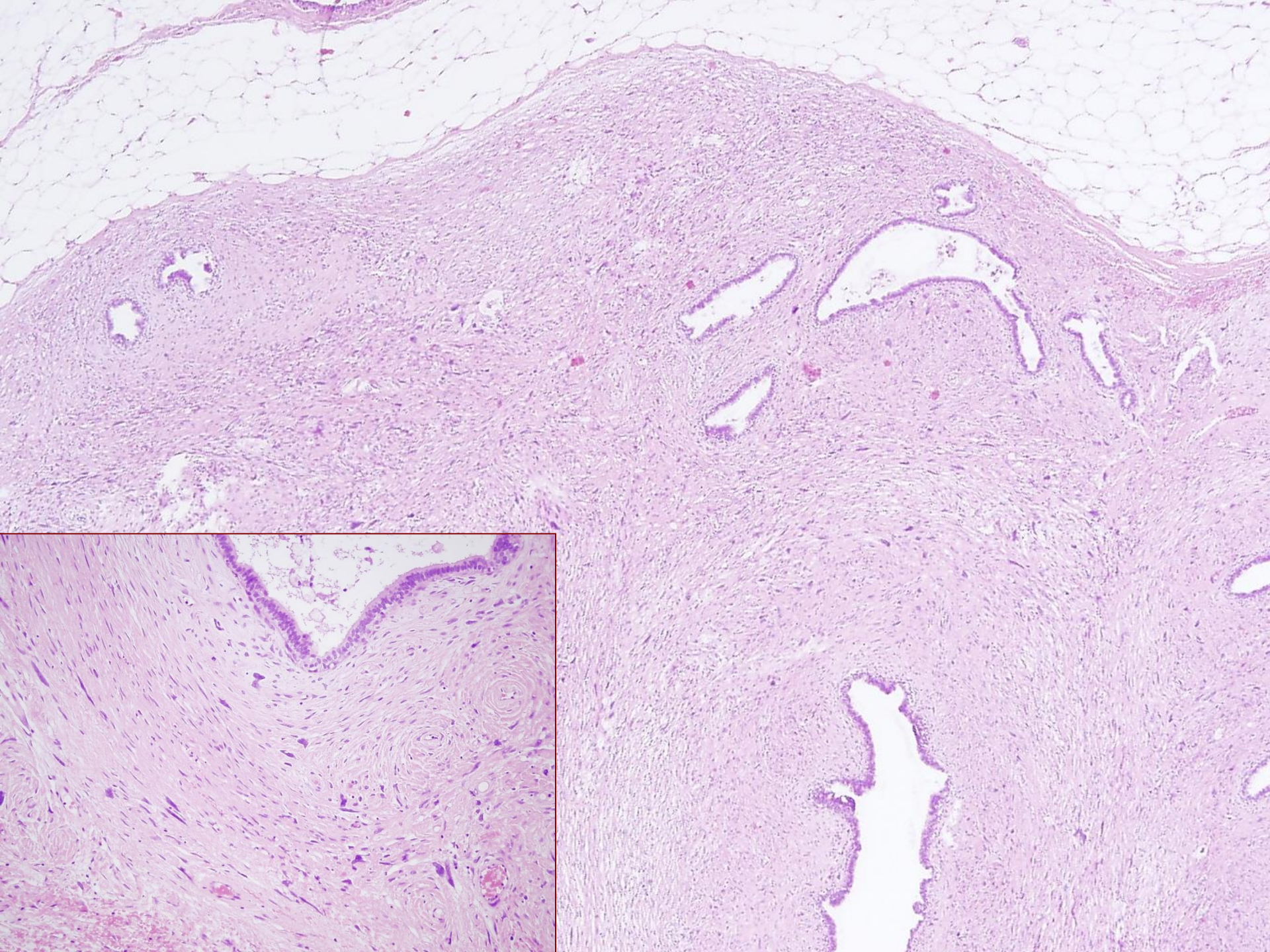
High grade

A szöveti kép nem feltétlenül korrelál a viselkedéssel.

A malignus/high grade phyllodes tumorok mesenchymális daganatok!

97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119





EGYÉB JÓINDULATÚ DAGANATOK

HÁMEREDETŰ:

Papilloma

Emlőbimbó adenoma

(florid papillomatózis, erozív adenomatózis)

Tubularis adenoma

Laktációs adenoma

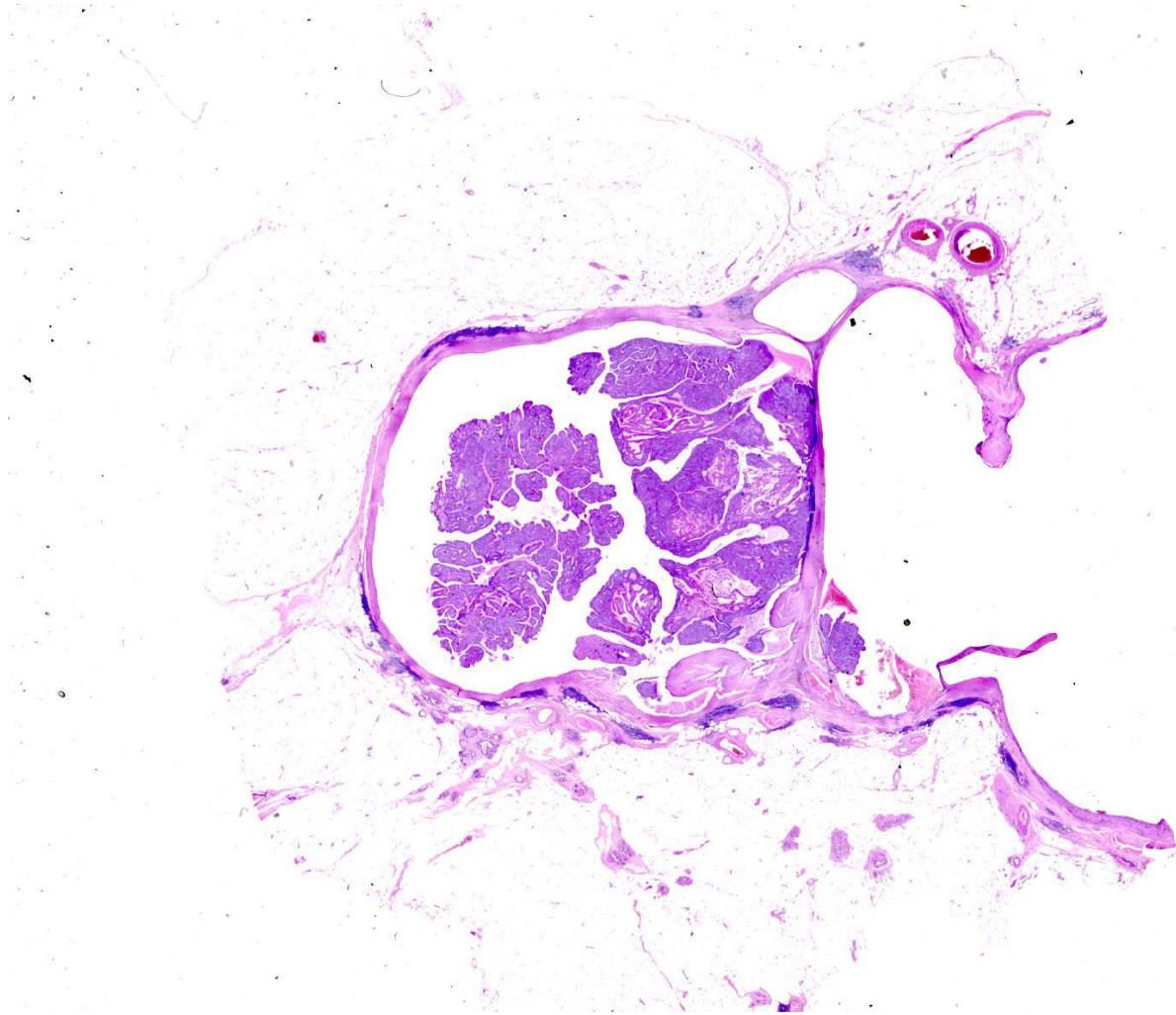
Bőrfüggelék tumorok, stb.

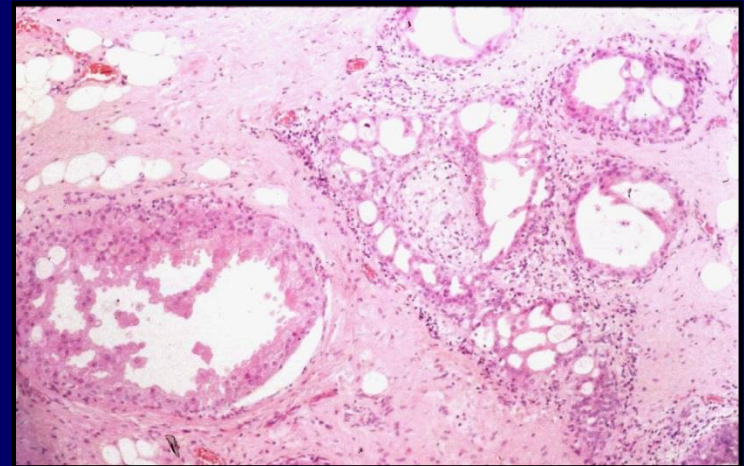
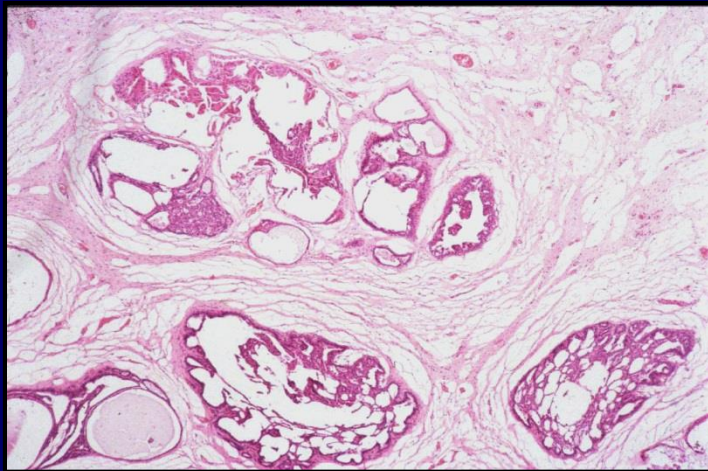
EGYÉB:

Lipoma

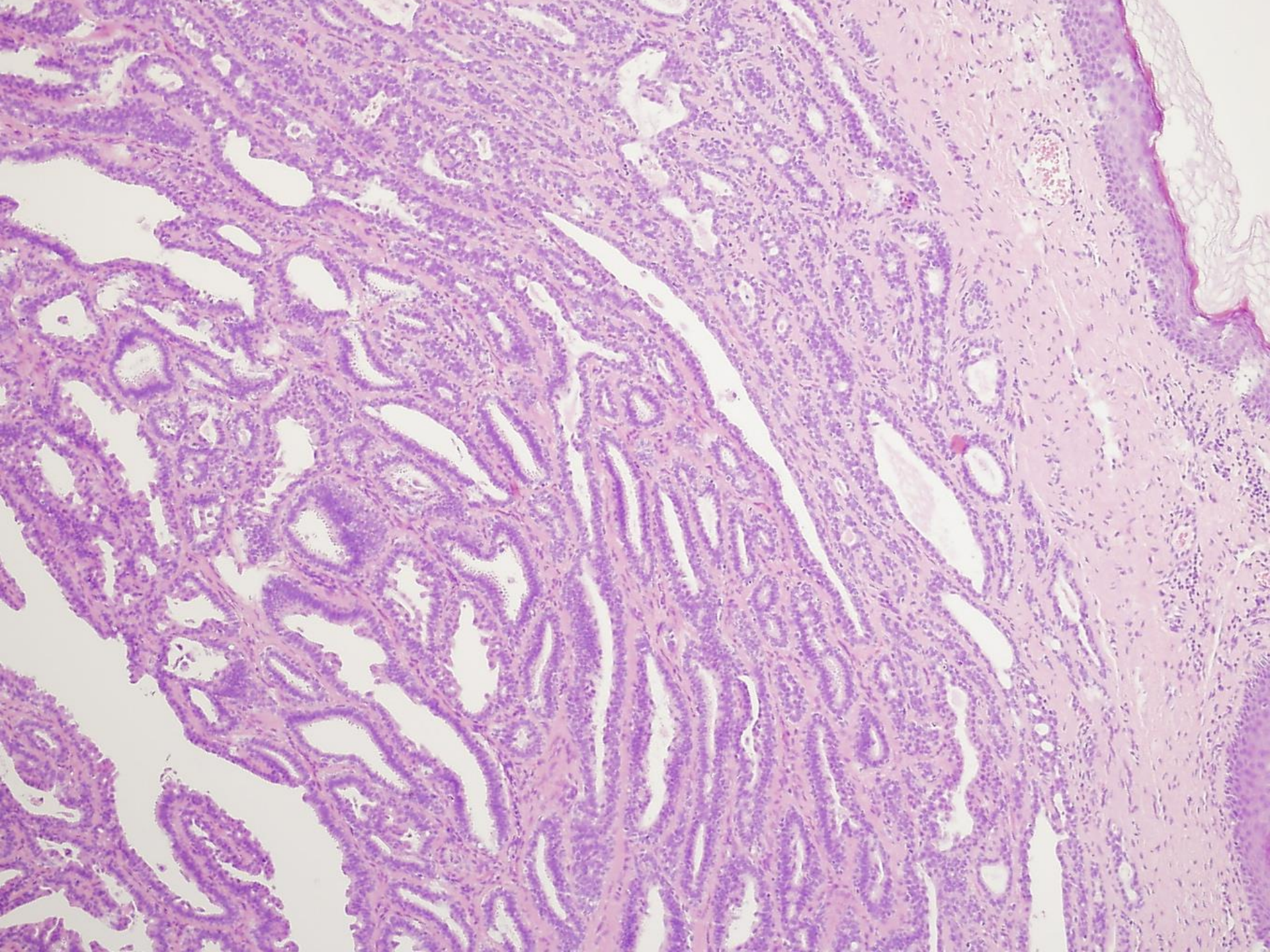
Granulárisejtes tumor

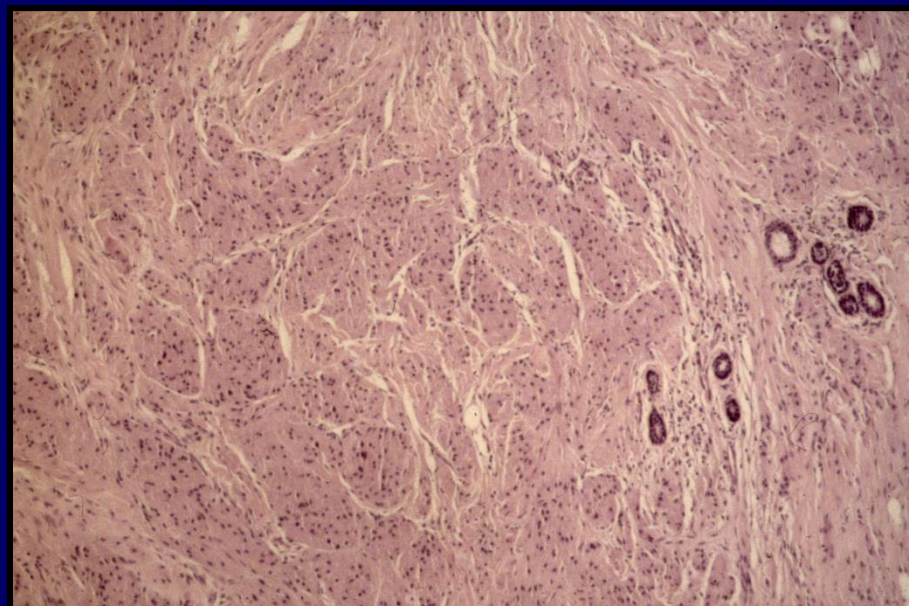
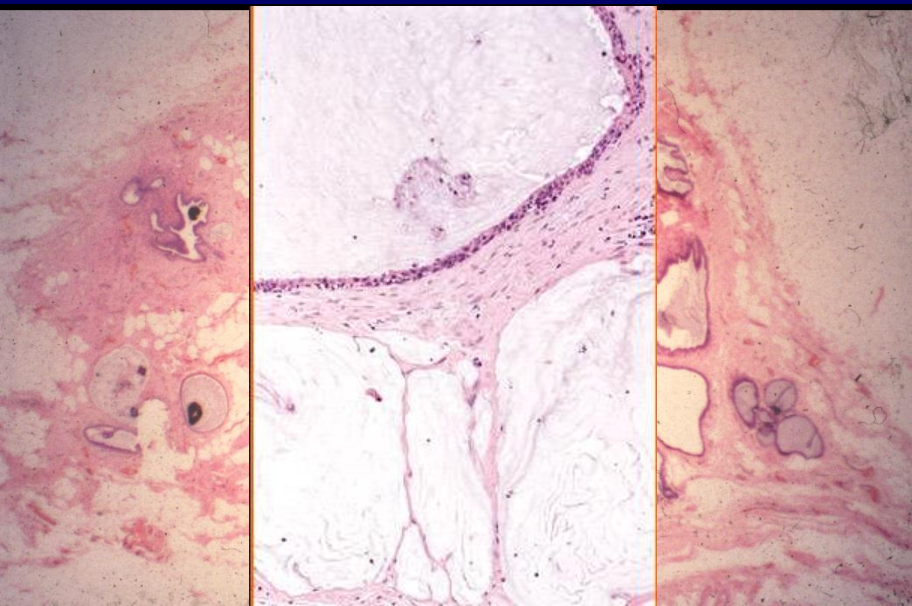
Haemangioma





Juvenilis papillomatózis





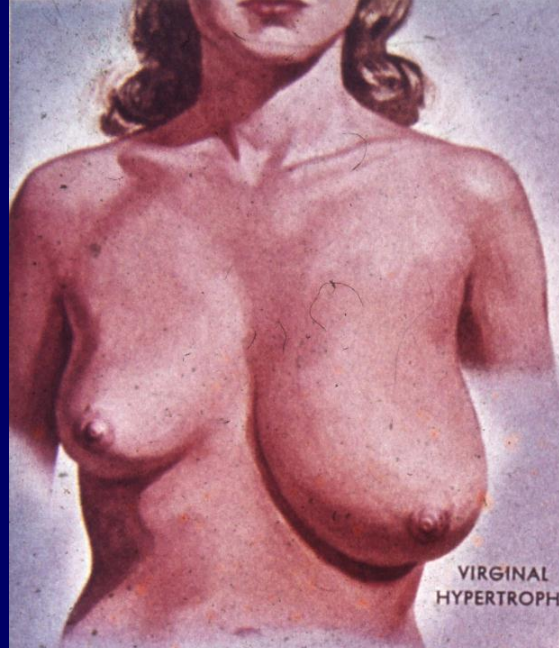
FEJLŐDÉSI RENDELLENESÉGEK

Számfeletti emlőbimbó vagy emlő

Hypertrophia

Asszimetria

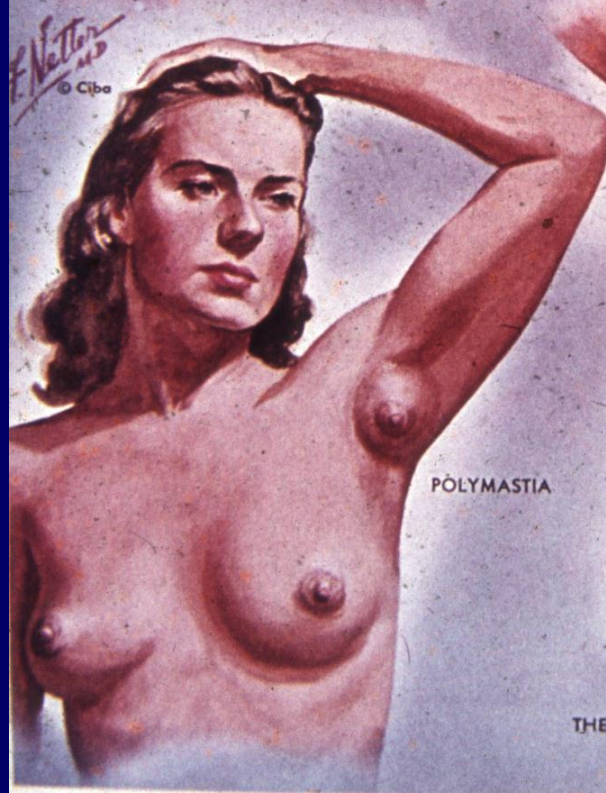
Befordult emlőbimbó



VIRGINAL
HYPERTROPHY



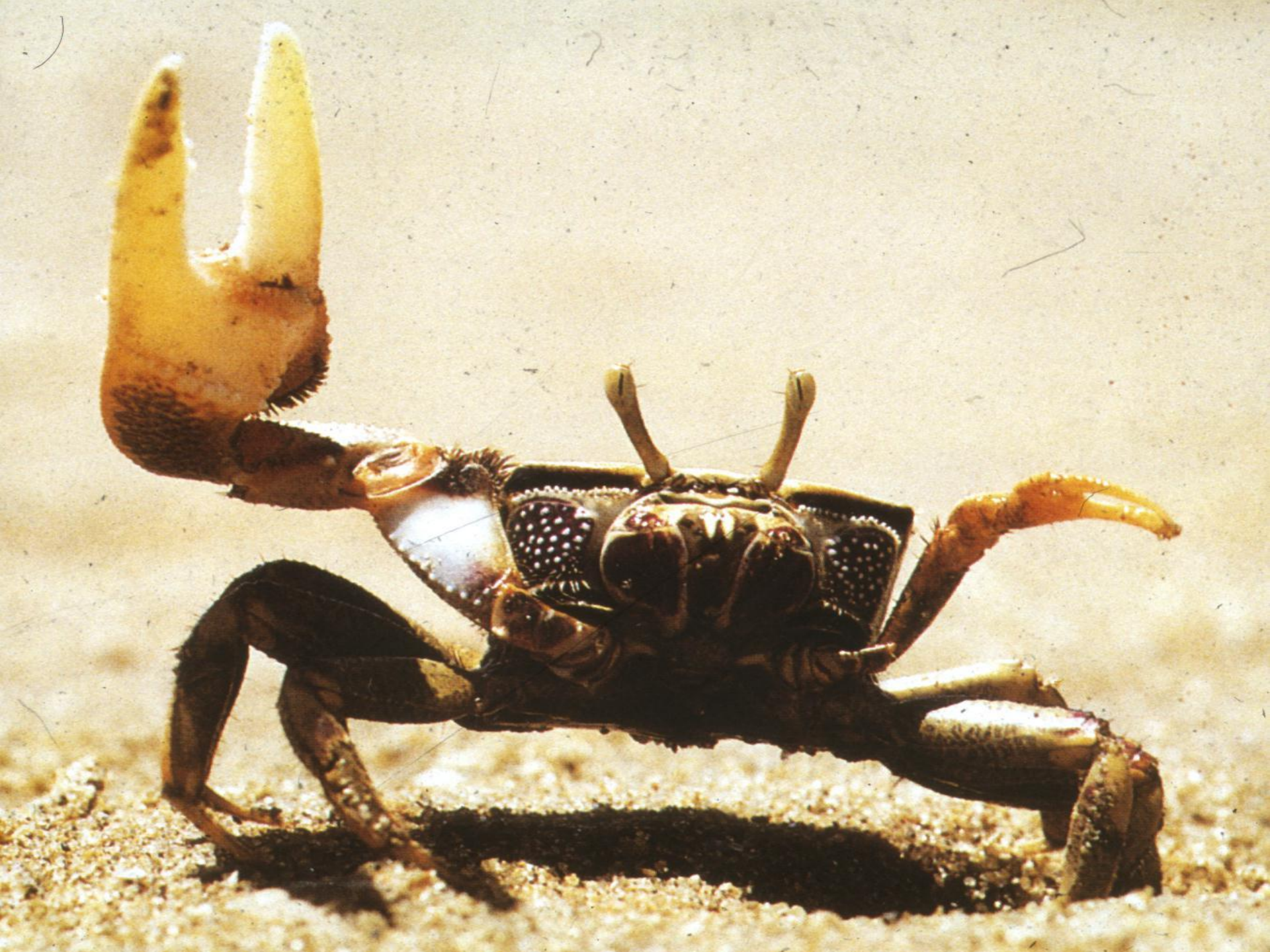
POLYTHELIA

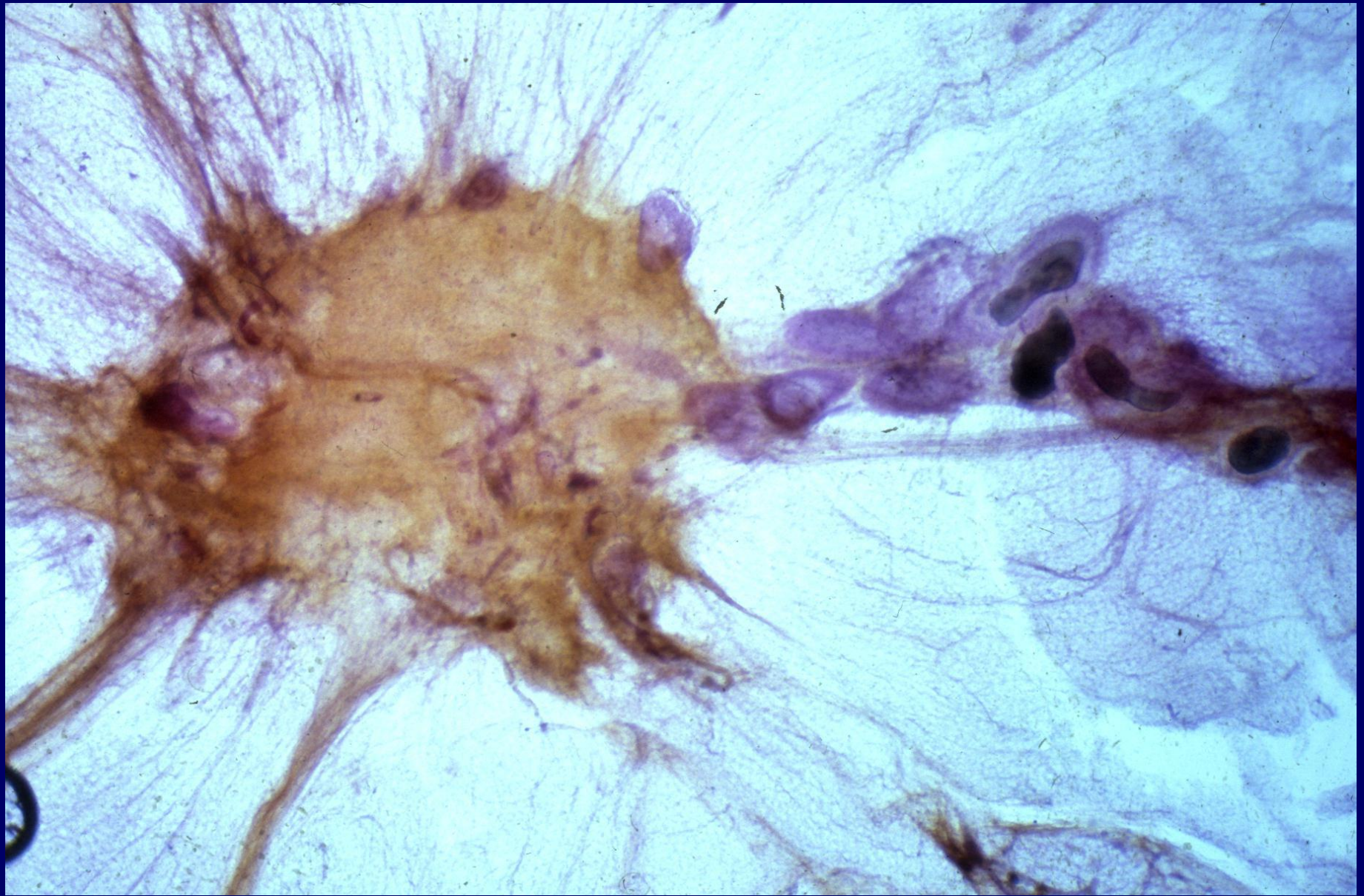


POLYMASTIA



THE MILK LINES





EMLŐ CARCINOMA

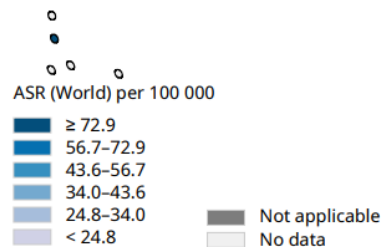
Kor: bármikor, legjellemzőbb
40-65 éves korban

2018-ban a világon 2 088 849 új esetet
diagnosztizáltak (az összes daganatos
betegség 11.6%-a)

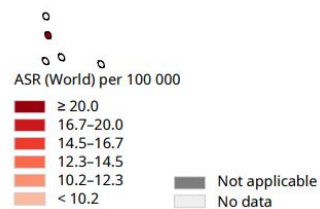
626 679 nő halt meg emlőrákban (az összes
daganatos halálozás 6.6% -a)

Minden 8. nő emlőrákban betegszik meg

Incidencia (2018)

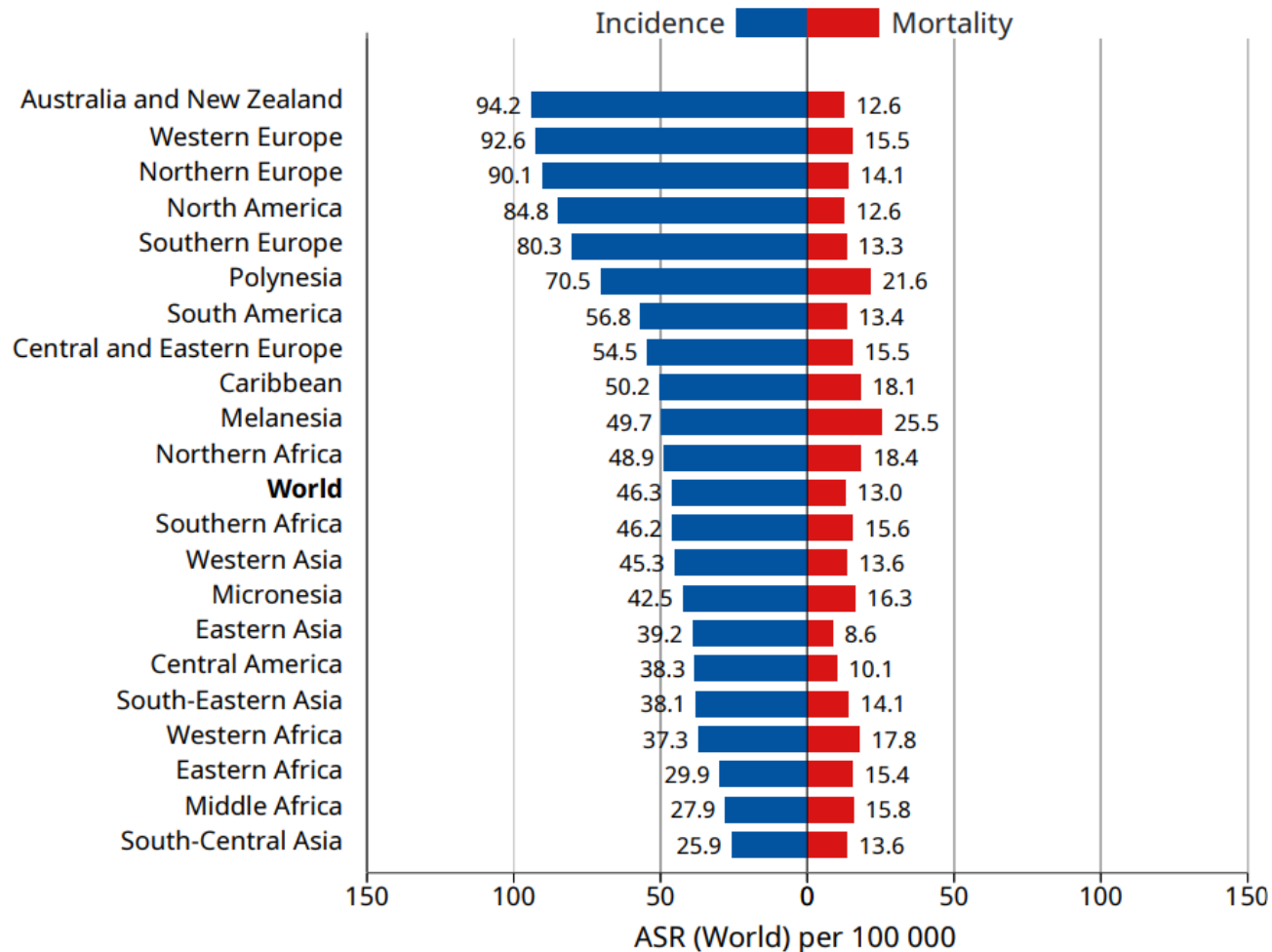


Mortalit s (2018)

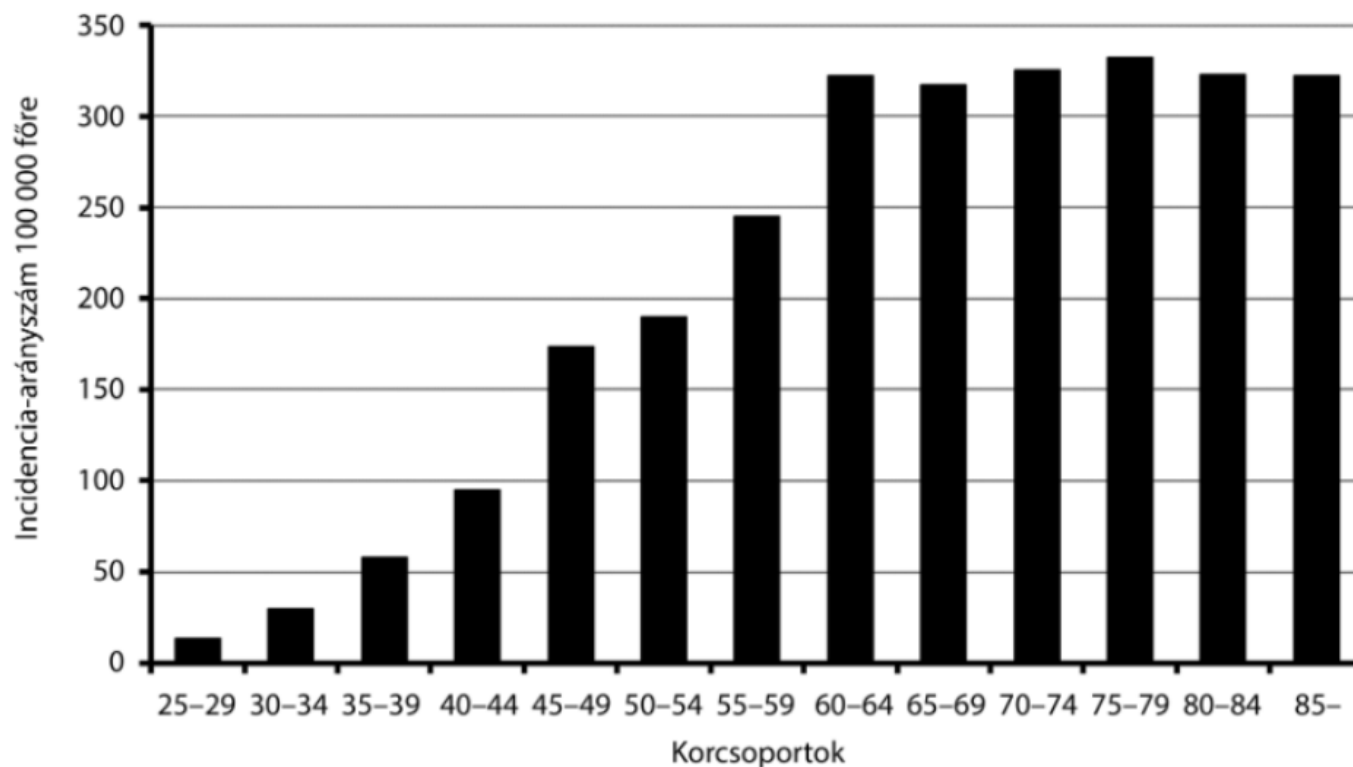


Emlőrák incidencia és mortalitás

Age standardized (World) incidence and mortality rates, breast



Emlőrák incidencia Magyarországon



5. ábra

Az emlőrák incidenciája a 25–X éves nők körében korcsoportok szerint Magyarországon (2011–2013, átlag)

Forrás: Nemzeti Rákregiszter, 2018

MAMMOGRÁFIÁS SZŰRÉS

**BIZTOSAN CSÖKKENTI A
HALÁLOZÁST**

**50-70 ÉVES KORÚ NŐK
esetében**

45-50 ÉVESEKBEN

valószínűleg csökkenti a halálozást

45 ÉVES KOR ALATT

az eddigi tapasztalatok szerint nem
csökkenti a halálozást

RIZIKÓFAKTOROK

Anya vagy lánytestvér emlőrákja
(ha premenopausában vagy bilateralisan)

Terhesség Ø , vagy 35. év után

Korai menarche (12 éves kor előtt)

Késői menopausa (50 éves kor után)

Fibrocystás betegség papillomatosissal v. atypusos
epitheliosissal

Endometrium carcinoma

Malignus tumor a másik emlőben

Fehér rassz

Postmenopausalis oestrogen therápia

Alkoholizmus

Established and probable risk factors for breast cancer

Factor	Relative risk	High risk group
Age	>10	Elderly
Geographical location	5	Developed country
Age at menarche	3	Menarche before age 11
Age at menopause	2	Menopause after age 54
Age at first full pregnancy	3	First child in early 40s
Family history	2 ≥	Breast cancer in first degree relative when young
Previous benign disease	4-5	Atypical hyperplasia
Cancer in other breast	>4	
Socioeconomic group	2	Groups I and II
Diet	1.5	High intake of saturated fat
Body weight:		
Premenopausal	0.7	Body mass index >35
Postmenopausal	2	Body mass index >35
Alcohol consumption	1.3	Excessive intake
Exposure to ionising radiation	3	Abnormal exposure in young females after age 10
Taking exogenous hormones:		
Oral contraceptives	1.24	Current use
Hormone replacement therapy	1.35	Use for 10 years
Diethylstilbestrol	2	Use during pregnancy

A **nem proliferatív hámelváltozások** nem okoznak rizikó emelkedést. Ezek az alábbiak:

fibrosis

cysták

enyhe hyperplasia

adenosis (nem sclerotizáló)

egyszerű fibroadenoma

phyllodes tumor (benignus)

soliter papilloma

zsírnecrosis

mastitis

duct ectasia

benignus tumorok (lipoma, hamartoma, hemangioma, neurofibroma)



**NINCS
FOKOZOTT
RIZIKÓ**

Az **atypia nélküli proliferatív hámelváltozások** igen enyhe rizikó emelkedést (1-2x) okoznak

szokványos ductalis hyperplasia (atypia nélkül)

complex fibroadenoma

sclerotizáló adenosis

papillomatosis

radial scar

és

flat epithelial atypia (FEA)



Minimális
rizikó
emelkedés

Az atypiával társuló proliferatív hámelváltozások
4-5 - szörös rizikóemelkedést okoznak

atypusos ductalis hyperplasia (ADH)
atypusos lobularis hyperplasia (ALH)



KIFEJEZETT
RIZIKÓ
EMELKEDÉS

Table 1. Clinical implication and immunophenotypical features of proliferative breast lesions

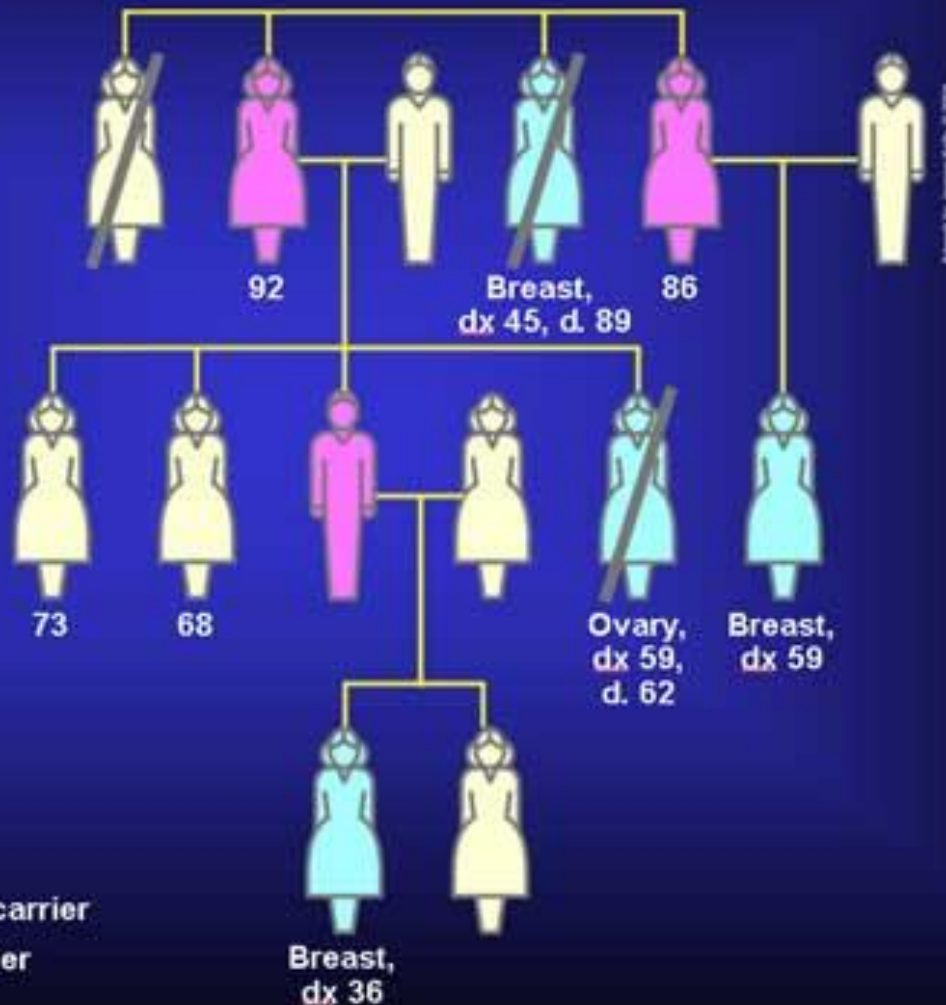
Lesion	Clinical implication	Relative risk of invasive breast cancer	ER	PR	HER2	HMWCK in epithelial layer	Reference
Apocrine metaplasia	Risk indicator precursor lesion*	NA	Negative	Negative	Negative	Negative	14,41,68,187
Sclerosing adenosis	Risk indicator	1.5–2	Mixed population	Mixed population	Negative	Negative	10,105
Radial scar	Risk indicator	1.5–2.2	Mixed population	Mixed population	Negative	Negative	62,63,188,189
CCL/FEA†	Risk indicator precursor lesion	1.5–2	Positive	Positive	Negative	Negative	94,95,186,190
HUT	Risk indicator precursor lesion*	1.2–2	Mixed population	Mixed population	Negative	Mixed population	10,80,105,190
ADH	Risk indicator precursor lesion	3–5	Positive	Positive	Negative	Negative	10,105,190
ALH	Risk indicator precursor lesion	4–5	Positive	Positive	Negative	Negative	12,105,190,191
LCIS	Risk indicator precursor lesion	8–10	Positive	Positive	Negative	Negative or positive	12,105,140
PLCIS	Risk indicator precursor lesion	NA	Low to negative expression	Low to negative expression	Negative or positive	Negative or positive	140,141
Low-grade DCIS	Risk indicator precursor lesion	8–10‡	Positive	Positive	Negative	Negative	89,105,119
High-grade DCIS	Risk indicator precursor lesion	8–10‡	Positive or negative	Positive or negative	Positive or negative	Positive or negative	89,105,119
Microglandular adenosis	Risk indicator precursor lesion*	NA	Negative	Negative	Negative	Positive	42,133

Családi anamnézis	Relatív Rizikó (RR)
Nincs a családban emlőrák	1.0
Egy közeli rokon emlőrákkal	1.5-2.0
Két közeli rokon emlőrákkal	5.0
Közeli rokon kétoldali posztmenopauzális emlőrákkal	10
Közeli rokon kétoldali premenopauzális emlőrákkal	20

Familiaris emlőrák

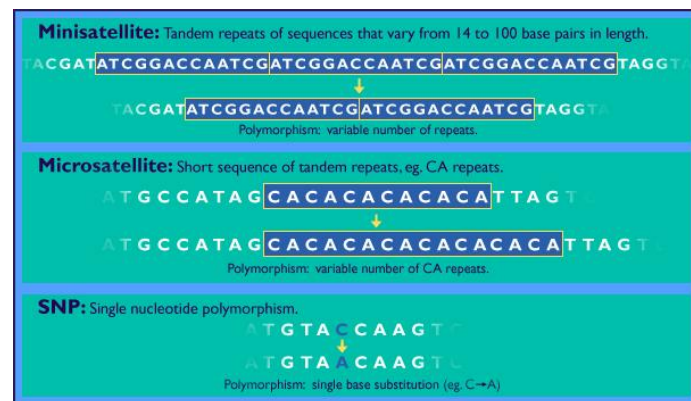
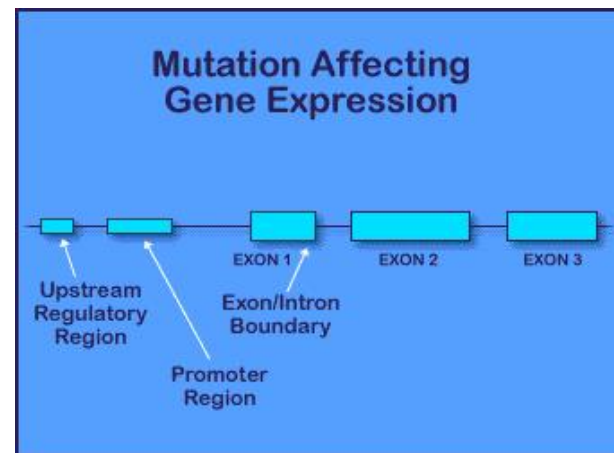
- **Emlő/petefészek rák szindróma** **BRCA1**
 - 17q
 - domináns öröklődés
- **Emlőrák** **BRCA2**
 - 13q
 - domináns öröklődés
- **Cowden szindróma** **PTEN gén**
 - 10q
 - domináns öröklődés
- **Li-Fraumeni szindróma** **TP53**
 - 17p13
 - domináns öröklődés

Example: *BRCA1*-Linked Hereditary Breast and Ovarian Cancer



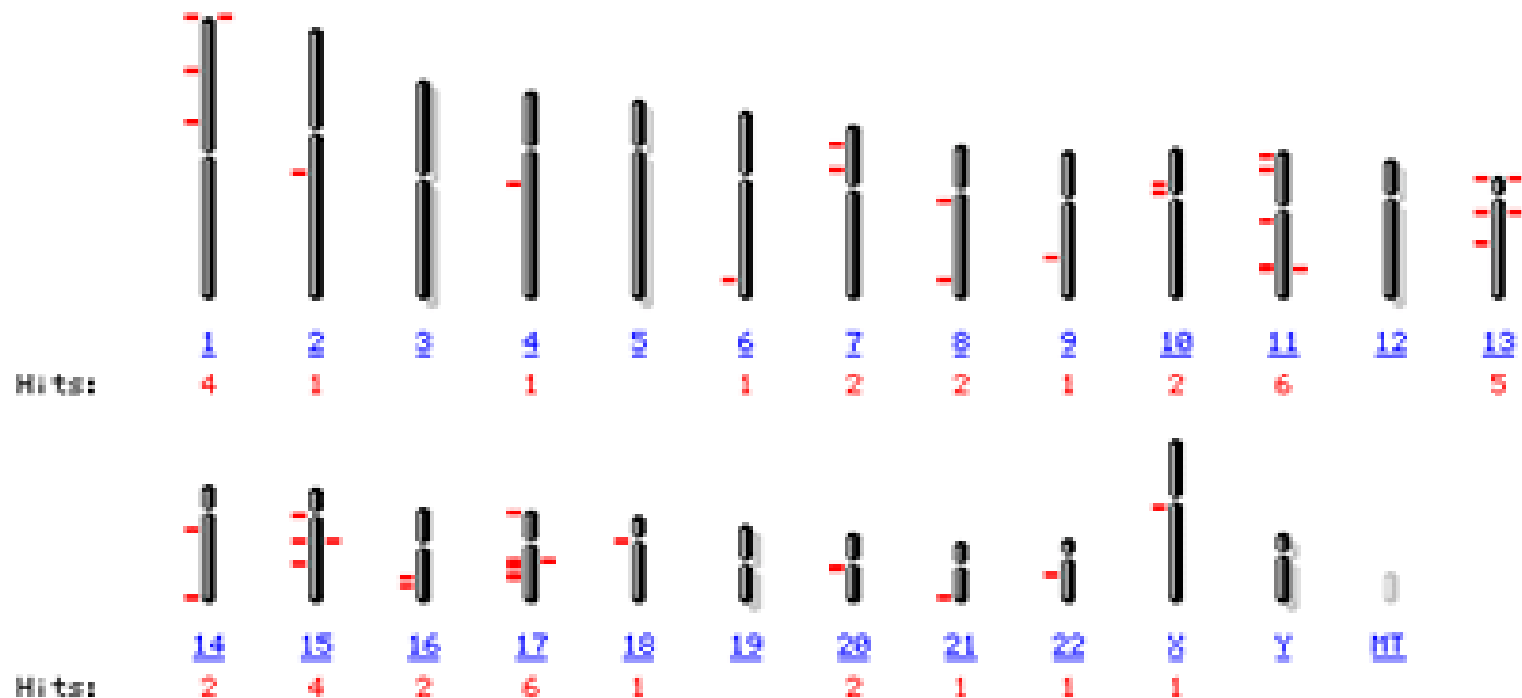
Emlőrák kialakulásában szerepet játszó génhibák és mechanizmusok

- Génhibák: Számos génről feltételezik, hogy hibáik szerepet játszhatnak az emlőrák kialakulásában
- Mechanizmusok
 - Allélvesztés (LOH)
 - Amplifikációk
 - Mikroszatellita instabilitás
 - Mutáció
 - Transzlokáció
 - Epigenetikus változások
 - Chromoszomális instabilitás



Emlőrákban érintett kromoszómák

Homo sapiens genome view build 32



Emlőcarcinoma

In situ

DUCTALIS, DCIS

- *Classificatio No1*
mag grade 1,2,3
- *Classificatio No2*
Van Nuys 1,2,3
- *Classificatio No3*
comedo, cribriform,
solid, micropapillaris etc

LOBULARIS, LCIS

Emlőbimbó PAGET kór

Invasiv

Invasiv emlőcarcinoma NST

NST
medullaris mintázatú
neuroendocrin differenciációval
lipid-gazdag
glikogén gazdag, stb.

Invasiv lobularis carcinoma

klasszikus/solid/alveolaris/pleiomorph

„Speciális” típusok

tubularis/cribriform
mucinous
micropapillaris
apocrin differenciációval
metaplasticus

Ritka- és nyálmirigy típusú

acinussejtes
adenoid cysticus
secretorios
mucoepidermoid

Neuroendocrin neoplasiák

neuroendocrin tumor
neuroendocrin carcinoma

ÚJ osztályozás

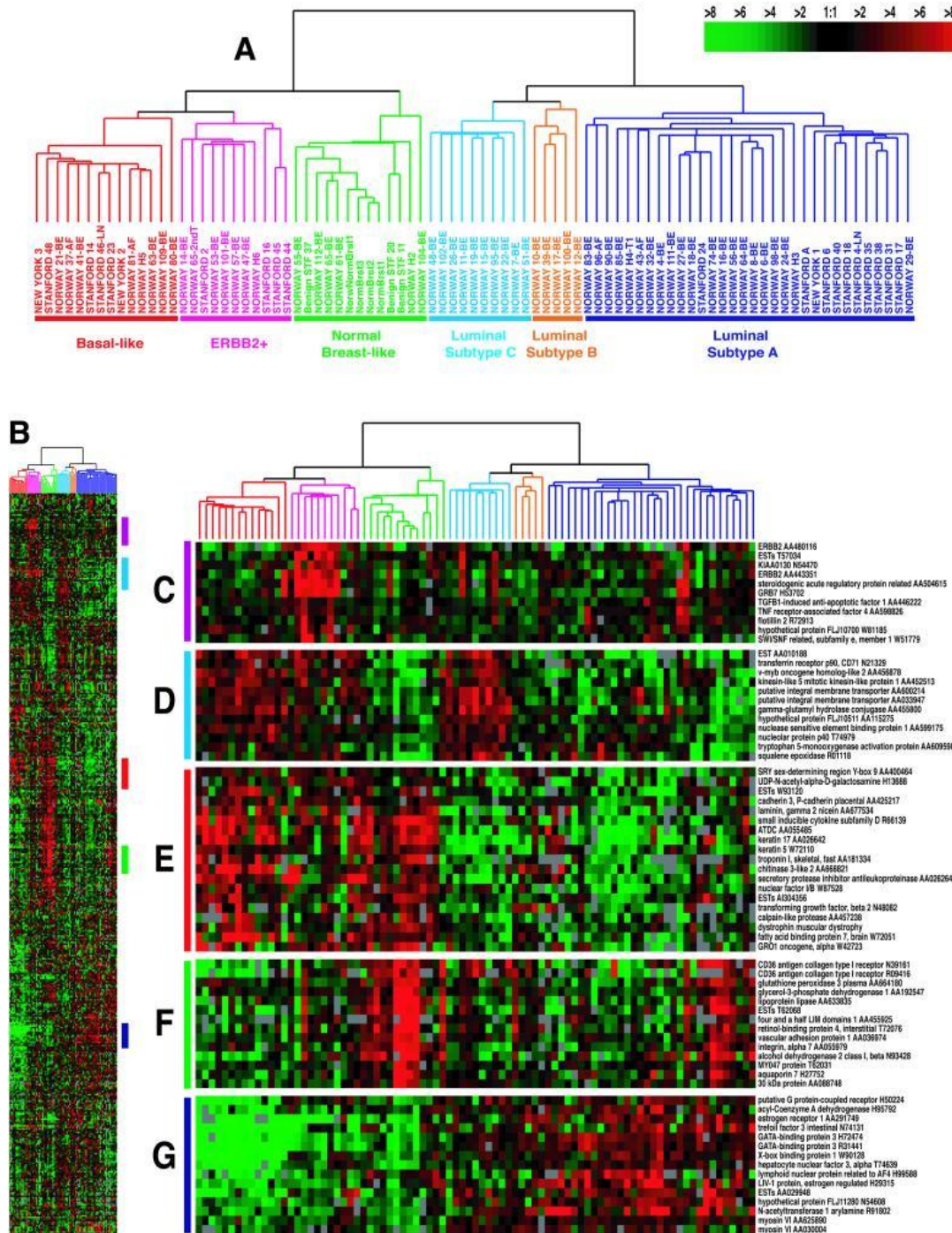
- GENETIKAI profil alapján
 - **Ösztrogén receptor pozitív**
 - Luminal type A
 - Luminal type B
 - **Ösztrogén receptor negatív**
 - Normal breast-like
 - Her 2 positive
 - Basal-like („tripla negatív“)

Perou et al 2000, van't Veer 2002

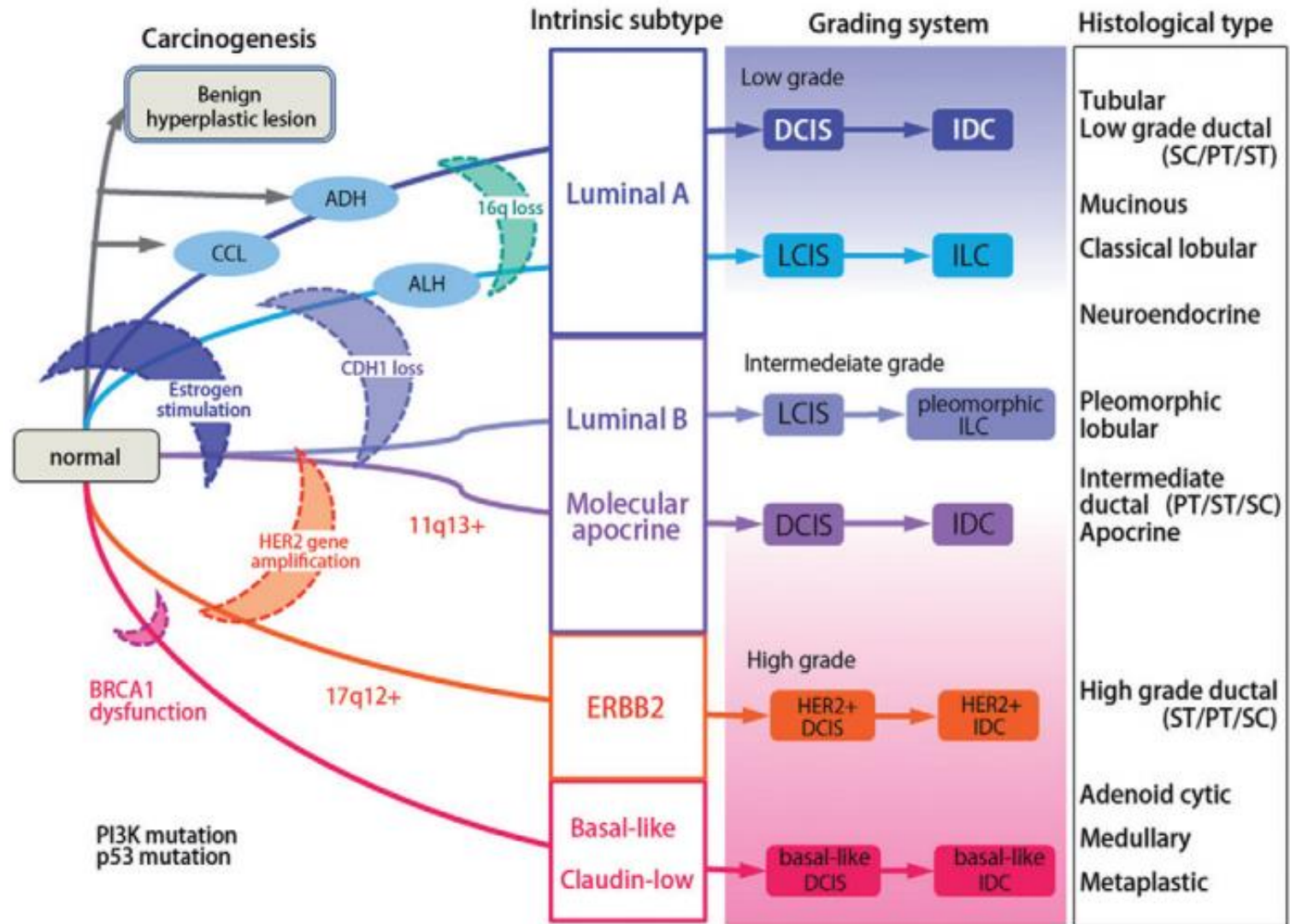
- Claudin-low
- Molecular apocrin

Herschkowitz et al 2007

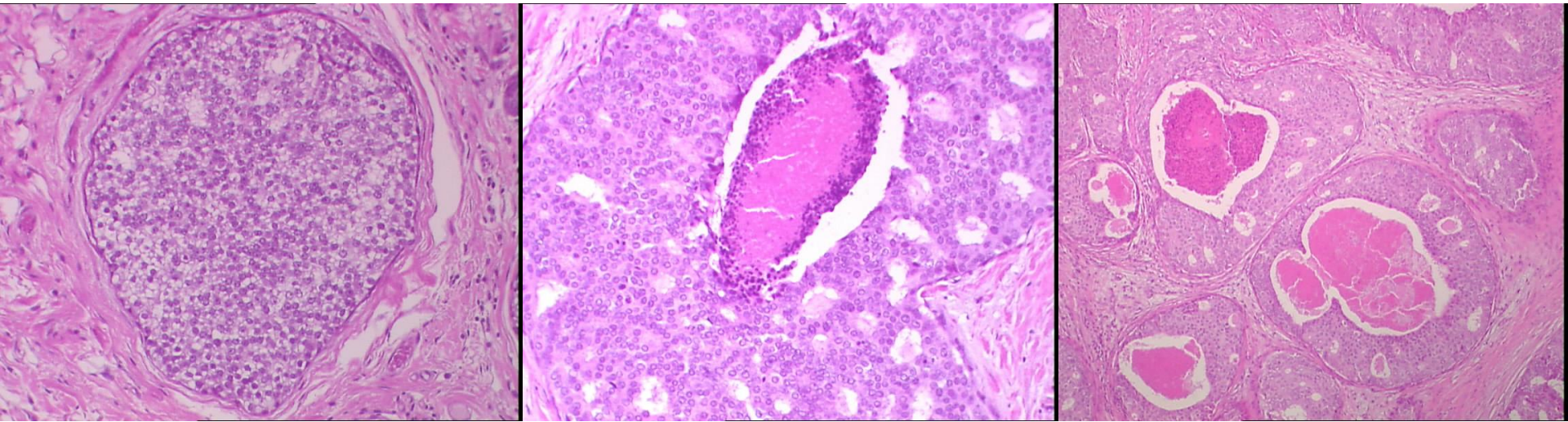
Weigelt et al 2008



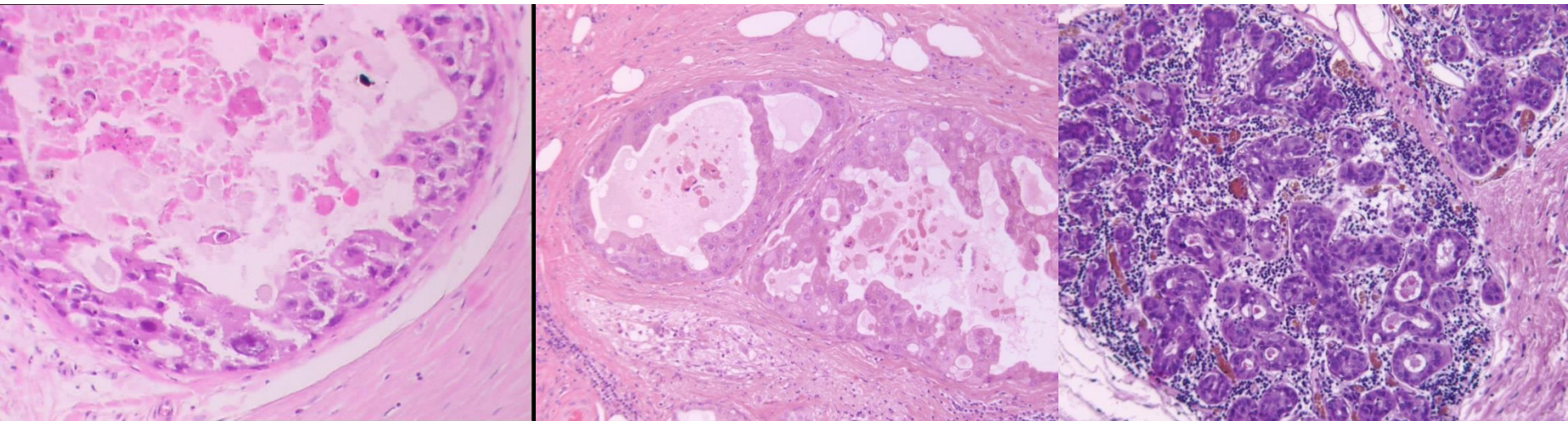
Luminal A
Luminal B
Basal-like
Her2
Normal-like



A DCIS heterogén tumorcsoport önmagában is

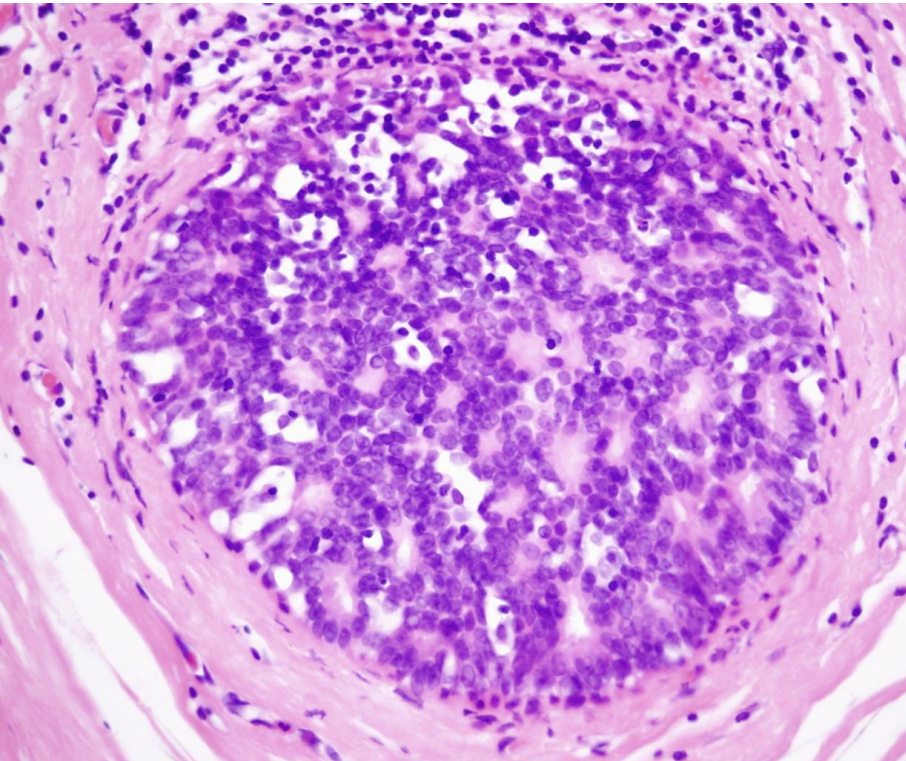


'DCIS is a small but critical part of the breast cancer puzzle' M.Silverstein

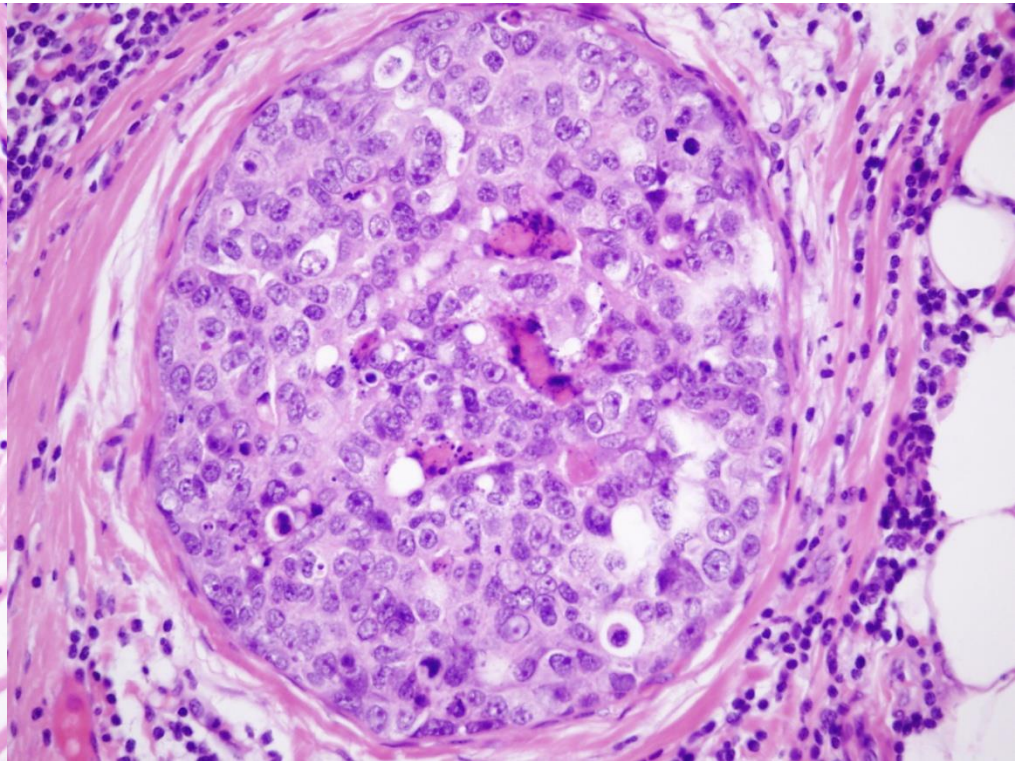


DCIS is not an obligate precursor of invasive breast carcinoma
Farabegoli et al J Pathol 196:280-286, 2002

Mag grade: alacsony, közepes, magas

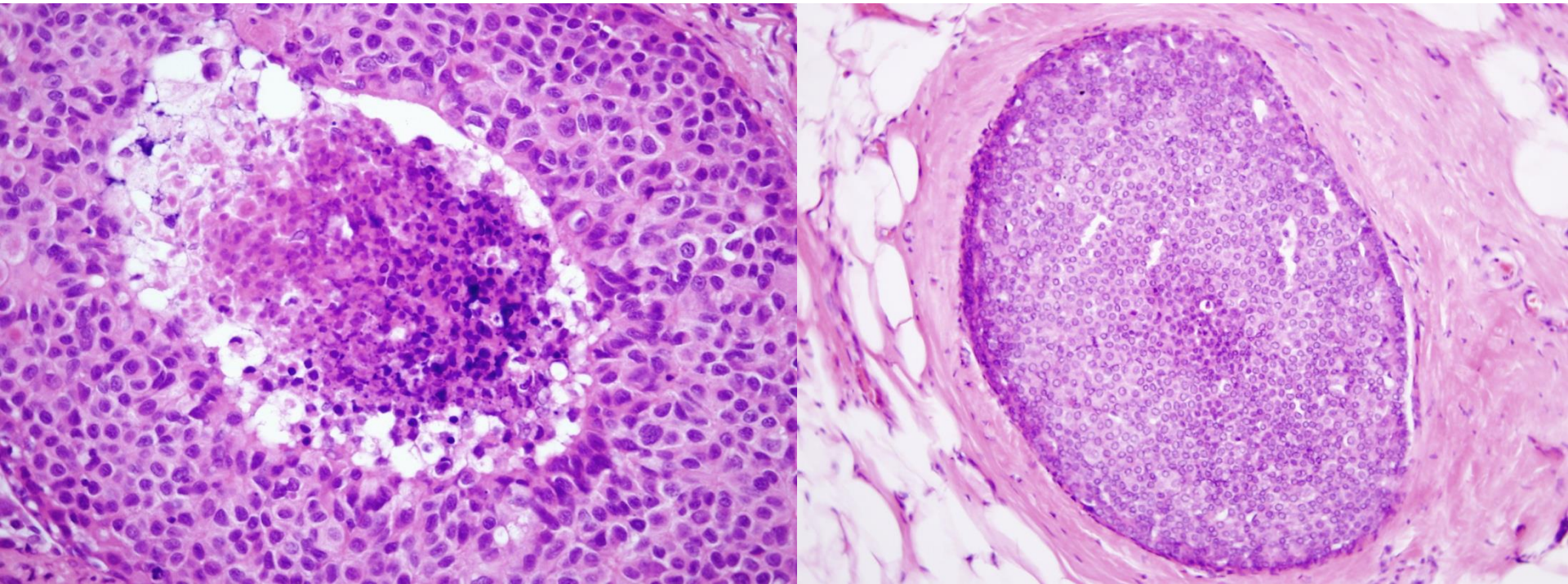


Alacsony mag grade



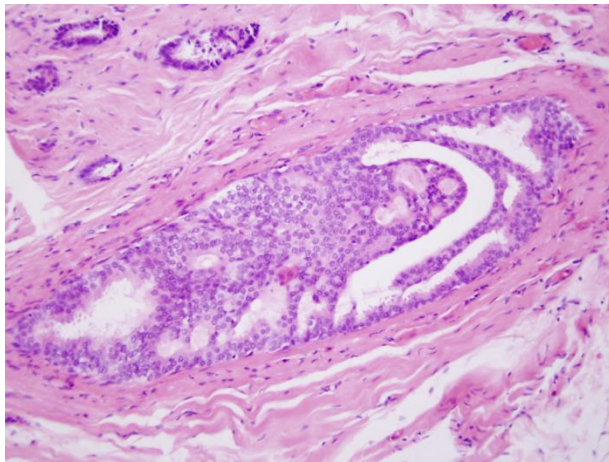
Magas mag grade

Comedo necrosis: van vagy nincs

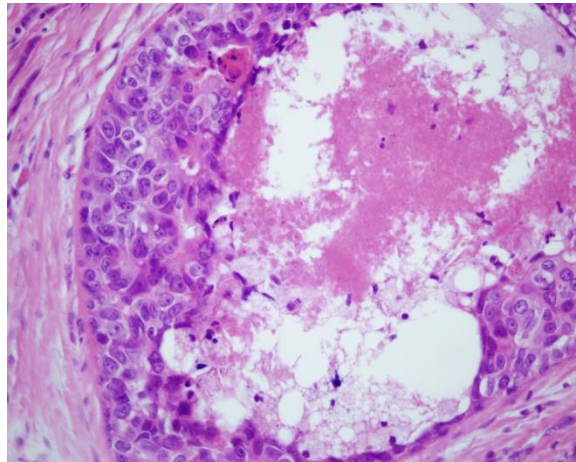


DCIS grade - Van Nuys

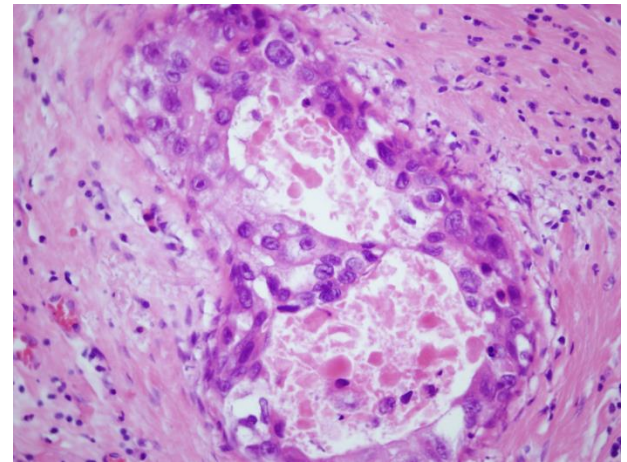
- Non-high grade magok, necrosis nincs
- Non-high grade magok, necrosis van
- High grade magok, necrosis van vagy nincs



VN1



VN2

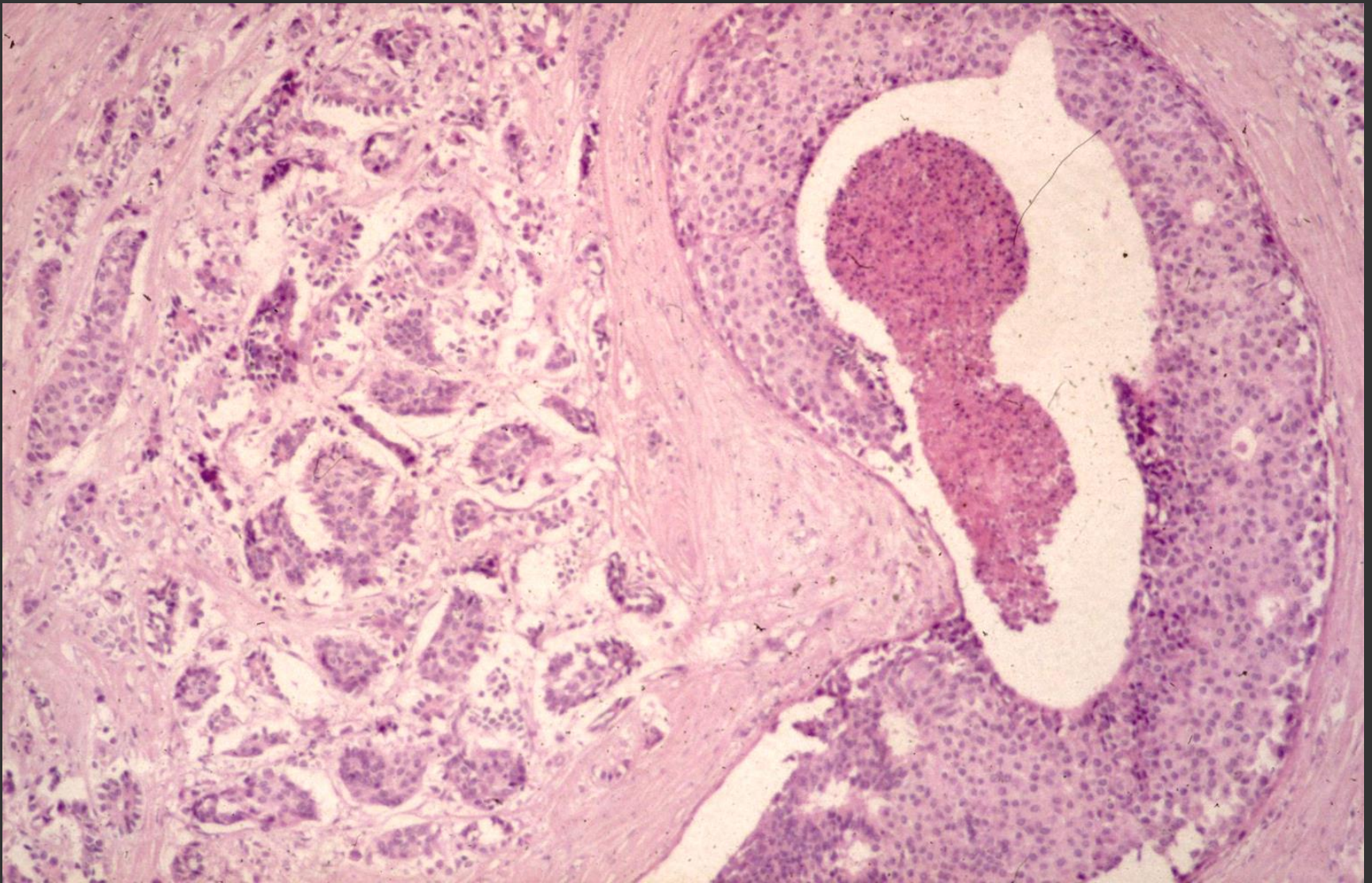


VN3

Van Nuys Prognosztikus Index

- Mag grade + necrosis (VN grade)
- Méret
- Távolság a sebészi széltől
- Életkor

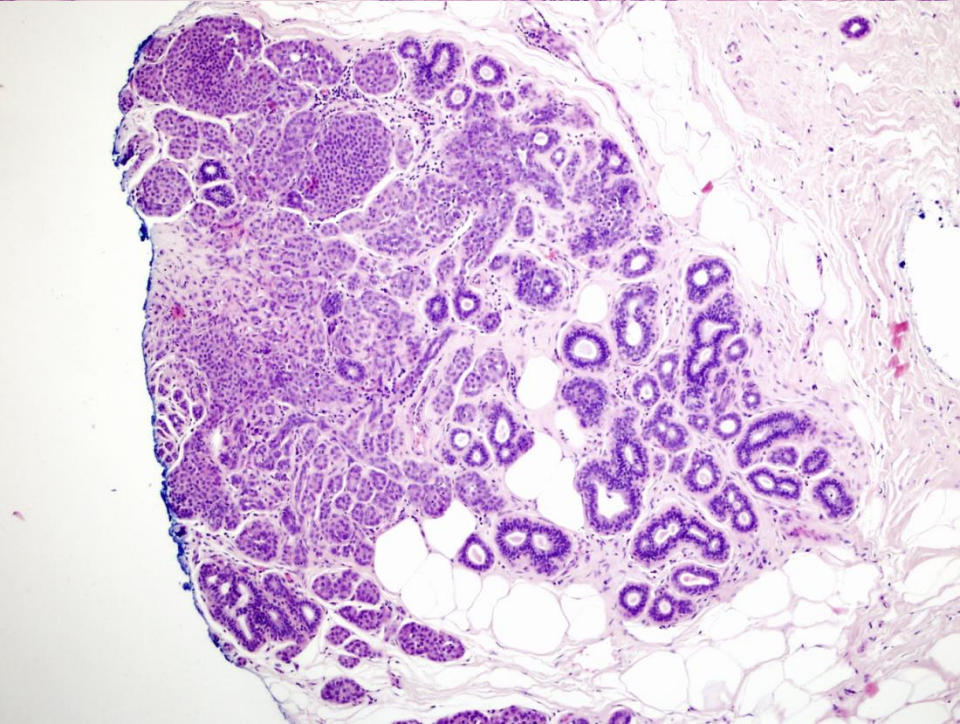
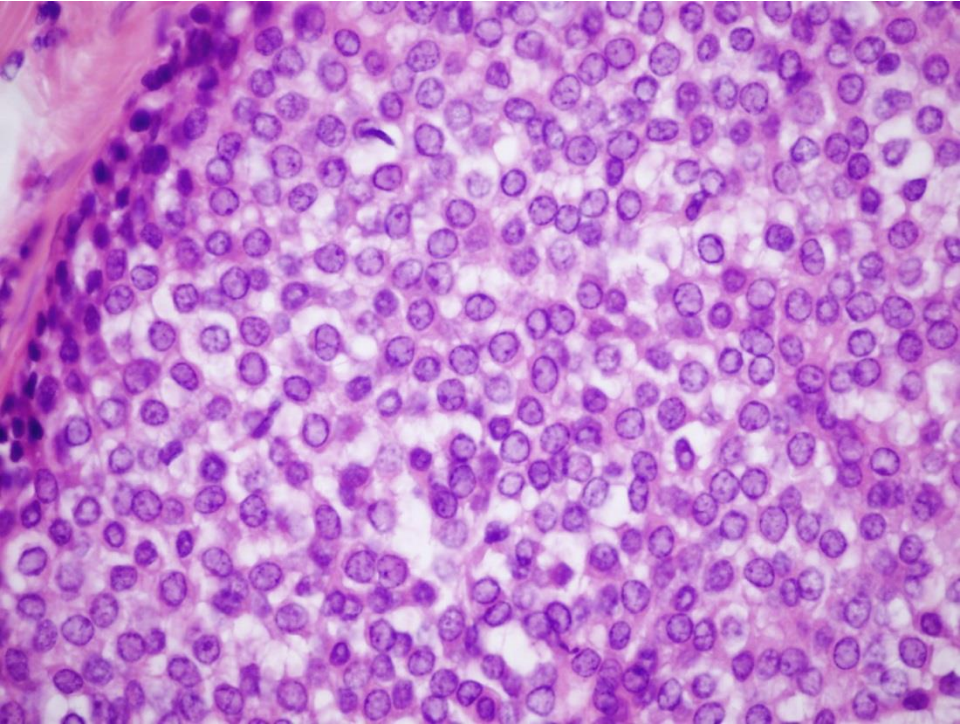
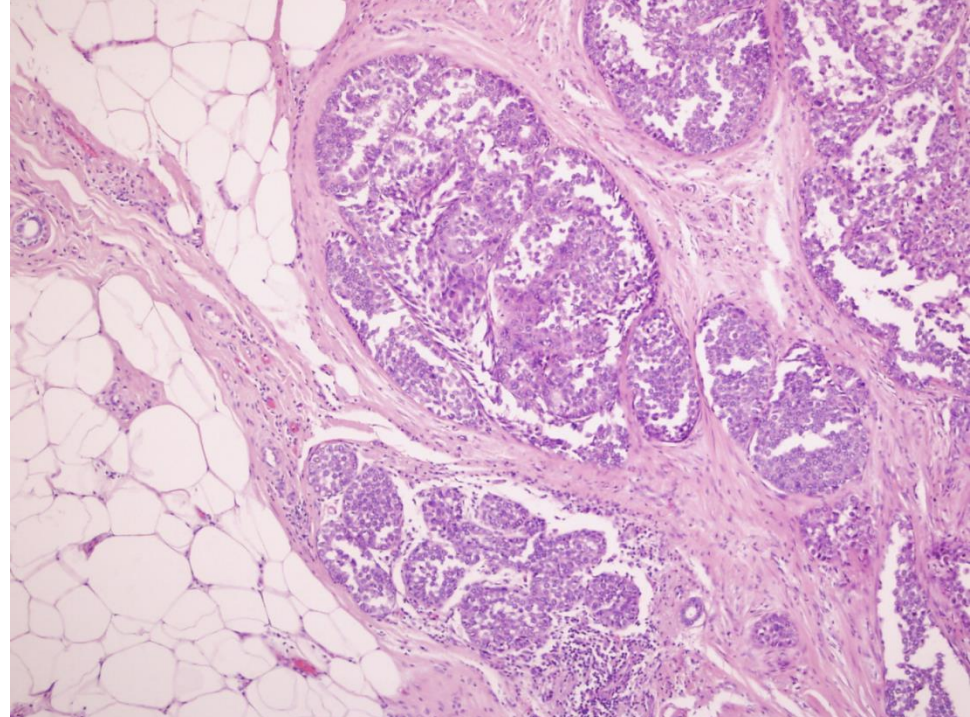
VN grade	1	2	3
Méret	16mm	16-40mm	>40mm
Távolság	>10mm	1-10mm	<1mm
Életkor	>60	40-60	<40
SCORE	1	2	3

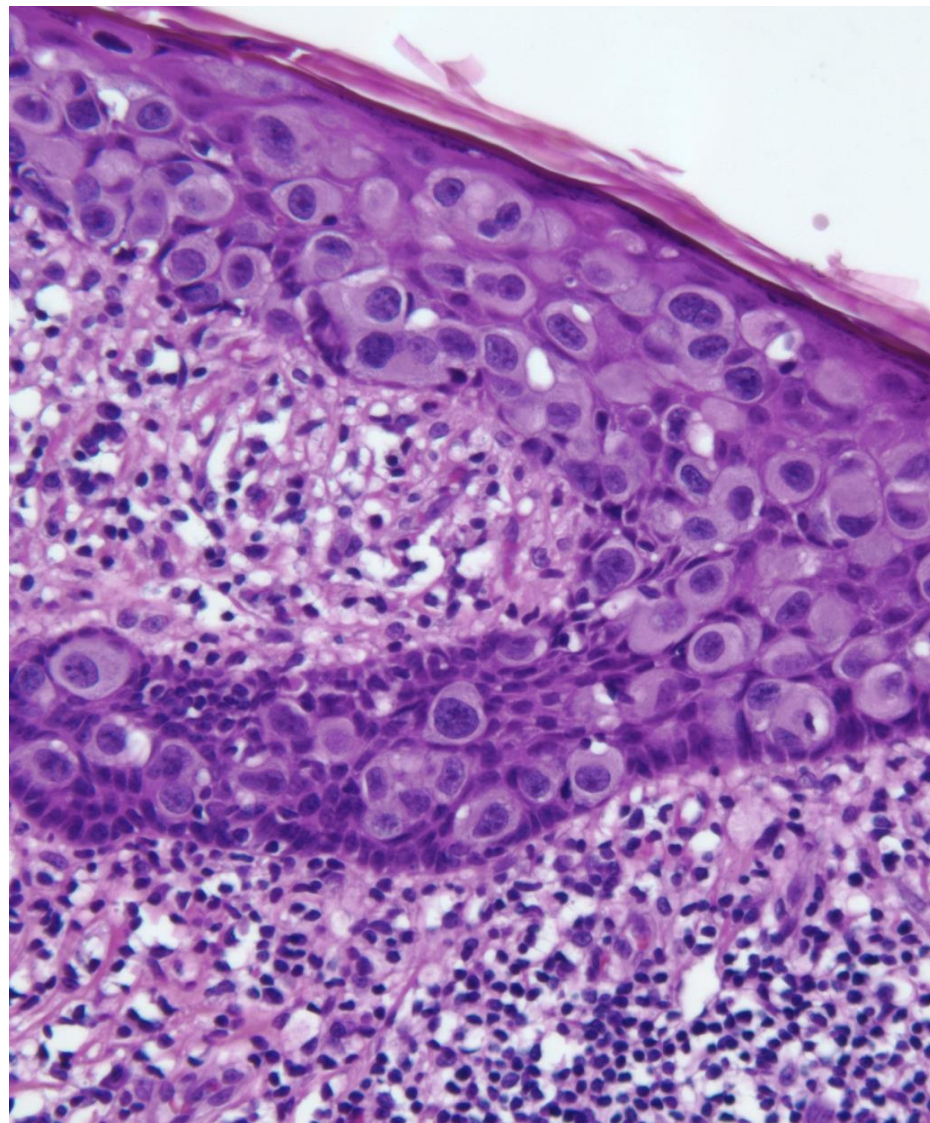
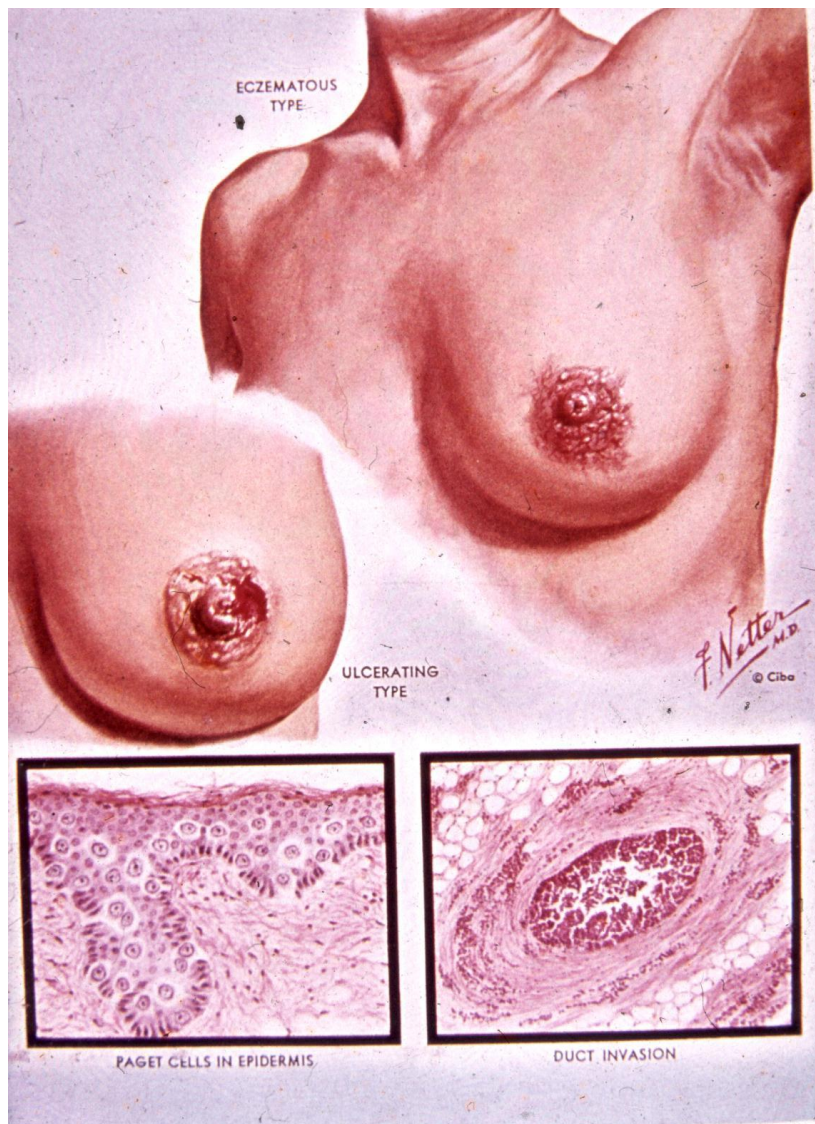


Mikroinvazív DCIS

In situ lobularis carcinoma

WHO: lobularis
intraepithelialis neoplasia
LN1 - 3. LN3=LCIS





Emlőbimbó Paget kór



Invazív

Invasiv emlőcarcinoma NST

NST
medullaris mintázatú
neuroendocrin
differentiációval
lipid-gazdag
glikogén gazdag, stb.

Invasiv lobularis carcinoma

klasszikus/solid/alveolaris/pleio
morph

„Speciális” típusok

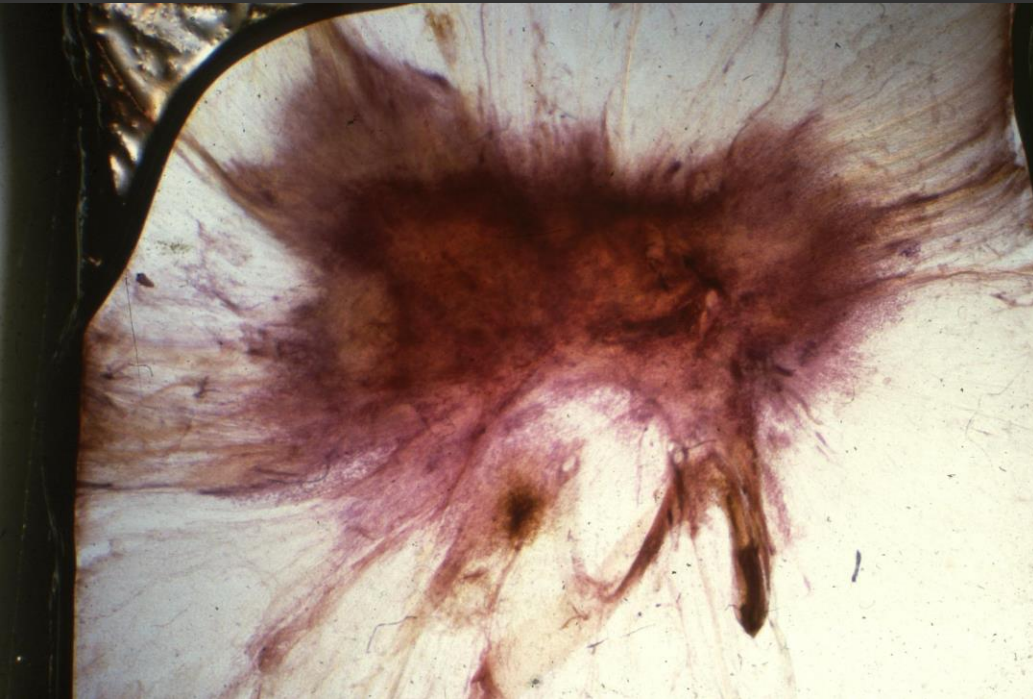
tubularis/cribriform
mucinous
micropapillaris
apocrin differentiációval
metaplasticus

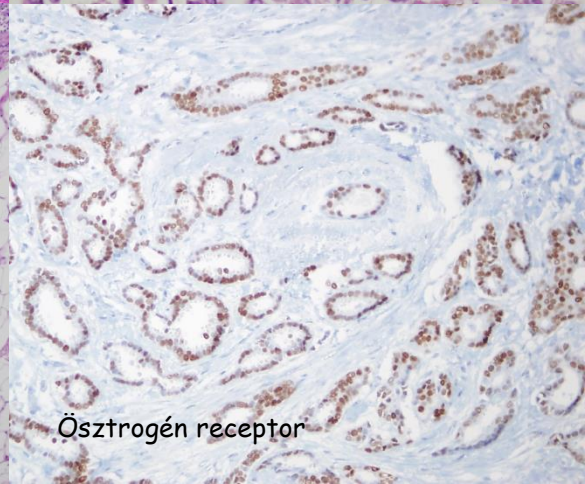
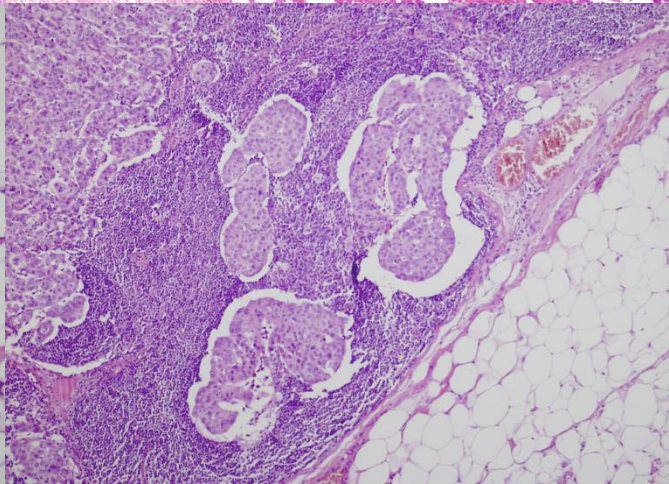
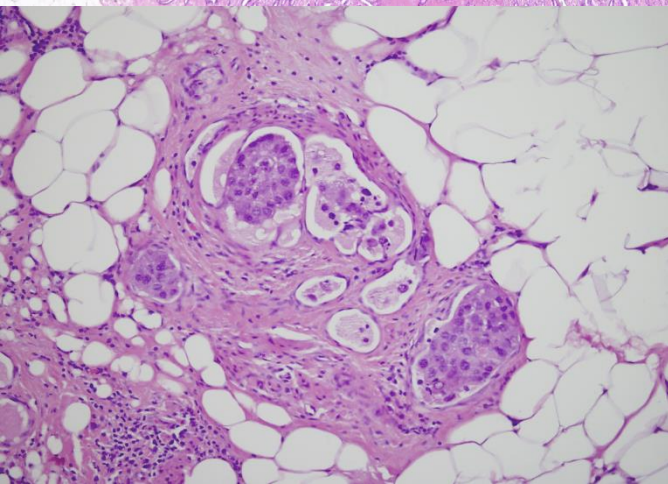
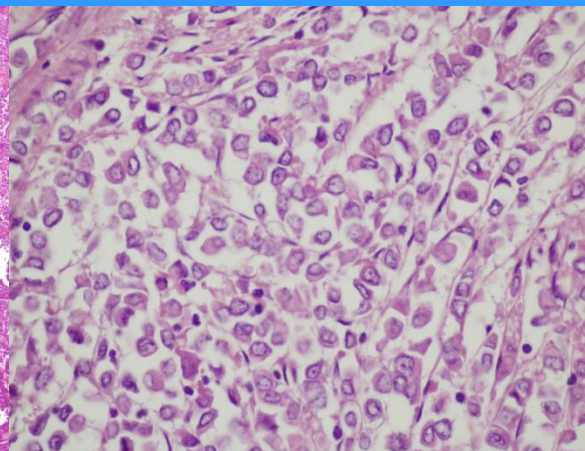
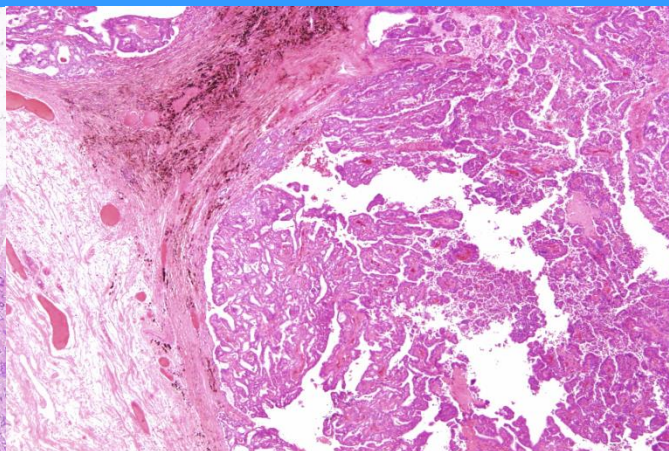
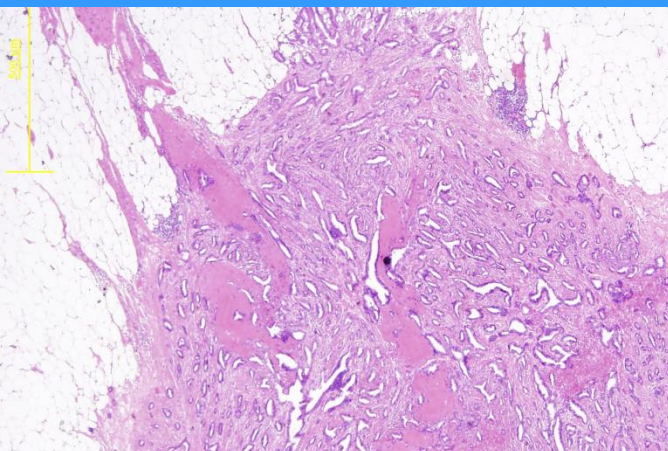
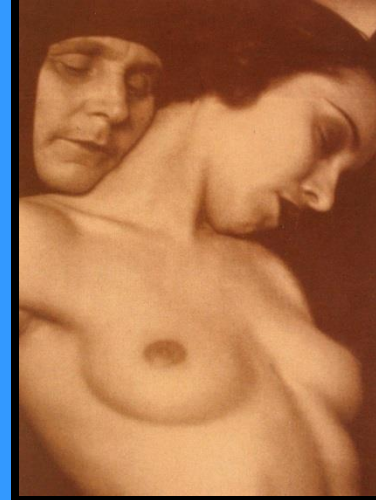
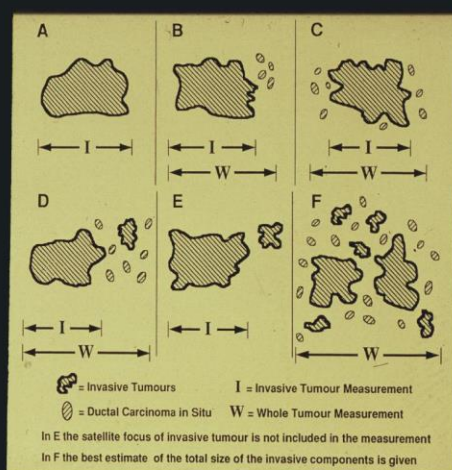
Ritka- és nyálmirigy típusú

acinussejtes
adenoid cysticus
secretorios
mucoepidermoid

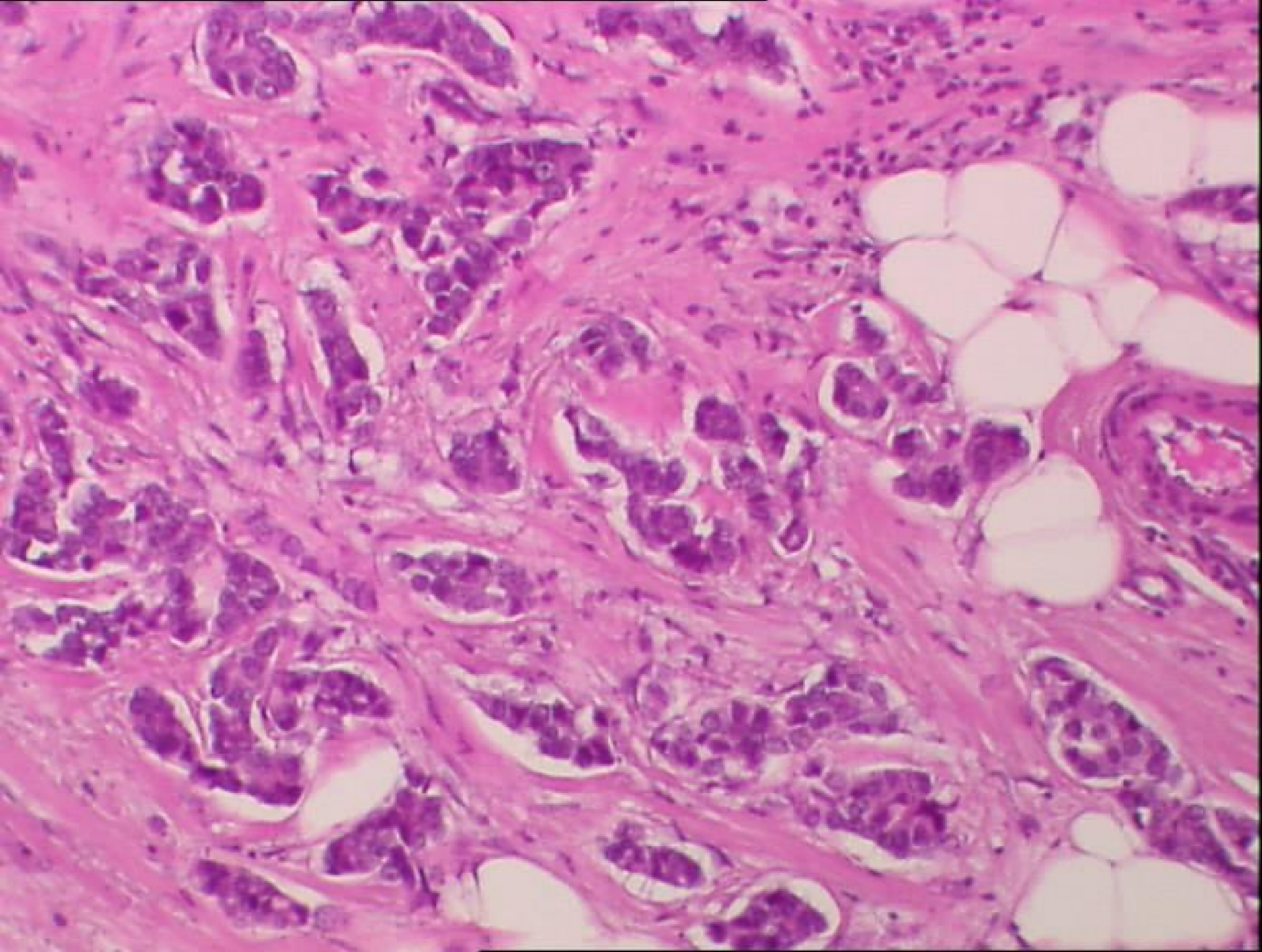
Neuroendocrin neoplasiák

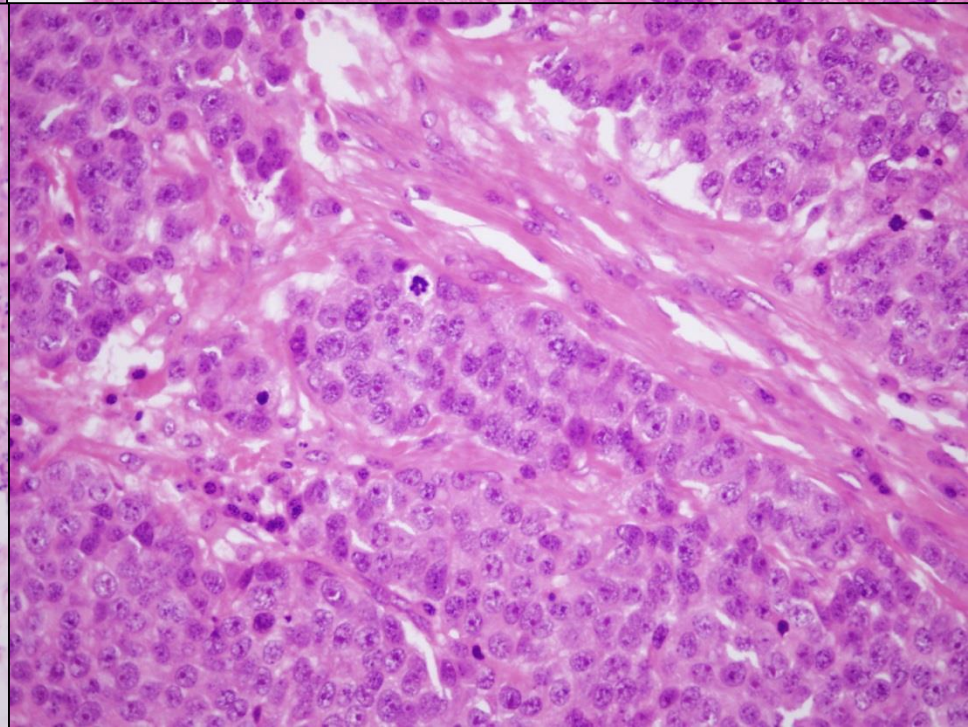
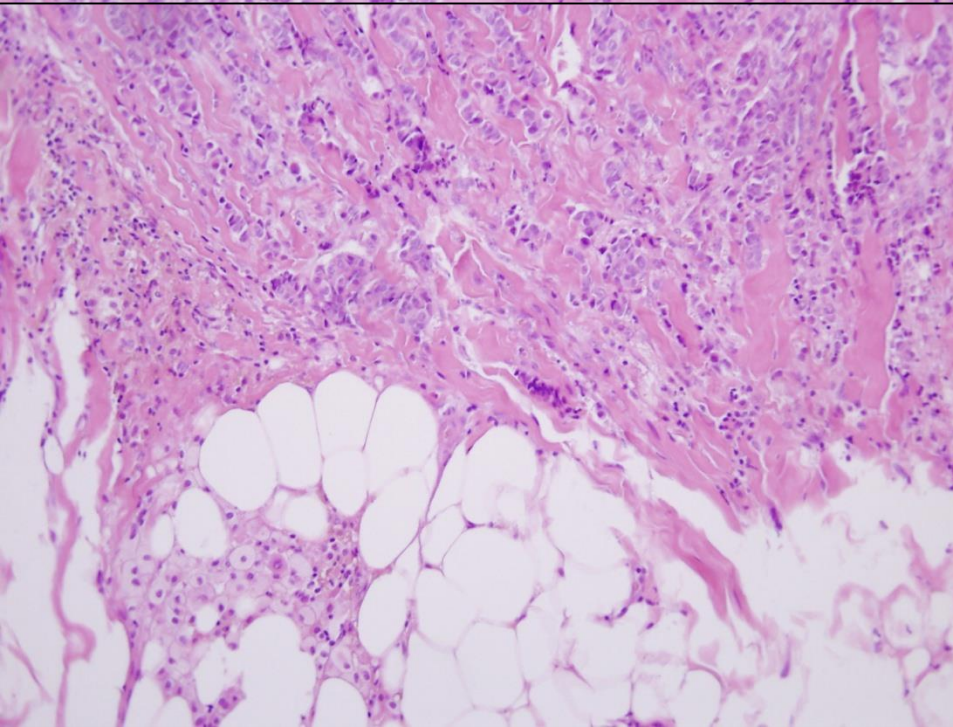
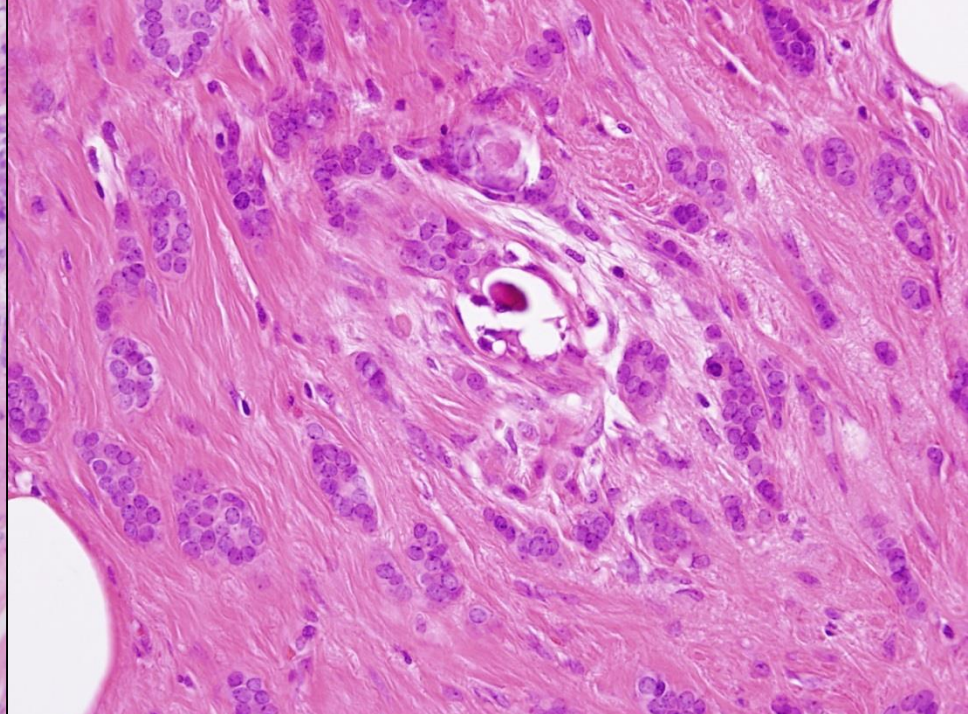
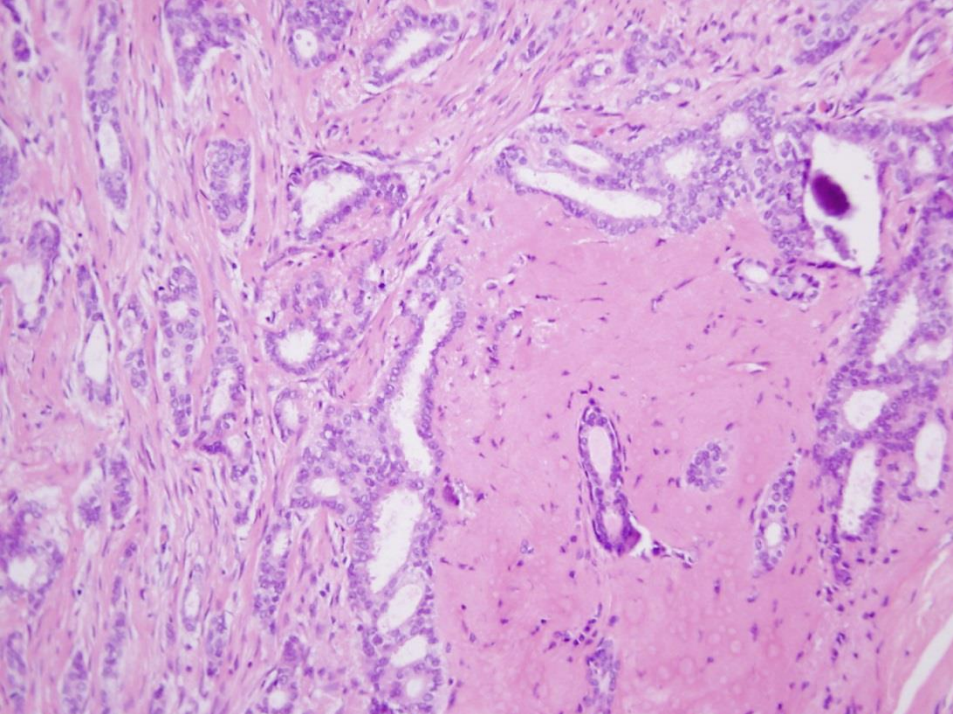
neuroendocrin tumor
neuroendocrin carcinoma





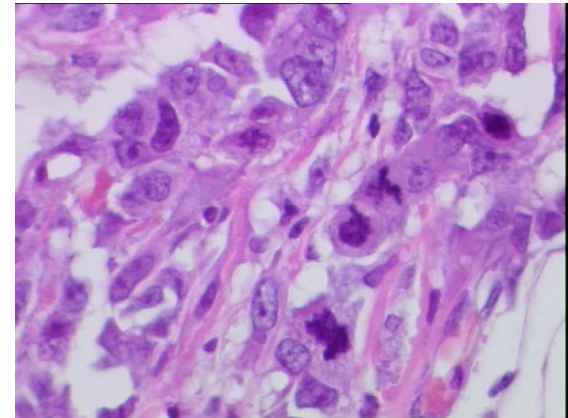
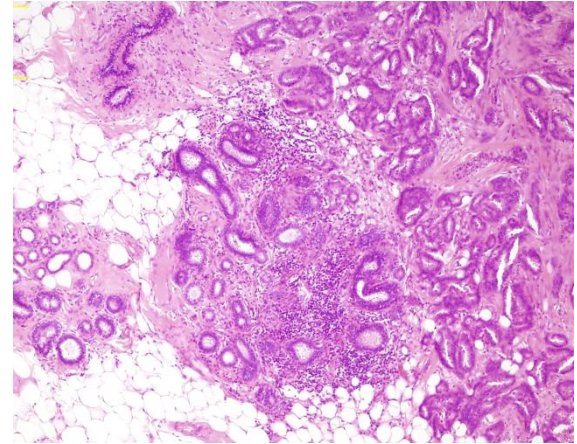
Ösztrogén receptor





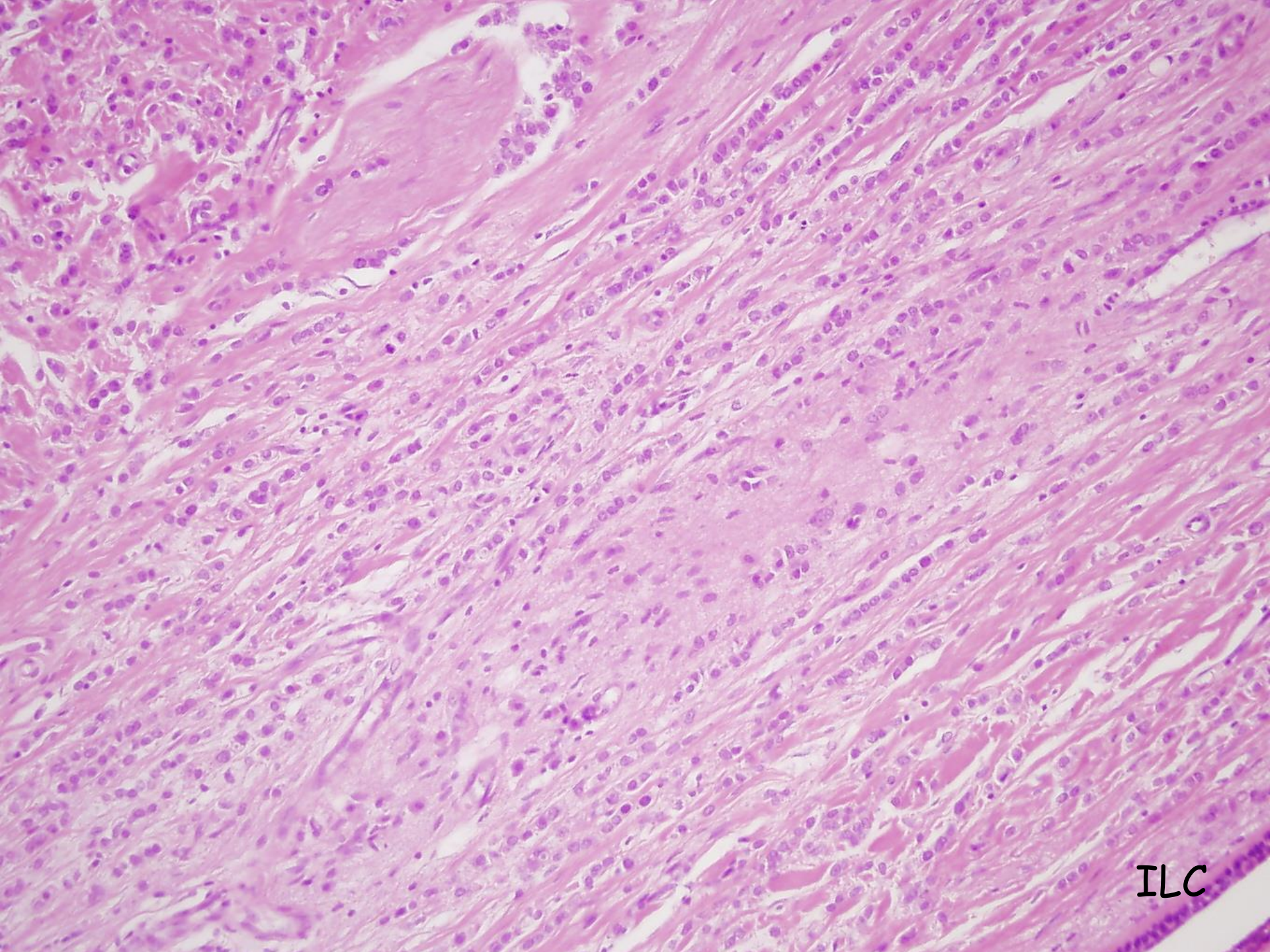
Tumor grade: invazív tumorok

- Nottingham grade (Elston-Ellis)
 - Tubulusképzés
 - 0-10% 10-70% >70%
 - Polymorphizmus
 - enyhe közepes kifejezett
 - Mitózisok száma
 - 10 nagy nagyítású látóterenként

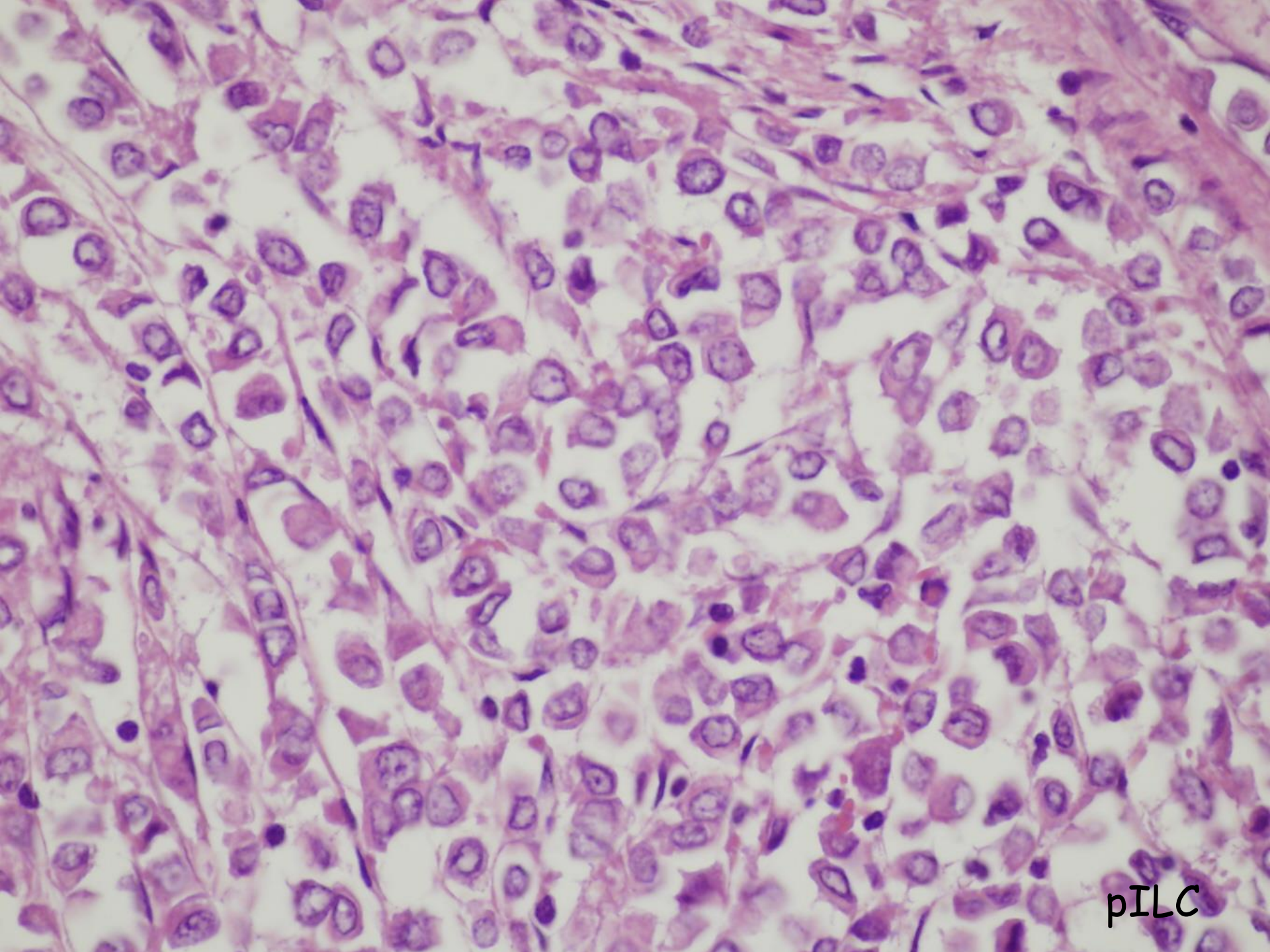


Az ún. „GENOMIKAI GRADE”

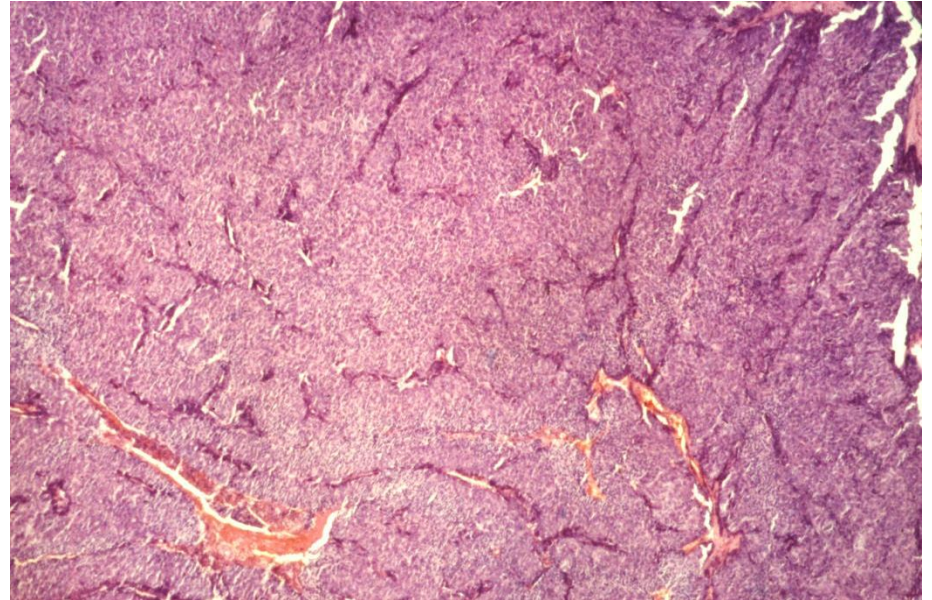
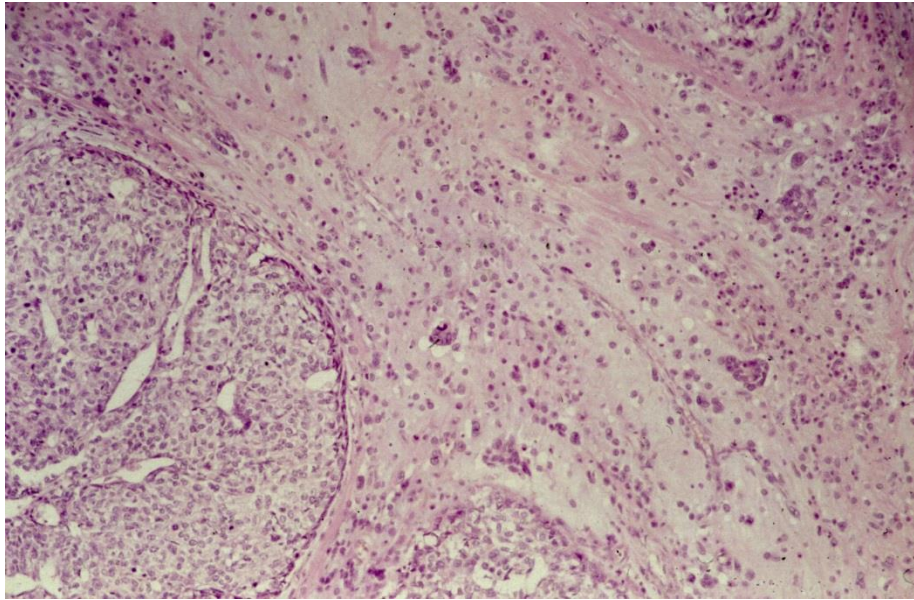
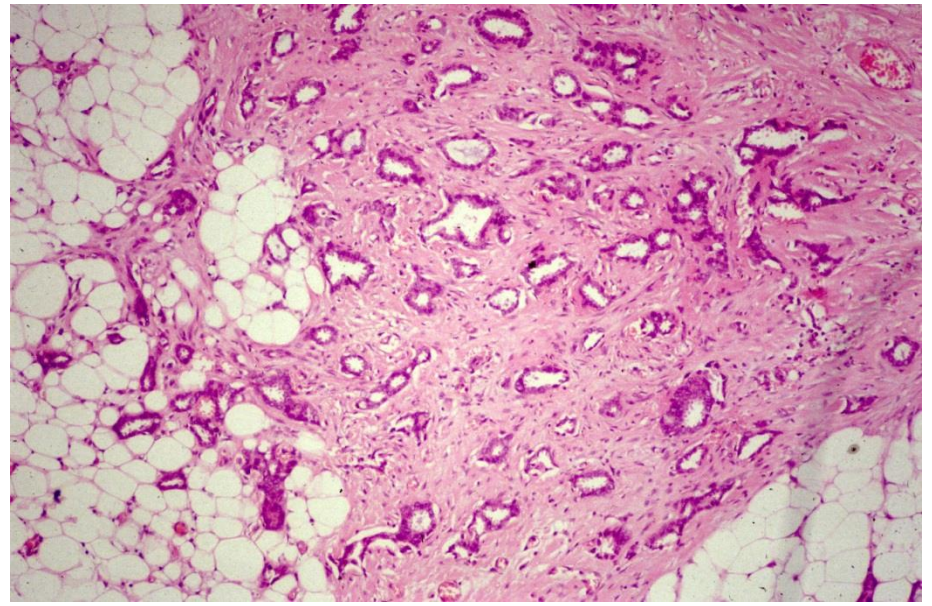
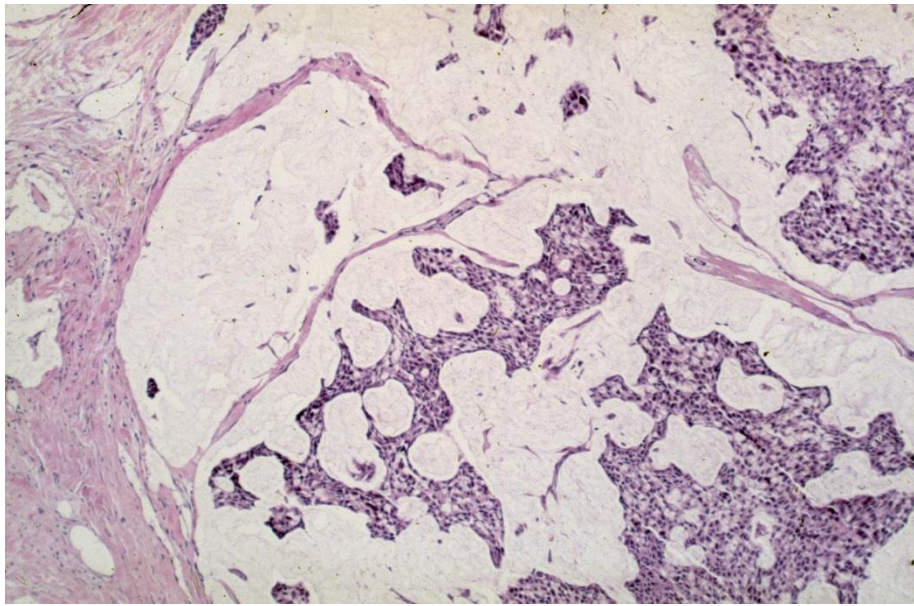
- A grade 1 és grade 3 tumorok jellegzetes genetikai arculattal (ujjlenyomat, profil) rendelkeznek
- Úgy tűnik, hogy a Histológiai Grade 2 tumorokat GENETIKAI alapon be lehet sorolni két jól elkülönülő csoportba:
az egyik a grade 1,
a másik a grade 3 tumorokkal
identikus

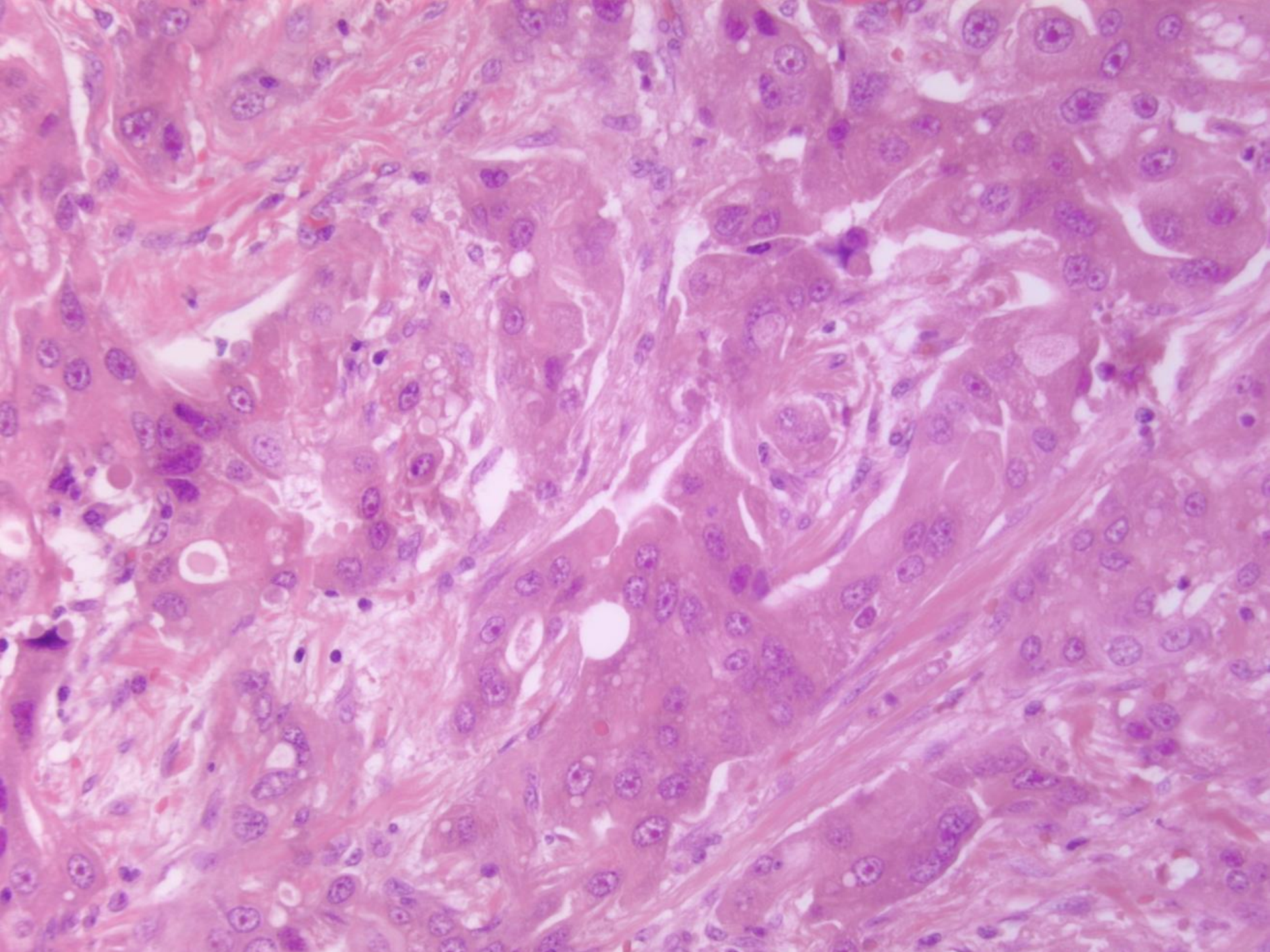


ILC



pILC





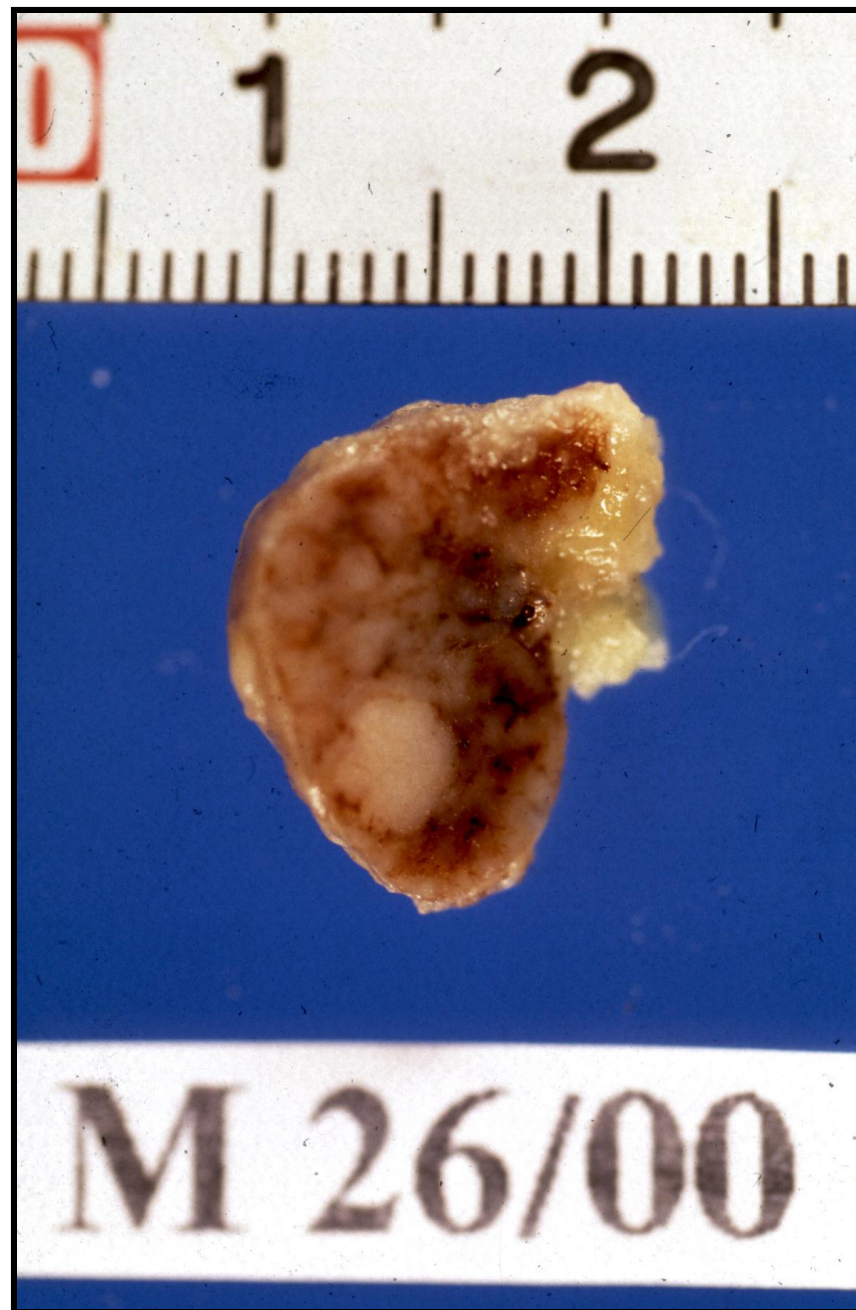
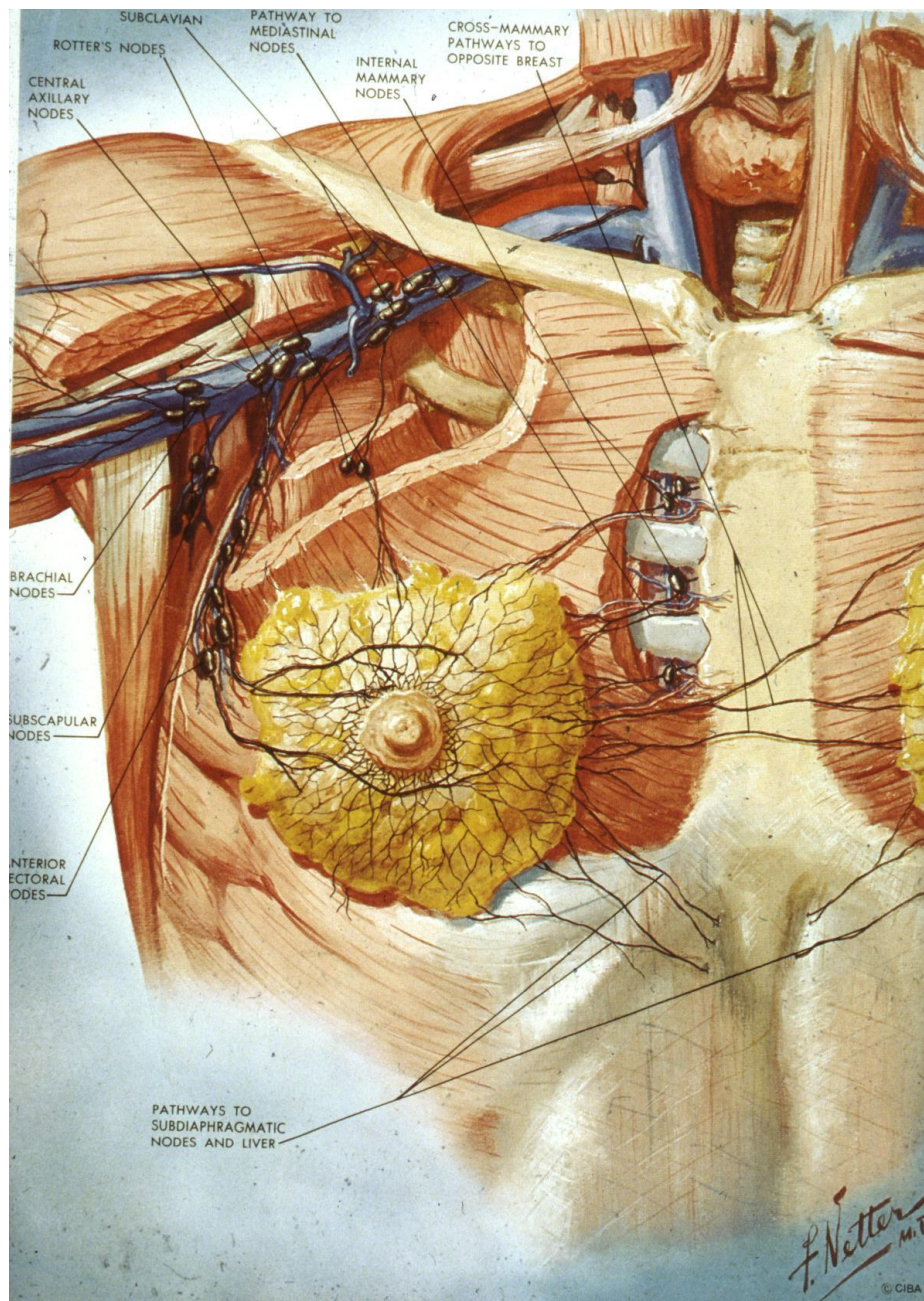
Inflammatorikus emlőrák

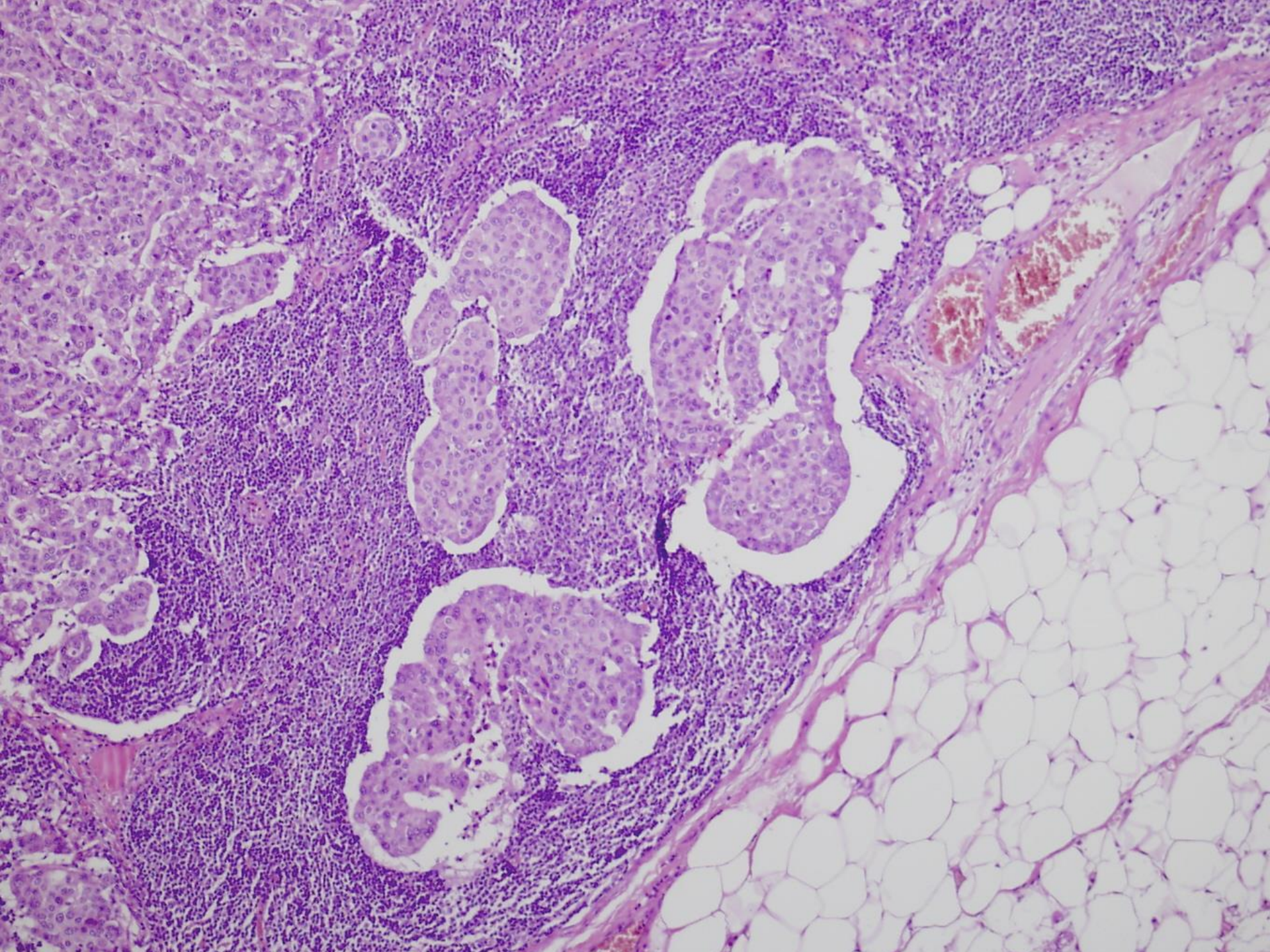
Recidív emlőrák



TNM: pT kategóriák

- Tis In situ ductalis vagy lobularis cc
- T1mi Microinvazív (<1mm) carcinoma
- T1a >1-5mm invazív carcinoma
- T1b >5-10mm invazív carcinoma
- T1c >10-20mm invazív carcinoma
- T2 >20-50mm invazív carcinoma
- T3 >50mm invazív carcinoma
- T4 Bőr, vagy mellkasfal infiltráció, mastitis carcinomatosa carcinomatosa





TNM: pN kategóriák

- pNx
- pN0 (i+)
- pN1mi
- pN1a 1-3 ax, mam neg
- pN2a 4-9 ax, mam neg
- pN3a ≥ 10 ax, mam neg
vagy infraclav met
- pN1b ax neg, mikr mam+
- pN1c 1-3 ax, mikr mam+
- pN2b ax neg, klin mam+
- pN3b 1-3 ax, klin mam+
vagy 4 -9 ax, mikr/klin mam+
- vagy ≥ 10 ax, mikr/klin mam+
- pN3c supraclav nyacs. +

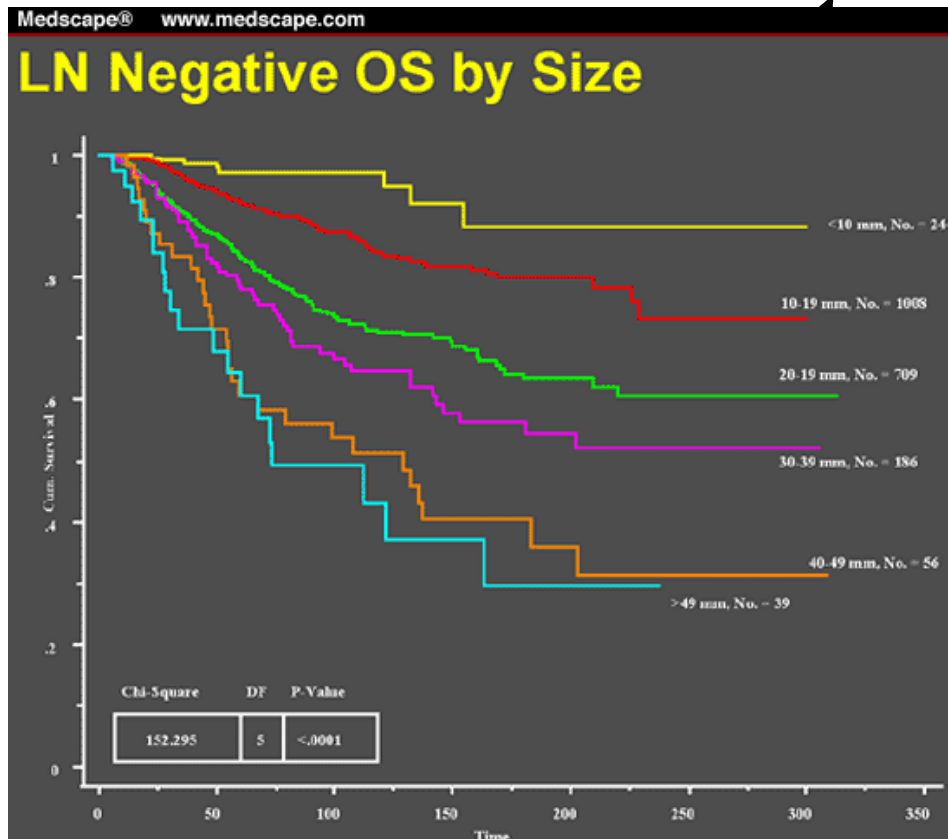
Sentinel nyirokcsomók

- **Axillaris** >> arteria mammaria interna menti >> intramammaris >> infraclavicularis >>> supraclavicularis
- A legutóbbi ajánlások szerint pN1mi(sn) és pN1a (<3 áttétes nyirokcsomó) esetén az **ABD elhagyható** emlőmegtartó műtét és postoperatív besugárzás mellett

Hagyományos prognosztikus faktorok

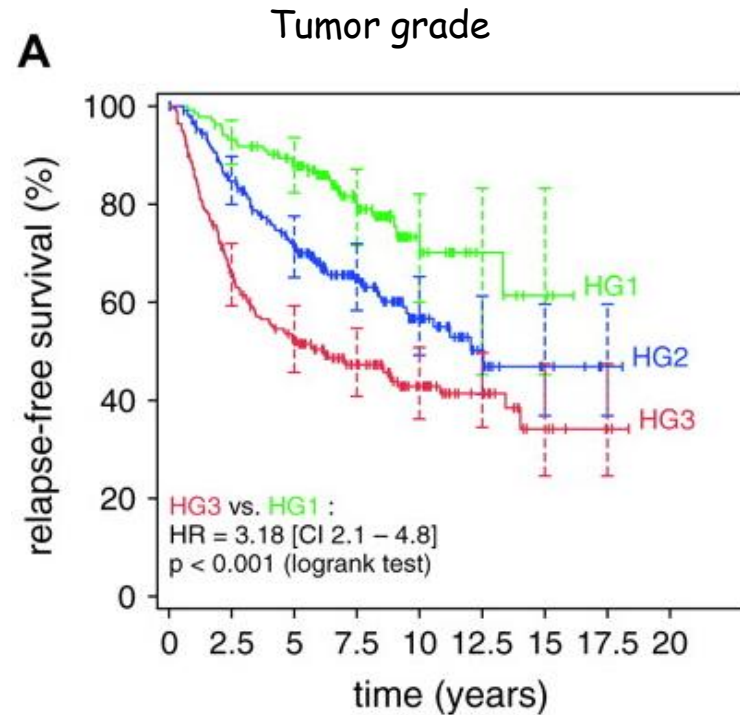
- Tumor nagyság
- Tumor grade
- Nyirokcsomók
- Érinvázio
- Tumortípus
- Életkor
- Sebészi szélek

KORÁBBAN A MŰTÉT UTÁNI KEZELÉS
EZEKTŐL FÜGGÖTT



Tumor méret

A

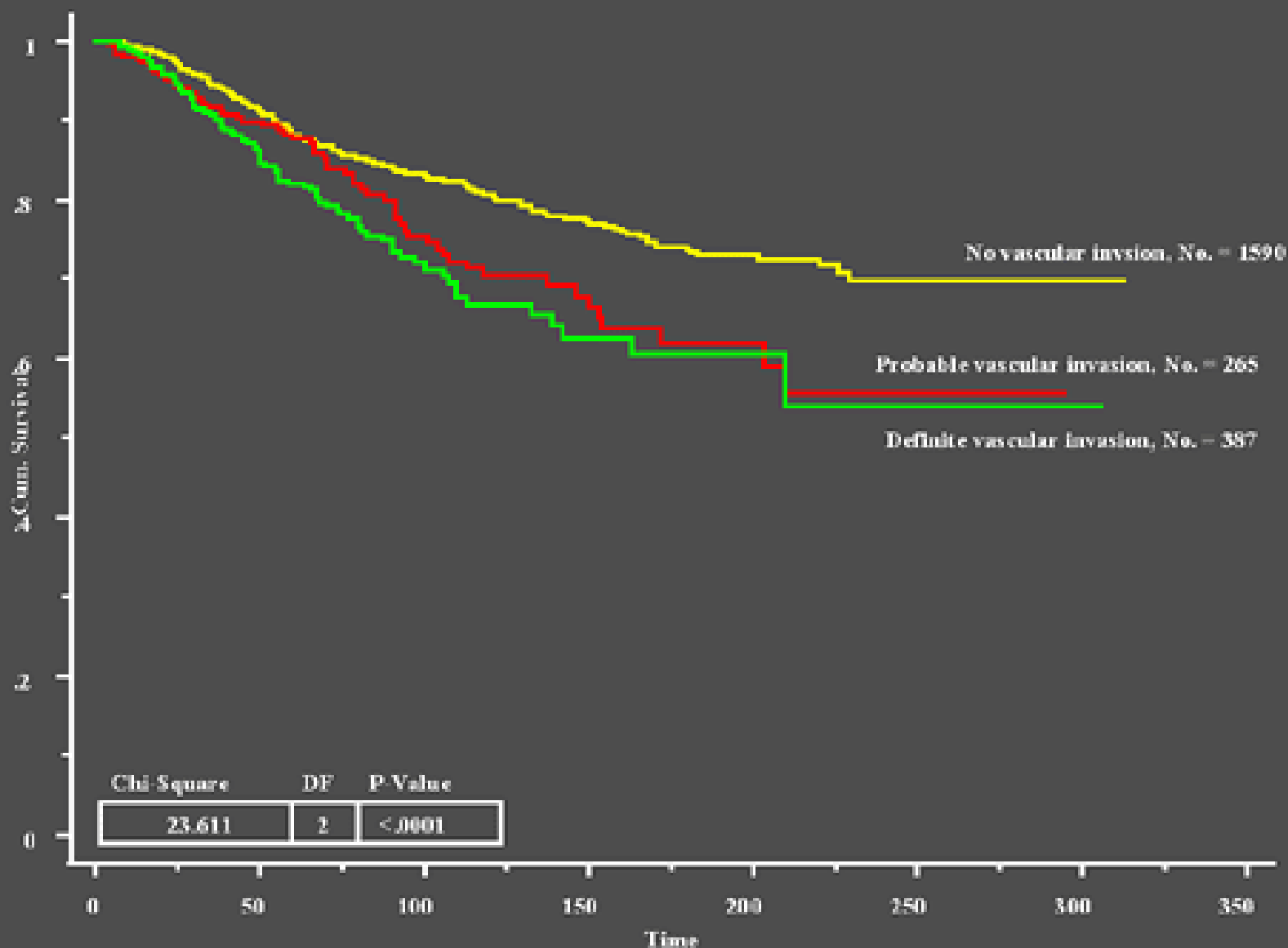


Tumor grade

1: A. Langerød et al. Breast Cancer Research 2007, 9:R30do

2: Sotiriou C et al. JNCI Journal of the National Cancer Institute 2006 98(4):262-272

LN Negative OS by Vascular Invasion



Nottingham Prognosztikai Index

$0,2 \times \text{tumorméret (cm)} + \text{Grade} + \text{Nyirokcsomó stáusz}$

2,4 alatt: kiváló prognózis

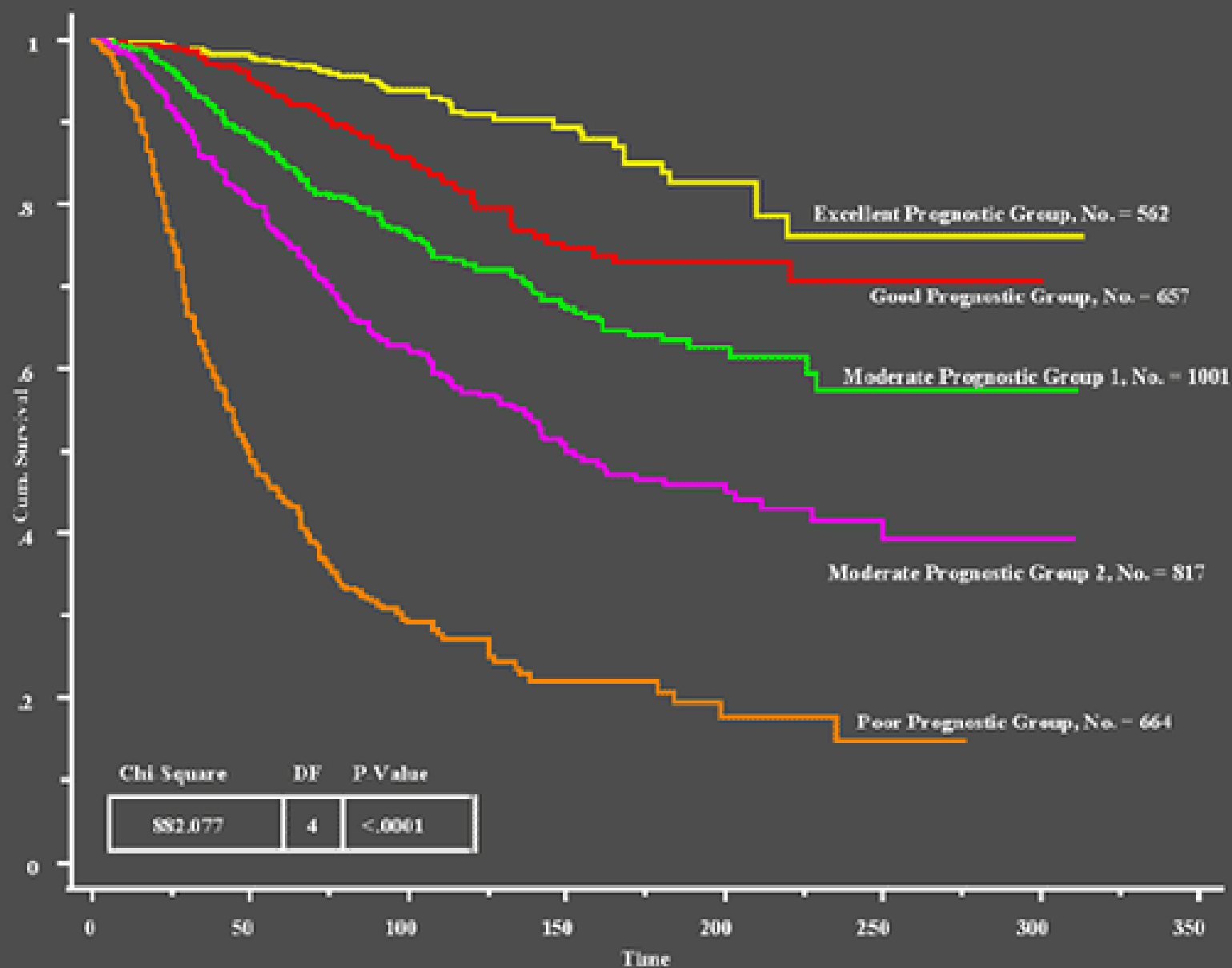
2,41-3,4: jó prognózis

3,41-4,4: jó közepes prognózis

4,41-5,4: rossz közepes prognózis

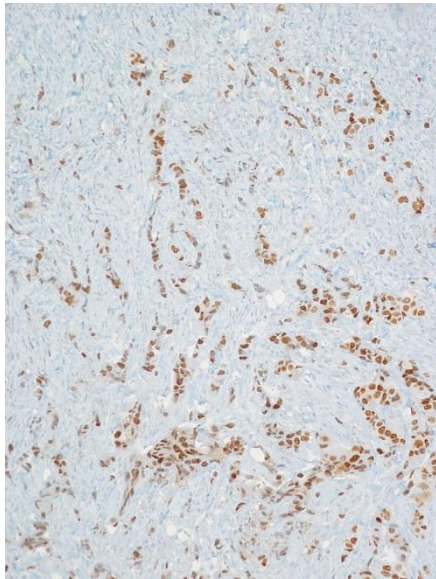
5,41 fölött: rossz prognózis

OS by 5 NPI Groups

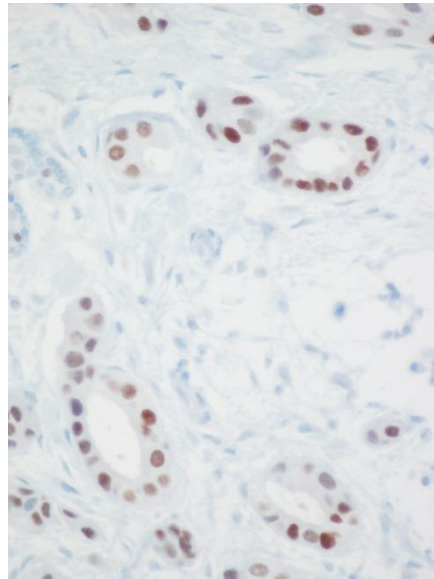


A személyre szabott onkológiai kezelés lényeges meghatározói:

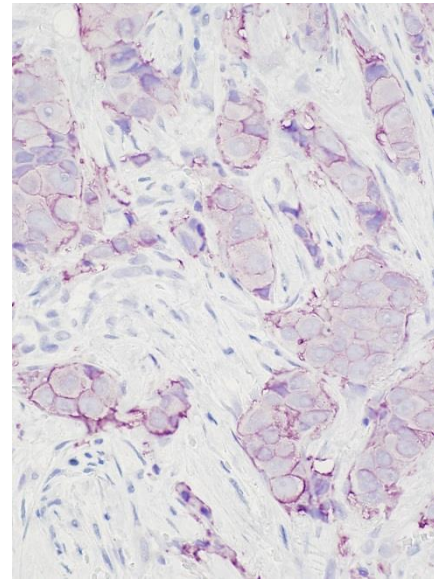
- Ösztrogén receptor státusz
- Progeszteron receptor státusz
- Her2 státusz
- Proliferációs index (Ki67)



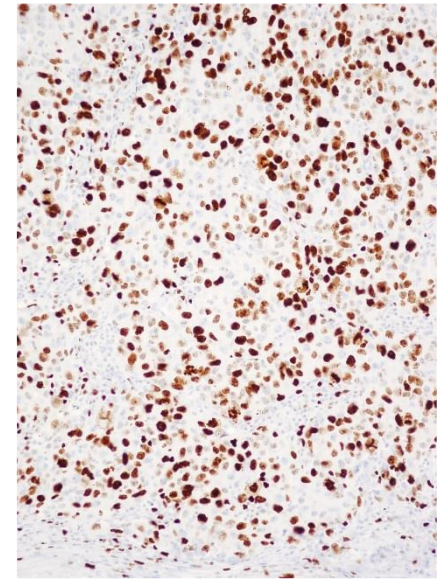
ER



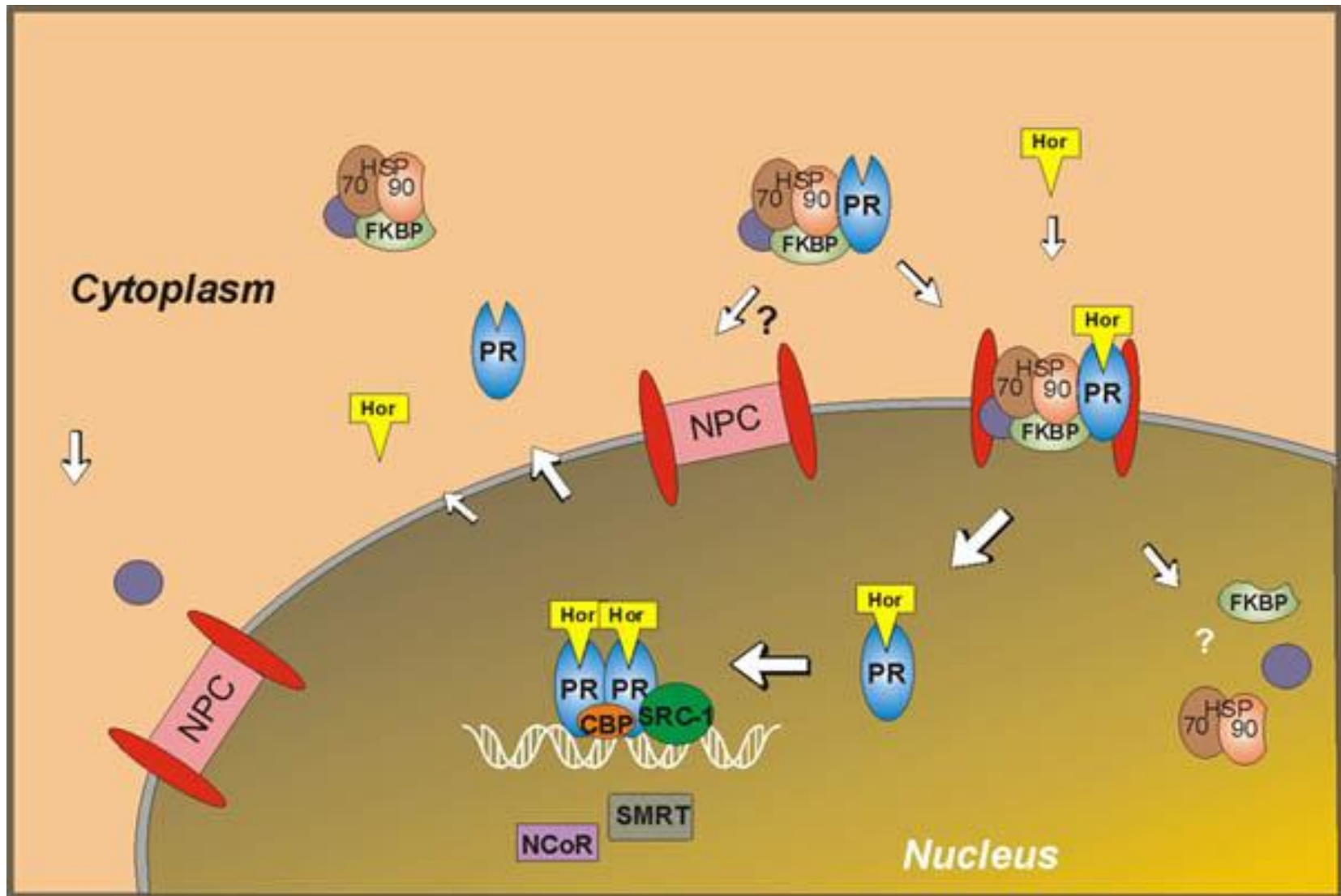
PR



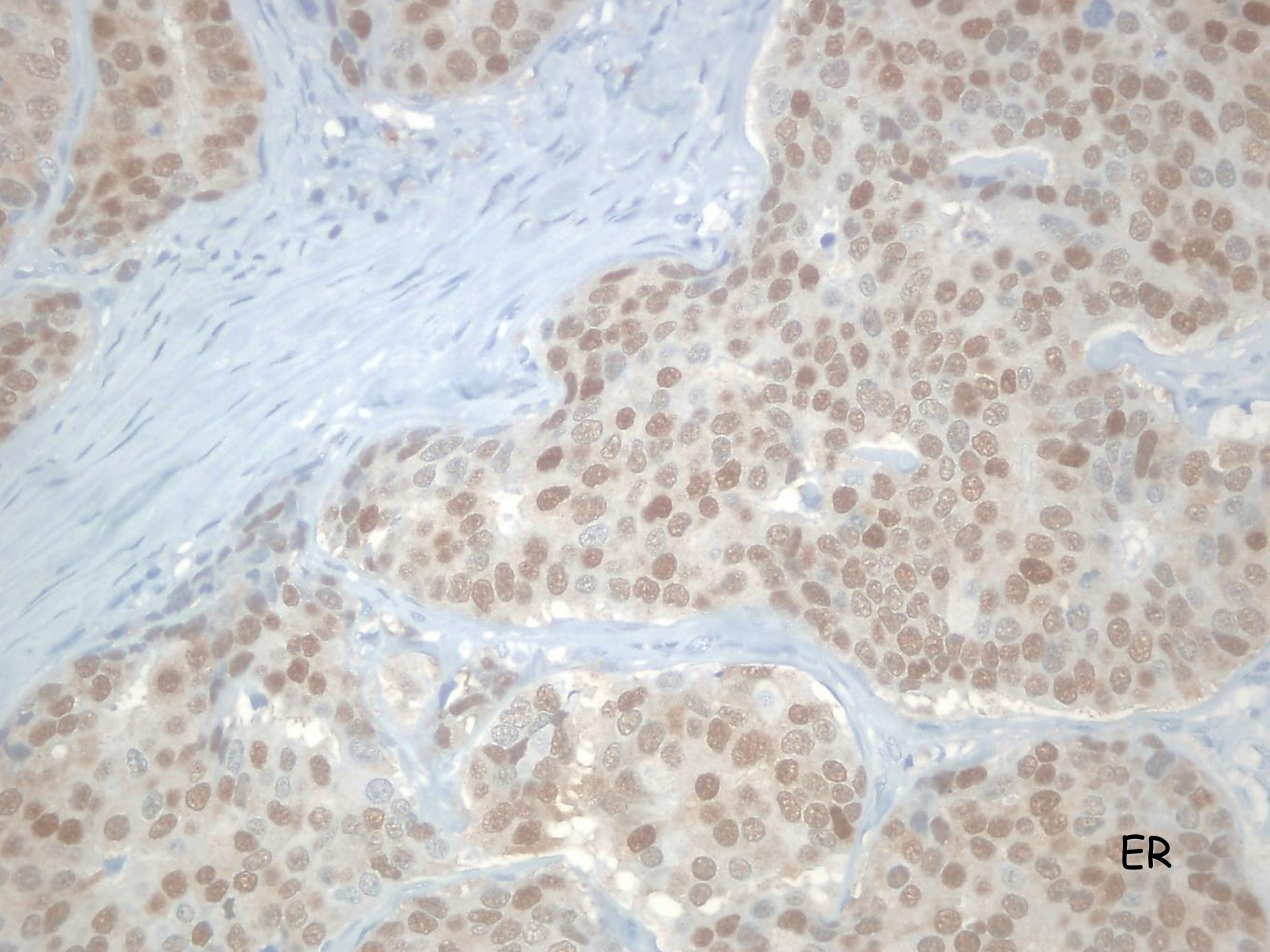
HER2



Ki67

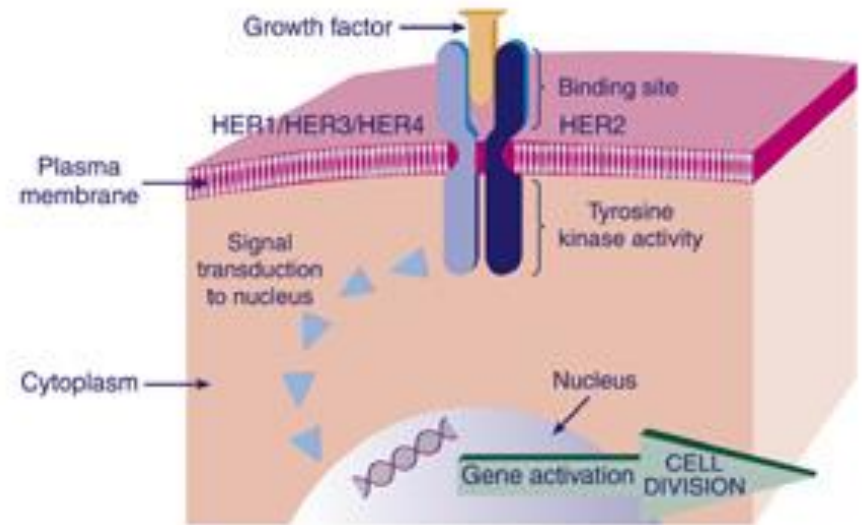
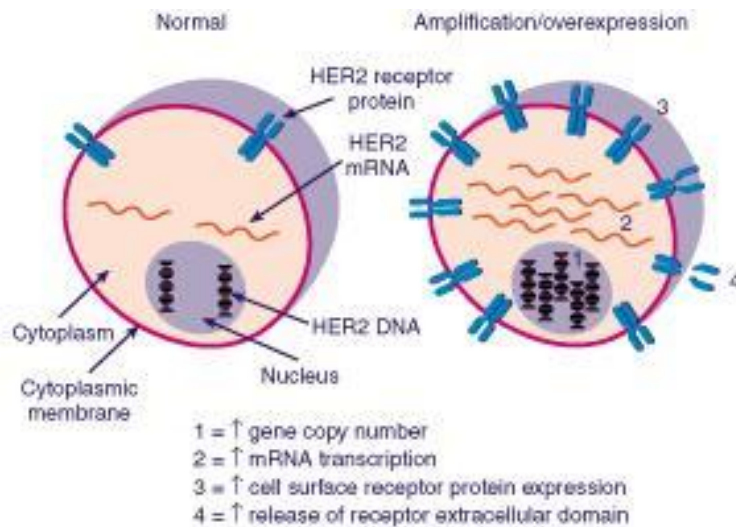


ER, PR: nuclearis receptorok

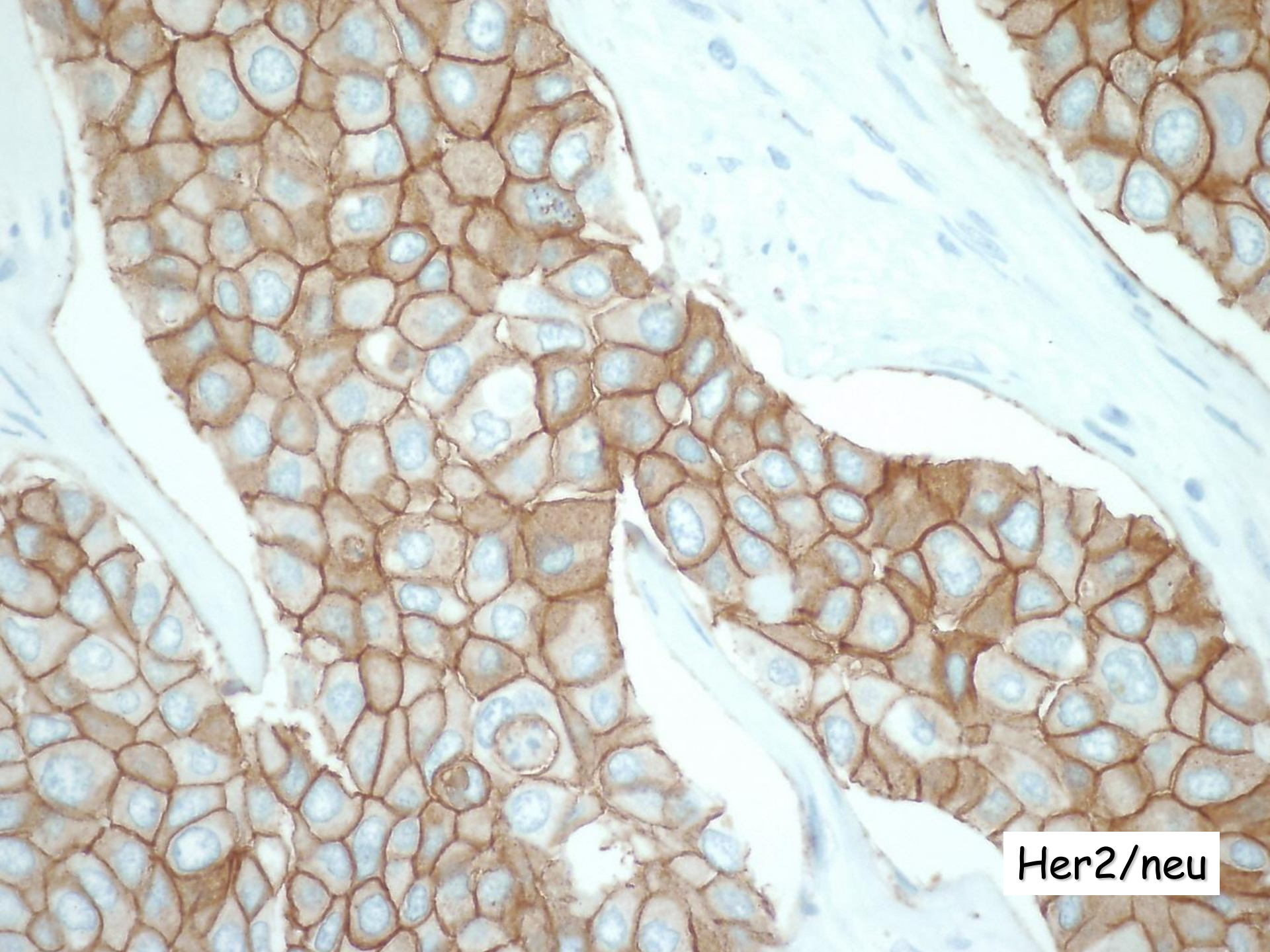


ER

Her2/neu amplifikáció - receptor fehérje overexpresszió



Her2: membrán receptor (tirozin-kináz aktivitású)

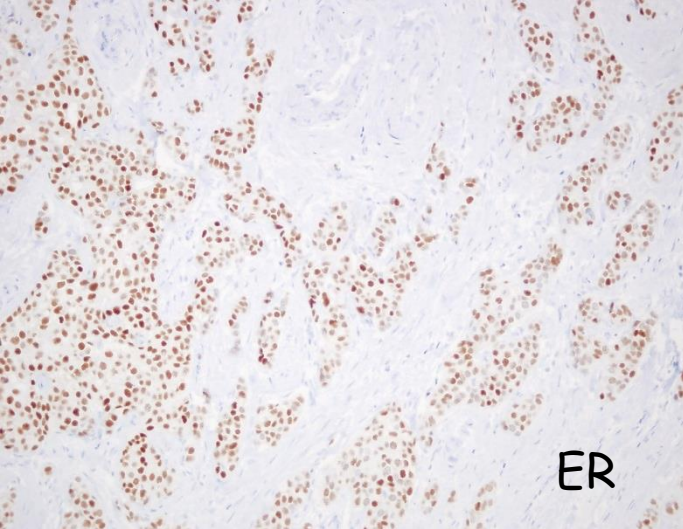


Her2/neu

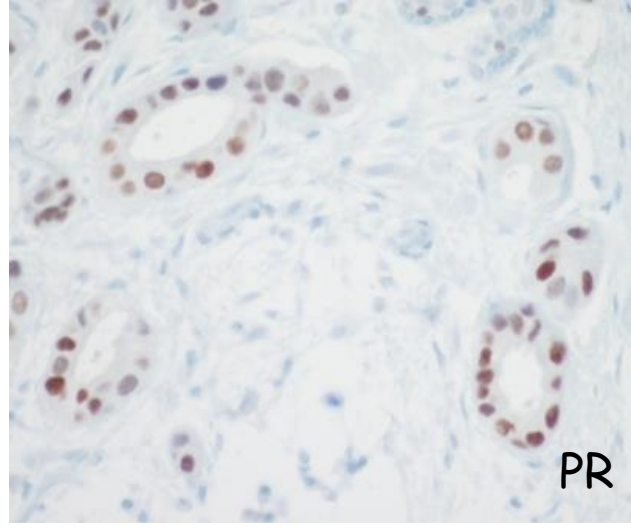
Prognosztikus és prediktív faktorok

- Molekuláris markerek a patológiai gyakorlatban
 - relevánsak a prognózis vagy a beteg kezelése szempontjából
 - a mindennapi gyakorlatban meghatározhatóak

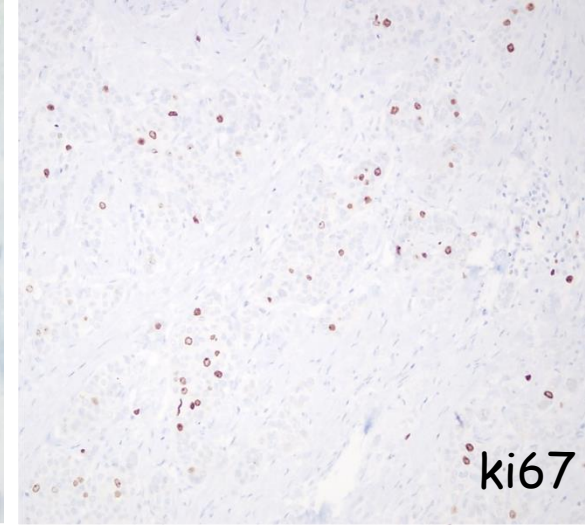
A MŰTÉT UTÁNI KEZELÉS
MEGVÁLASZTÁSÁT BEFOLYÁSOLJÁK:
LEHETŐVÉ VÁLIK AZ EGYÉNRE SZABOTT
KEZELÉS



ER

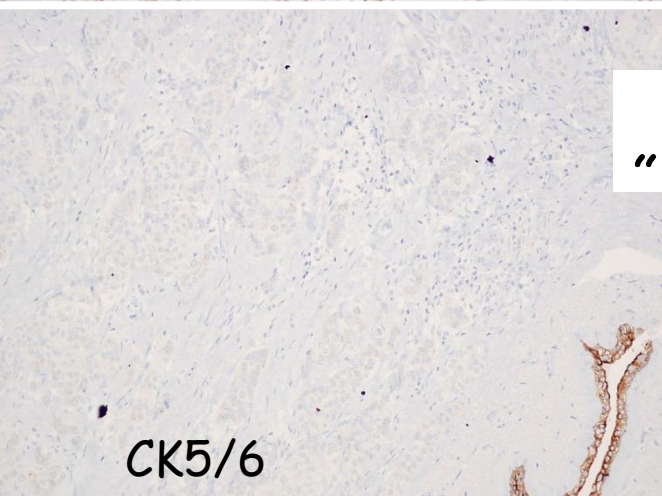


PR

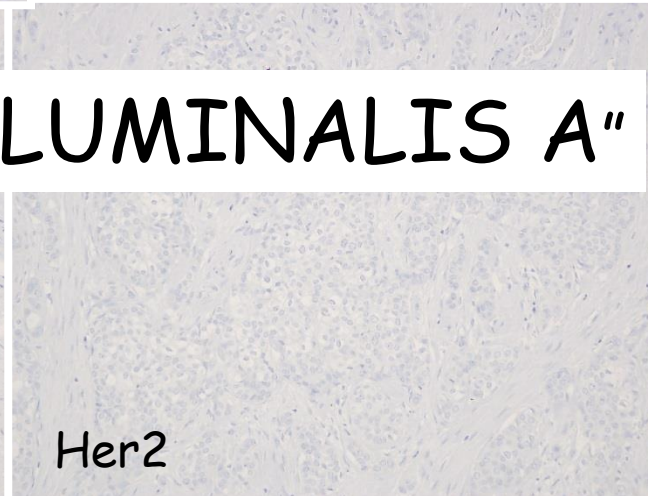


ki67

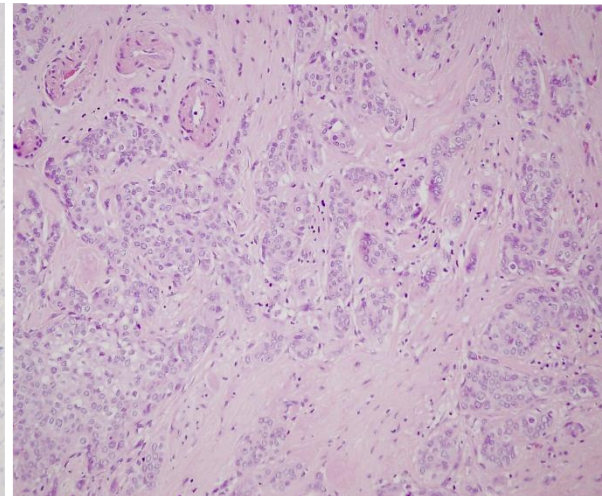
„LUMINALIS A”



CK5/6



Her2

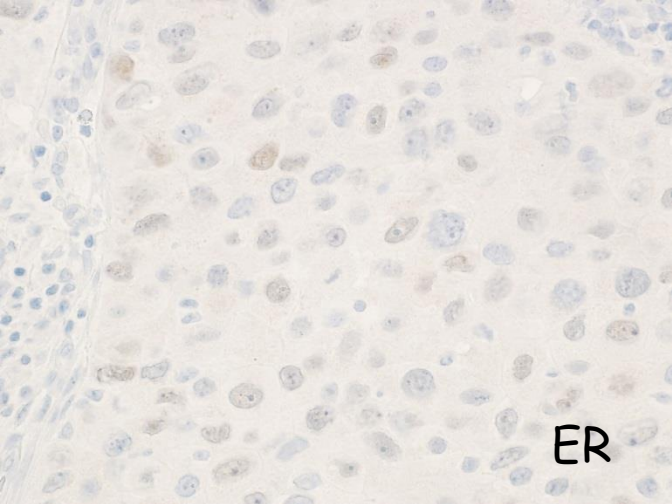


10636/06

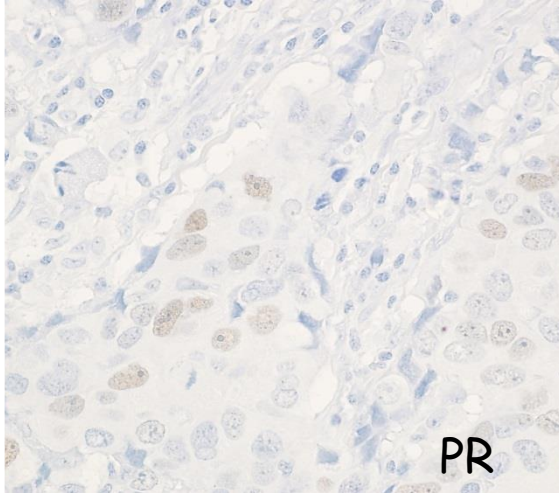
ER+/PR+

Alacsony proliferációs ráta

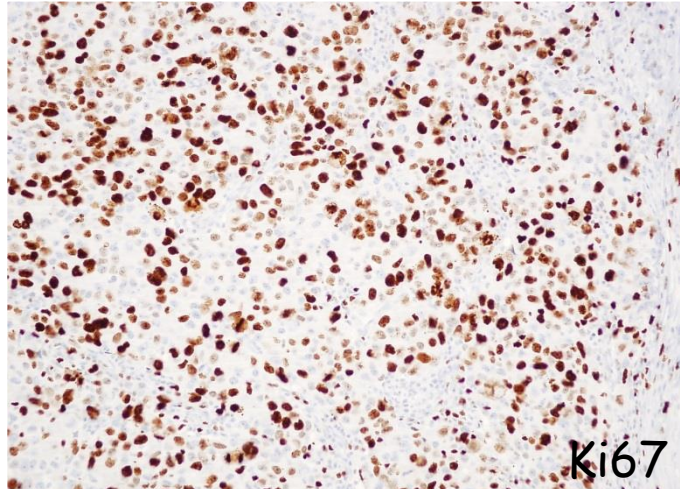
Her2 negatív



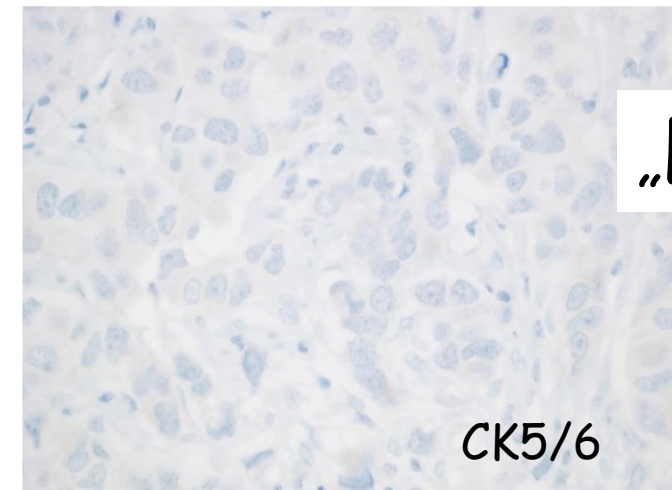
ER



PR



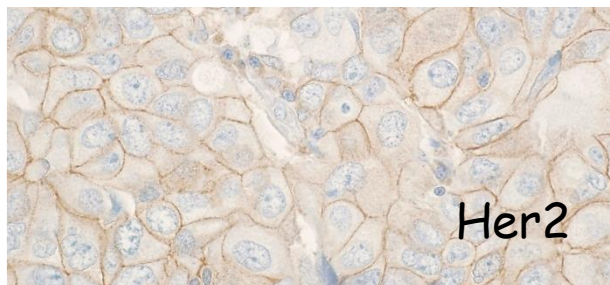
Ki67



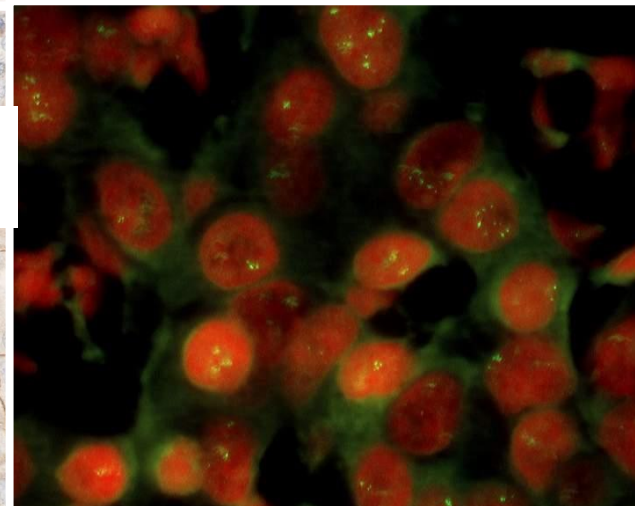
CK5/6



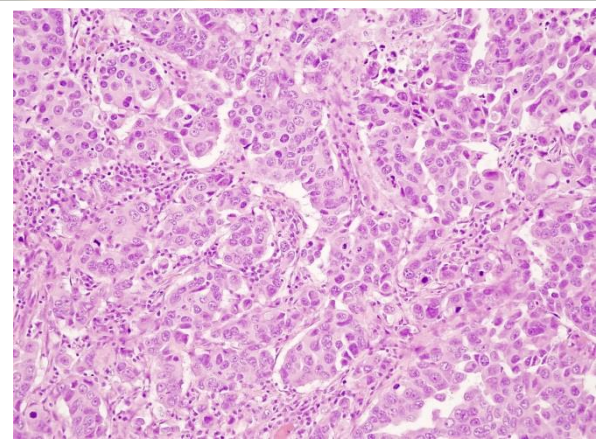
„LUMINALIS B“

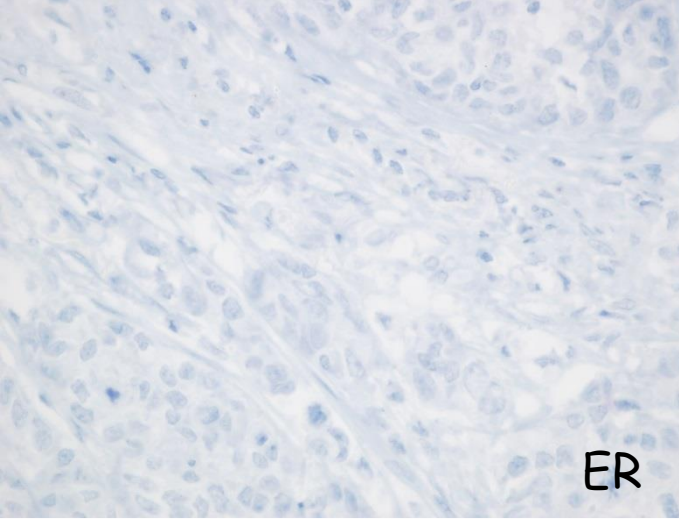


Her2

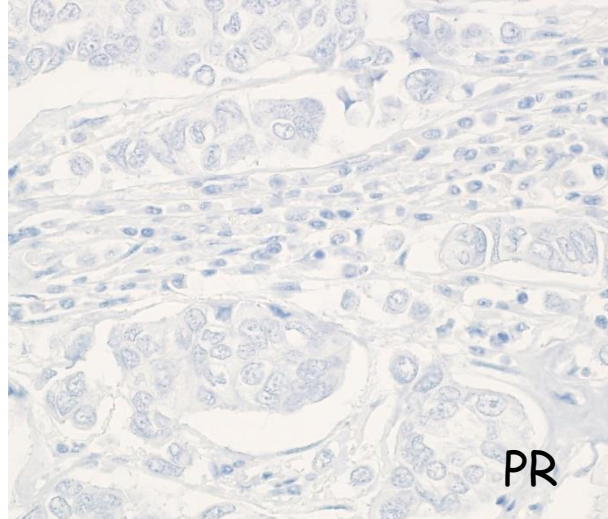


7744/06
ER/PR gyengén pozitív
Magas proliferációs rátájú
Her2 2+
FISH pozitív

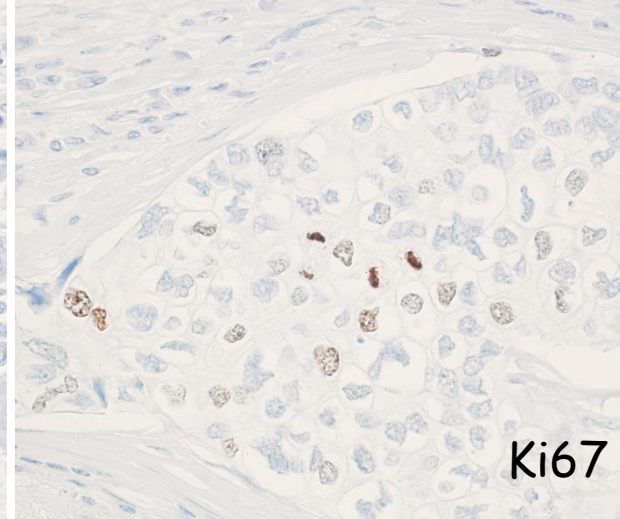




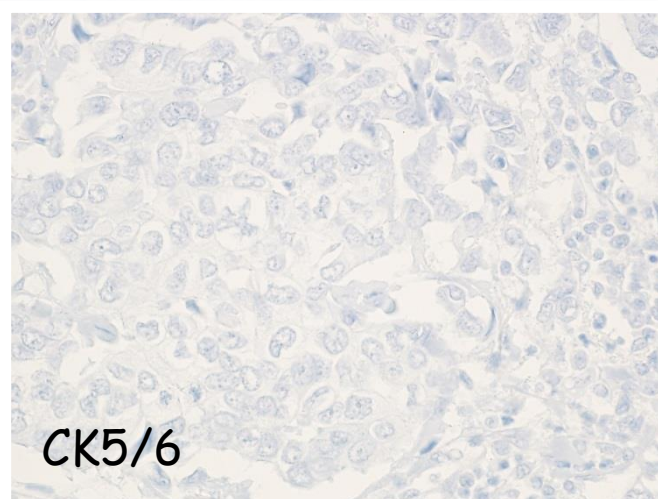
ER



PR



Ki67

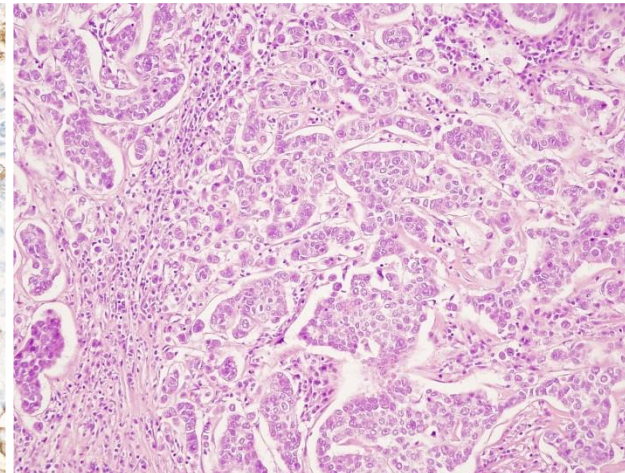


CK5/6



„HER2“

HER2

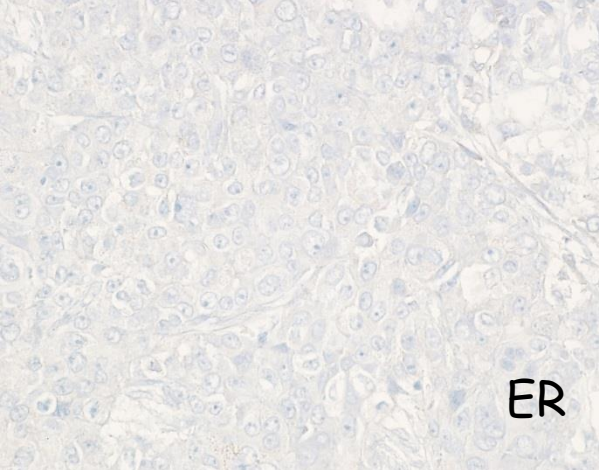


10061/06

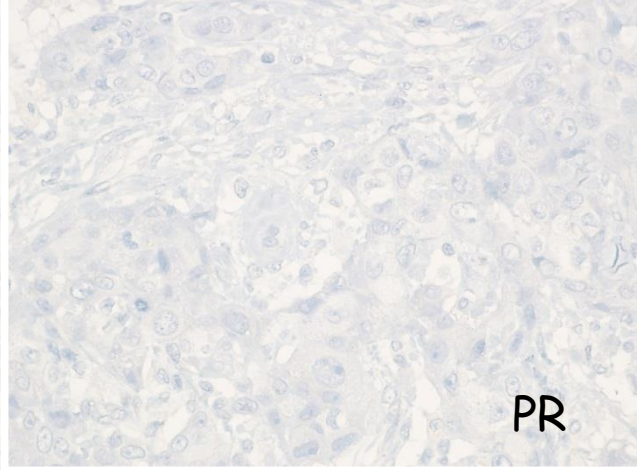
ER-/PR-

Alacsony proliferációs ráta

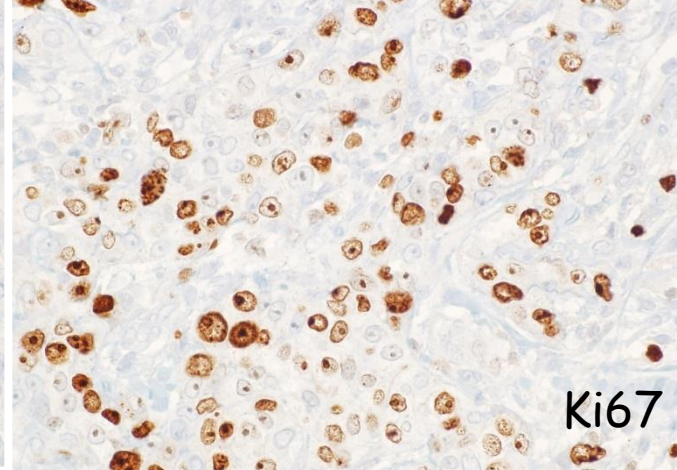
Her2 3+



ER

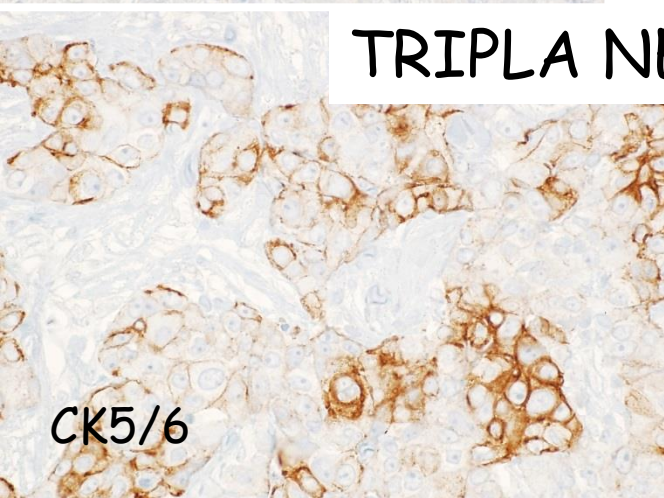


PR

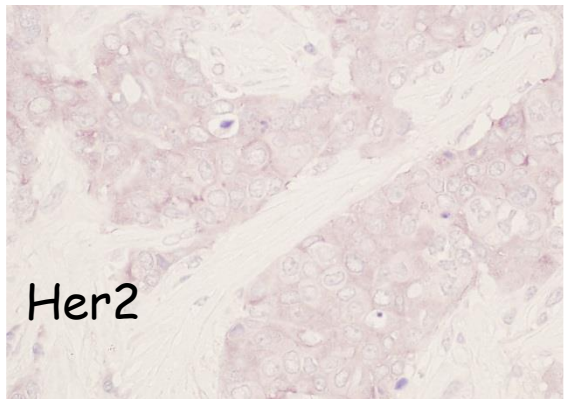


Ki67

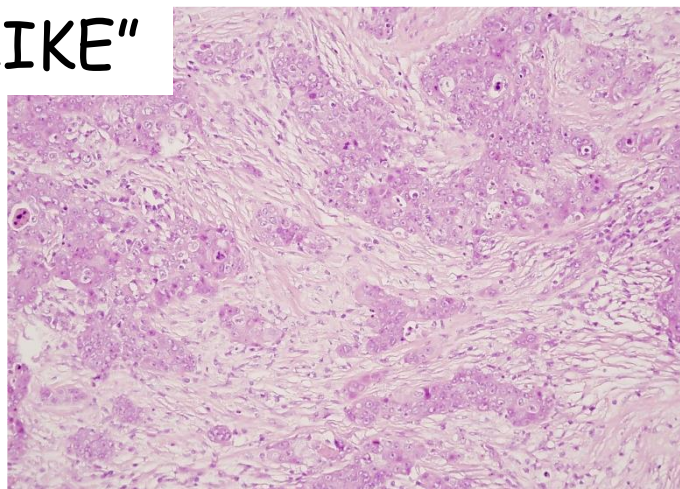
TRIPLA NEGATÍV, „BASAL-LIKE“



CK5/6



Her2



11263/06

ER-/PR-

Magas proliferációs ráta

Her2-

CK5/6+

Prognosis előrejelzése a genetikai profil alapján (MAMMAPRINT multigén teszt)

- EGYÉRTELMŰEN ELKÜLÖNÜL
(151 < 53 éves beteg, pN0, 10 éves követés)
 - Jó prognózisú (40%)
 - Rossz prognózisú (60%)
- A METASZTÁZIS VALÓSZÍNŰSÉGÉT
 - 4x pontosabban jelzi, mint a pN státusz
 - 3x pontosabban jelzi, mint a tumor mérete
 - 1,5x pontosabban jelzi, mint a grade

Speciális típusú emlőrákok genetikai profilja

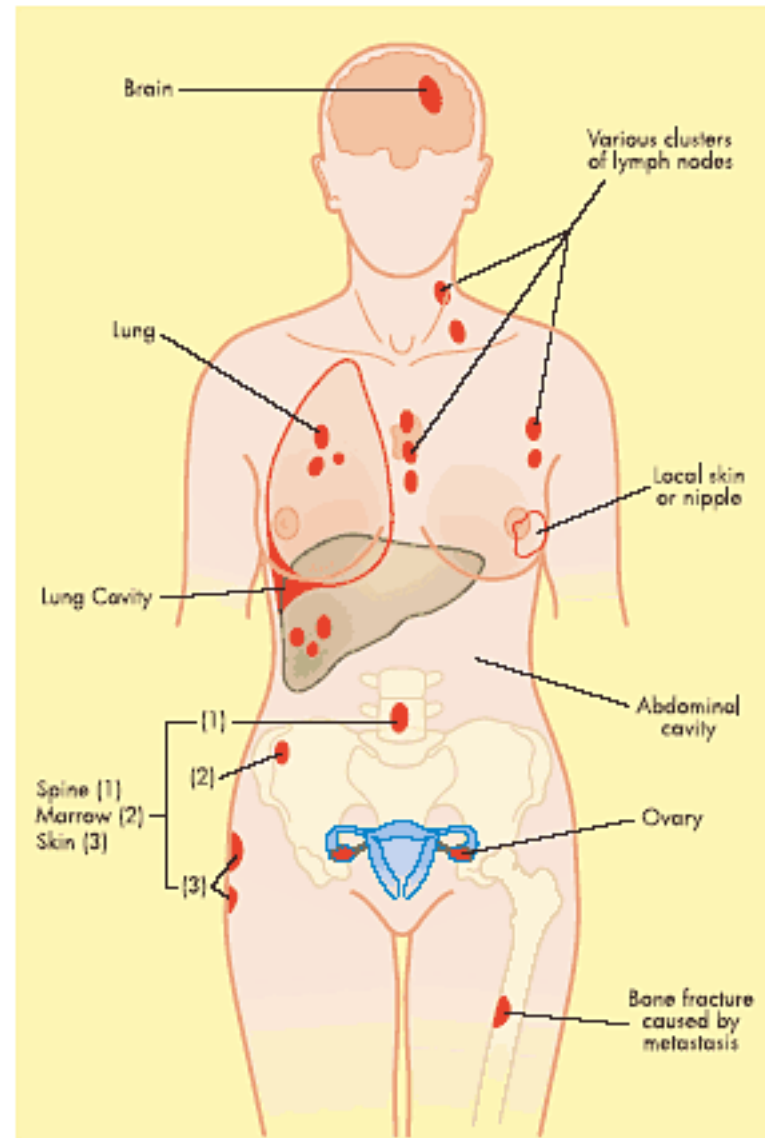
- Alapvetően elkülönülnek az ER+ és ER-daganatok
- Mindegyik típushoz tartozik egy jellegzetes genetikai „ujjlenyomat”

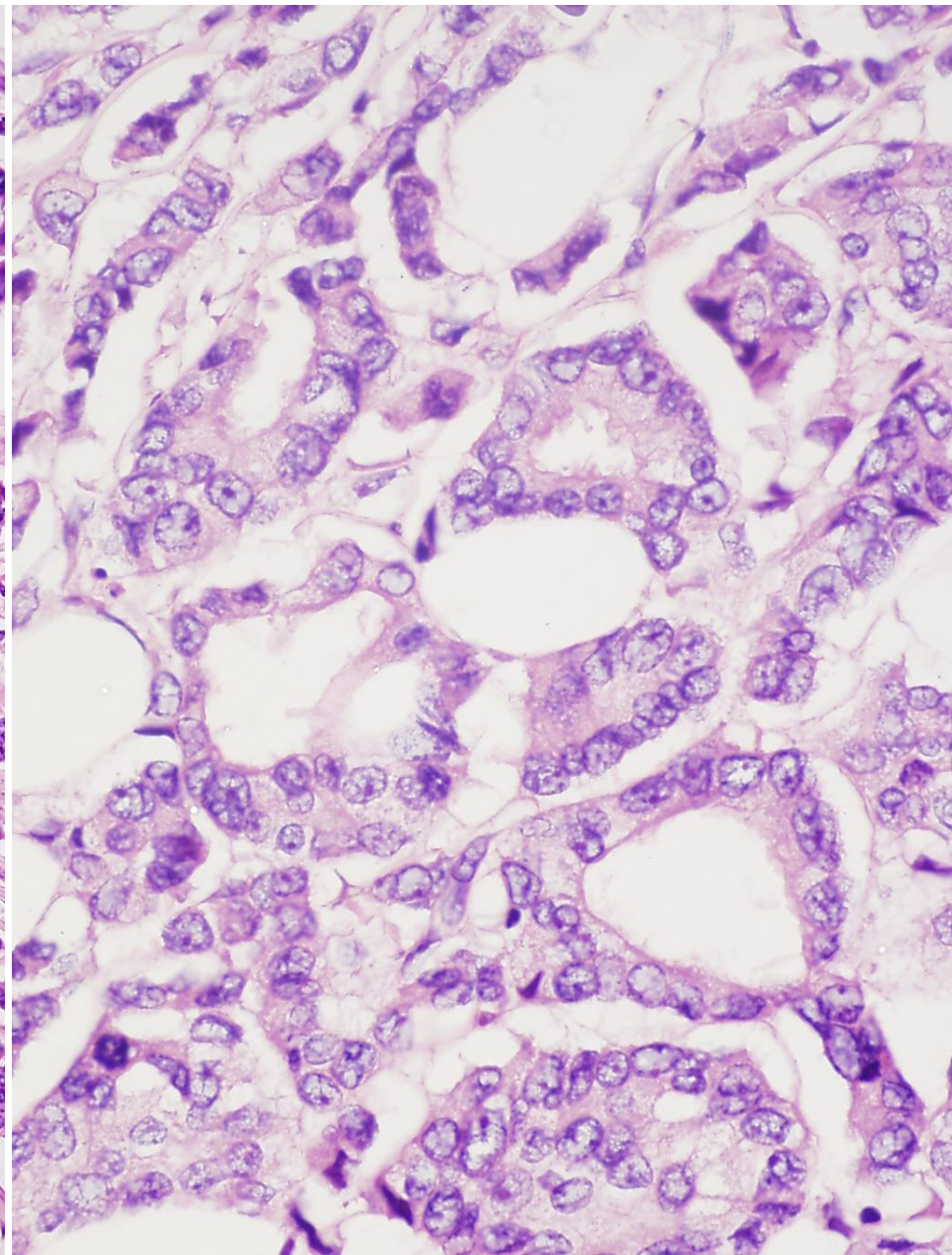
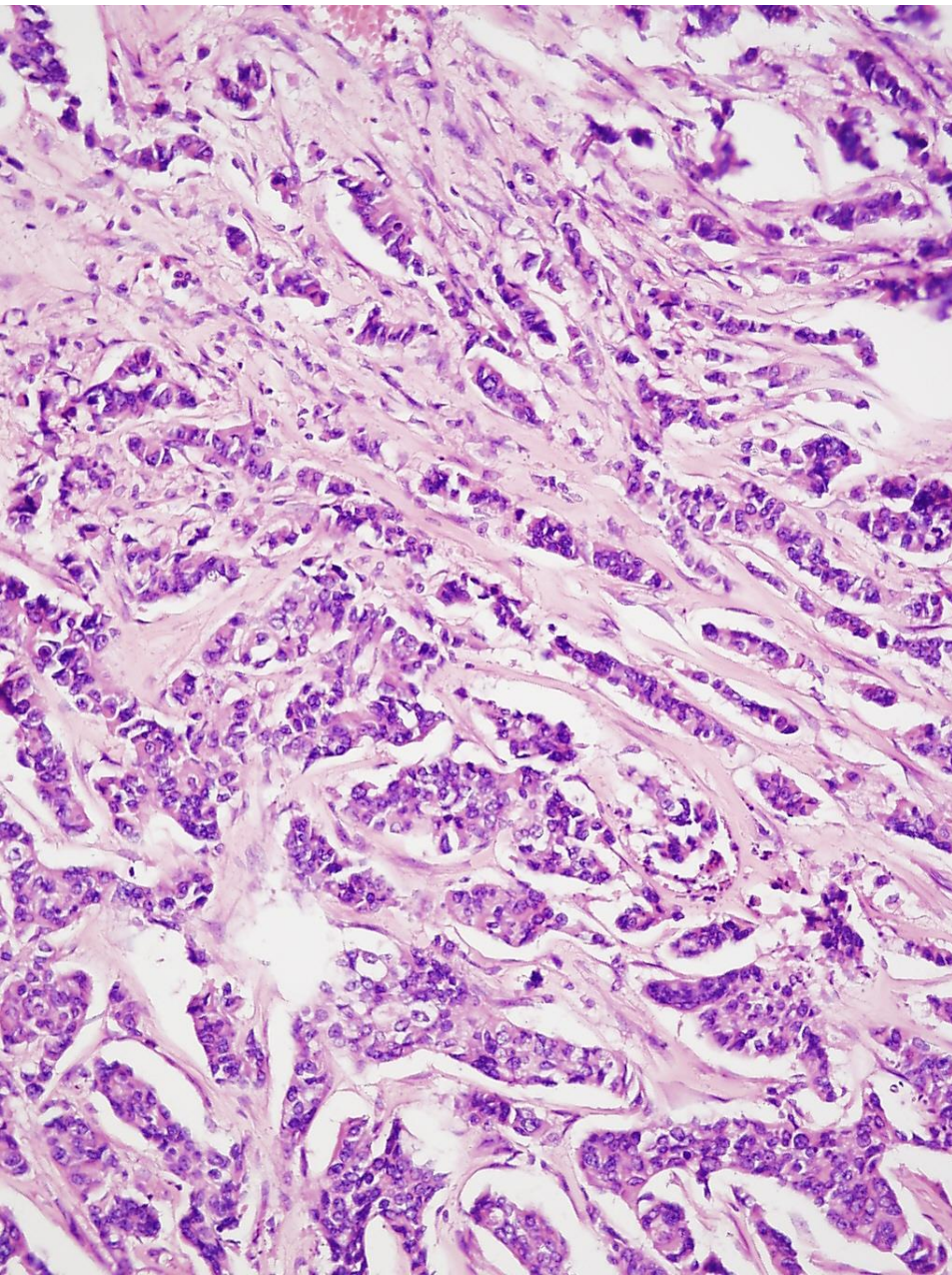
METASZTÁZISOK:

csontok,
tüdő és pleura,
máj,
agy
de *bárhová* adhat áttétet

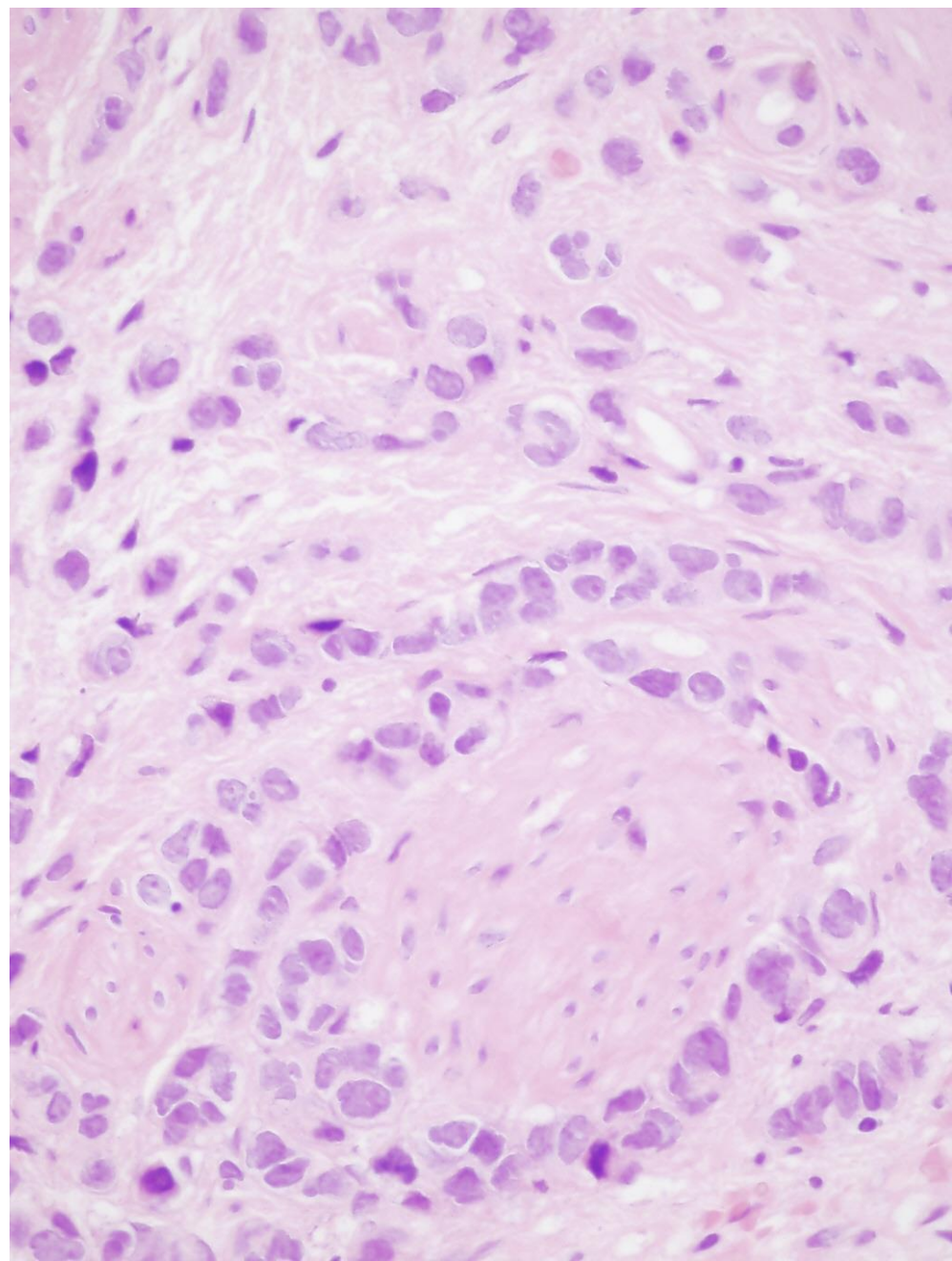
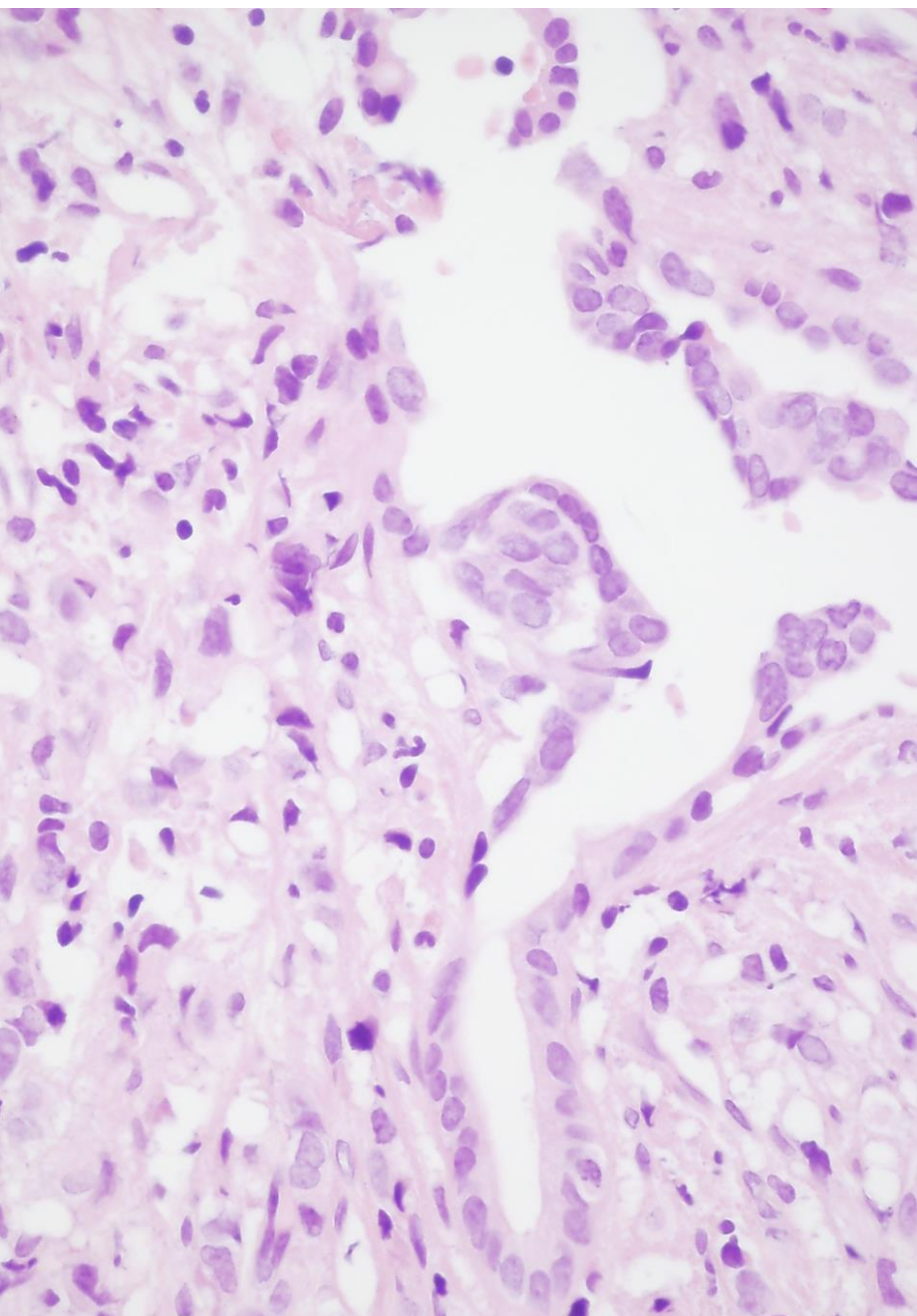
Az egyes molekuláris
altípusok metasztázis
mintázata is jellemző.

Fenotípus váltás lehet!!!!

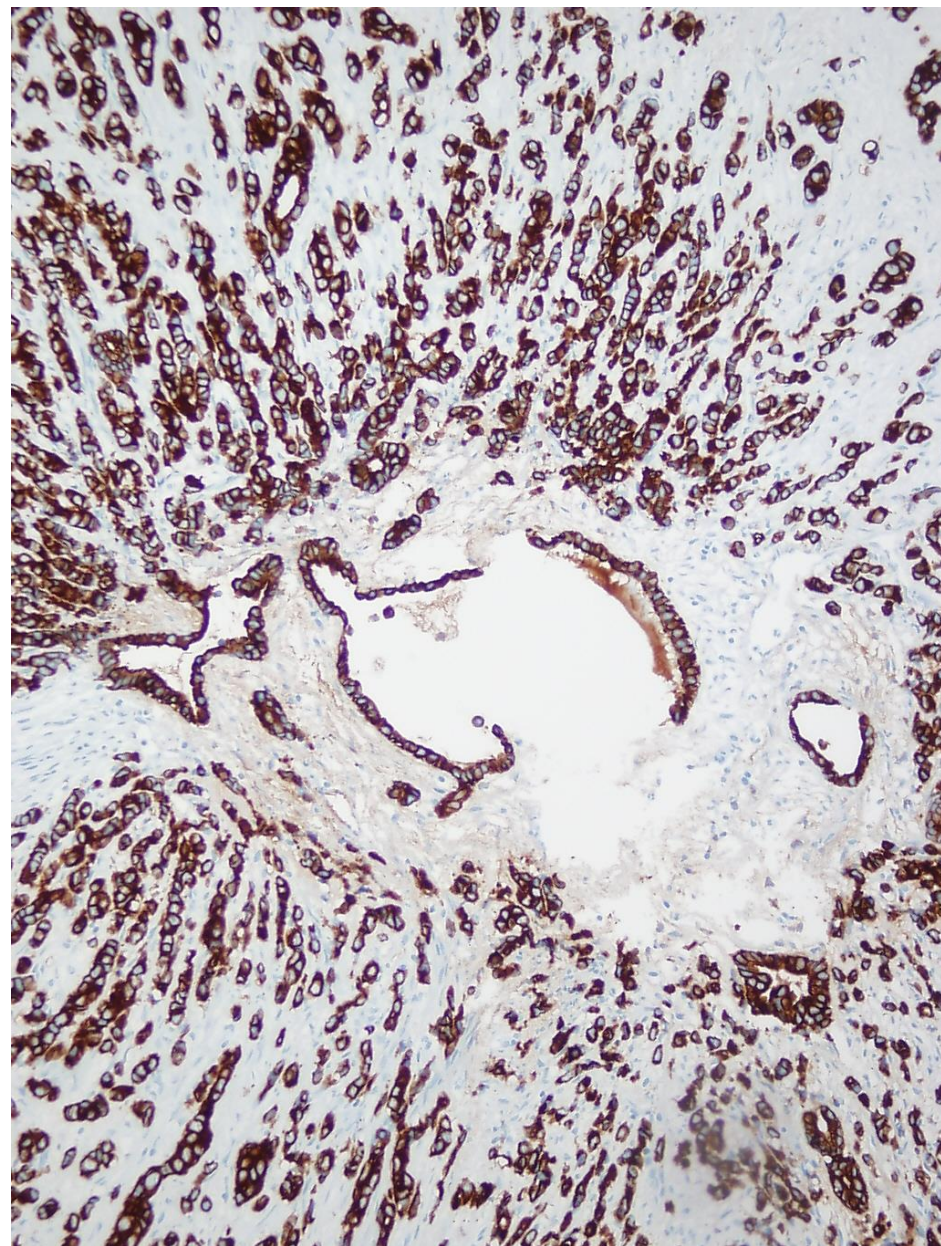




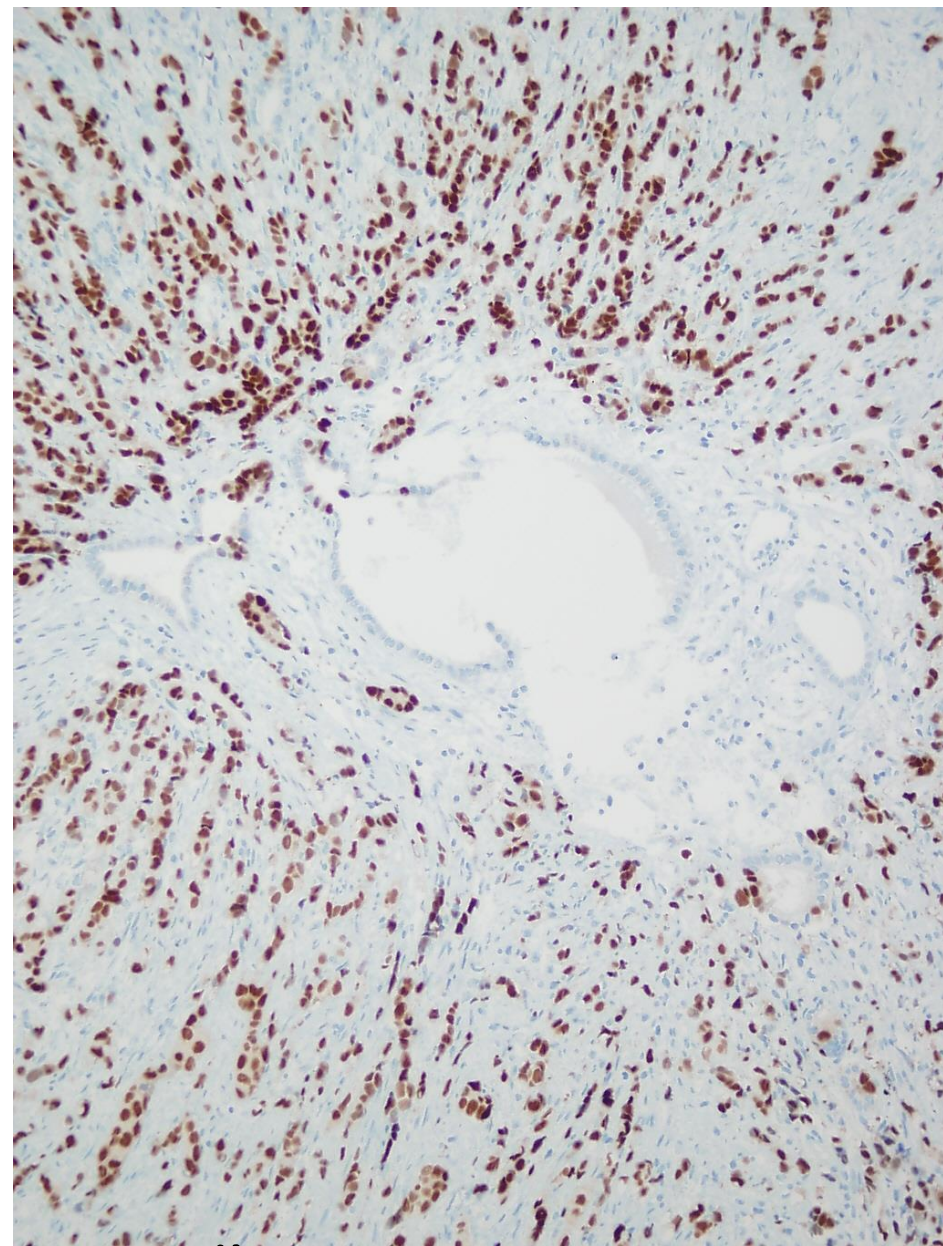
Emlőcarcinoma 1994



Ductus cysticus műtéti anyag 2004



CK 7



Ösztrogén receptor

FÉRFI EMLŐ

GYNECOMASTIA

Pubertás

Májcirrhosis

Hormontermelő heretumor

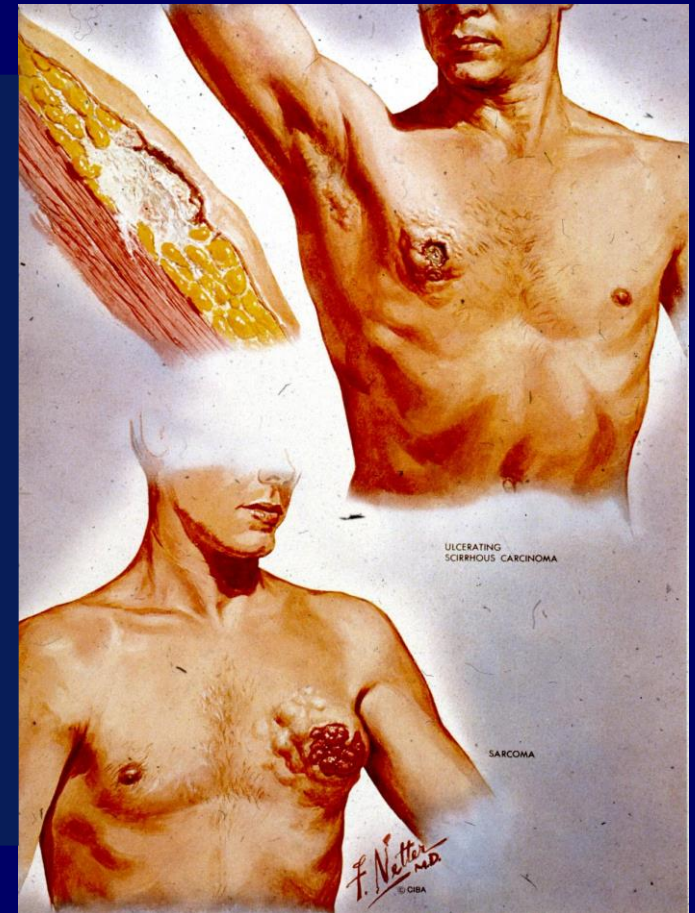
Tüdőrák: paraneoplasia

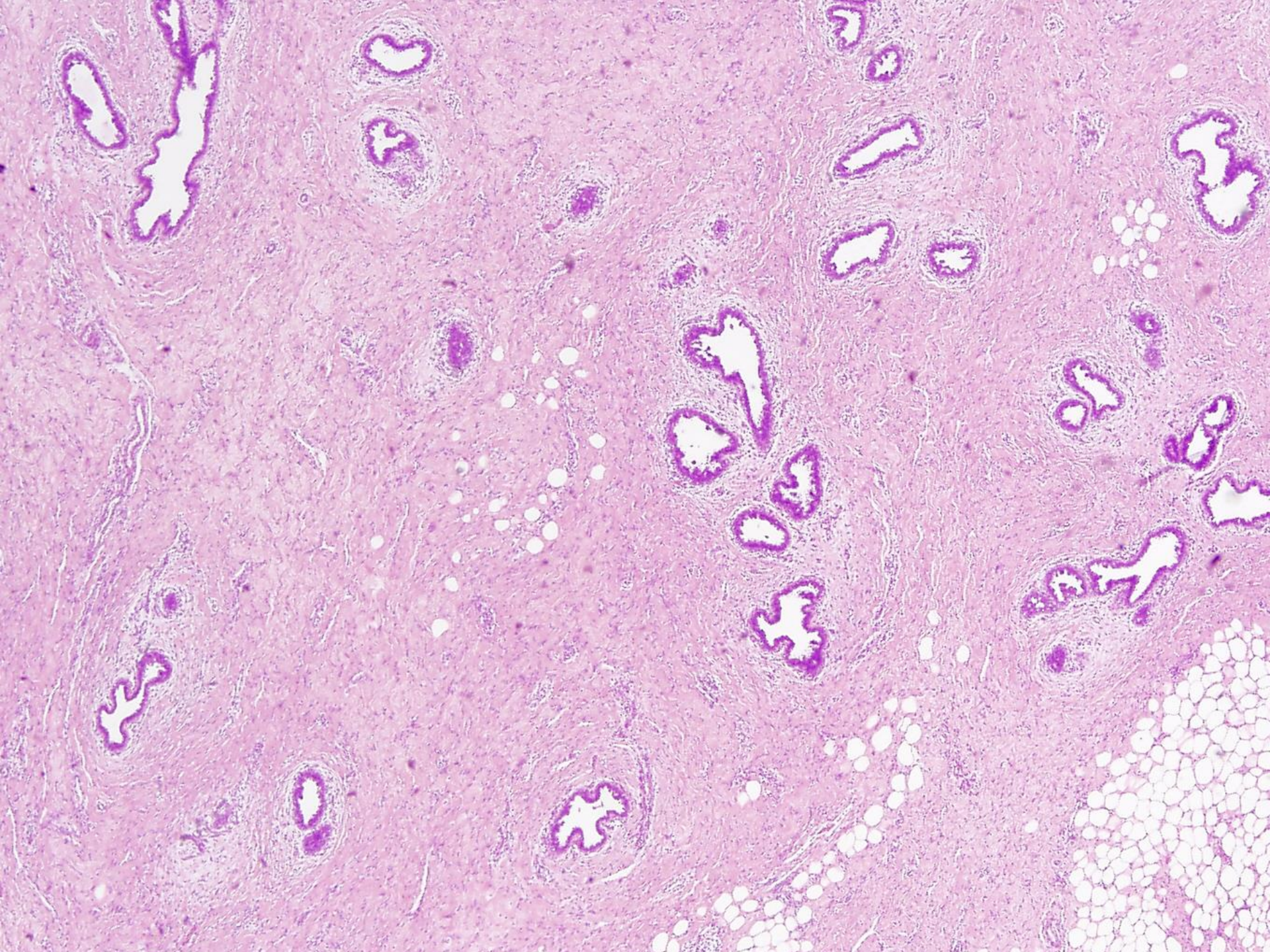
Prostata rák, a terápia után

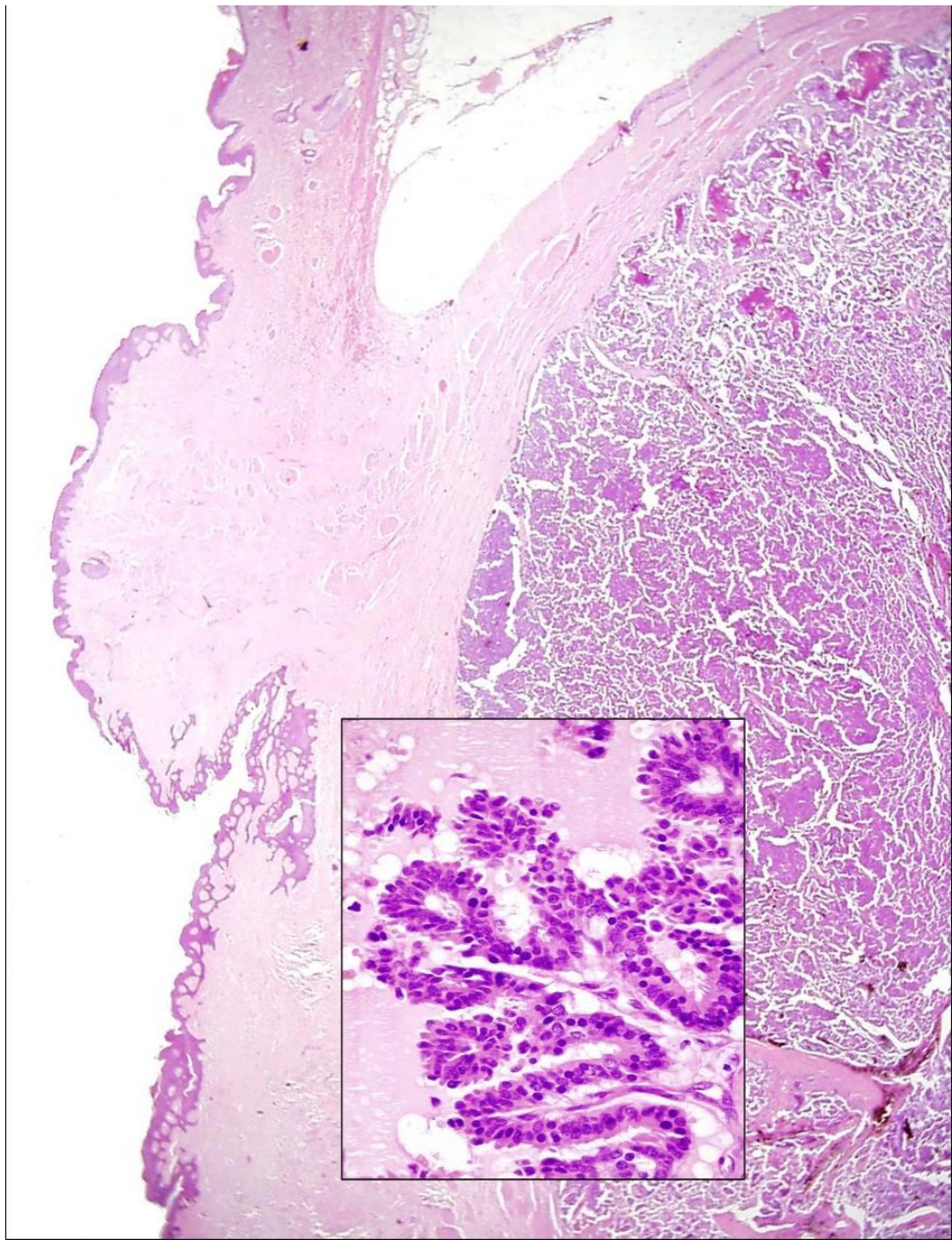
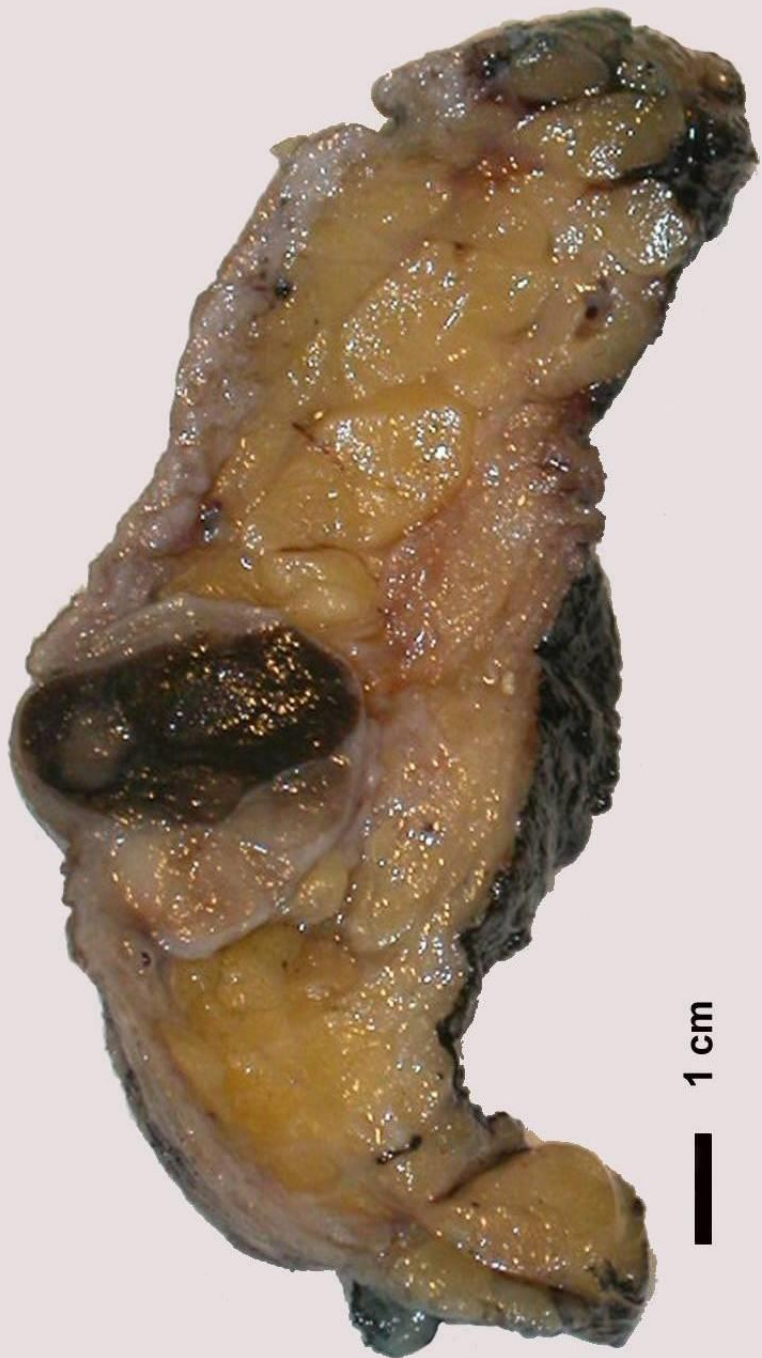
Idiopátiás

FÉRFI EMLŐRÁK

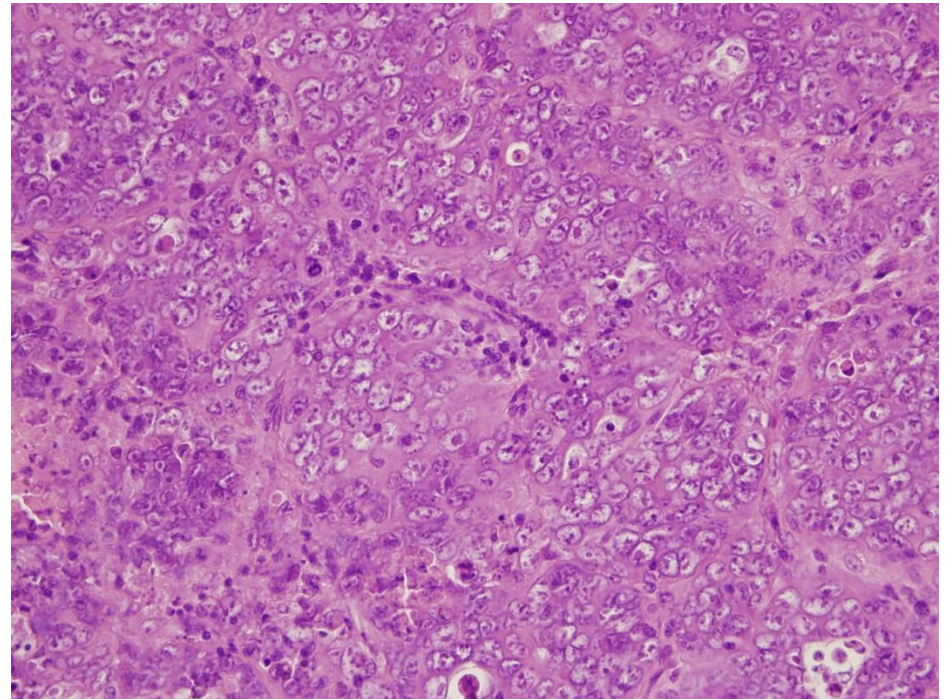
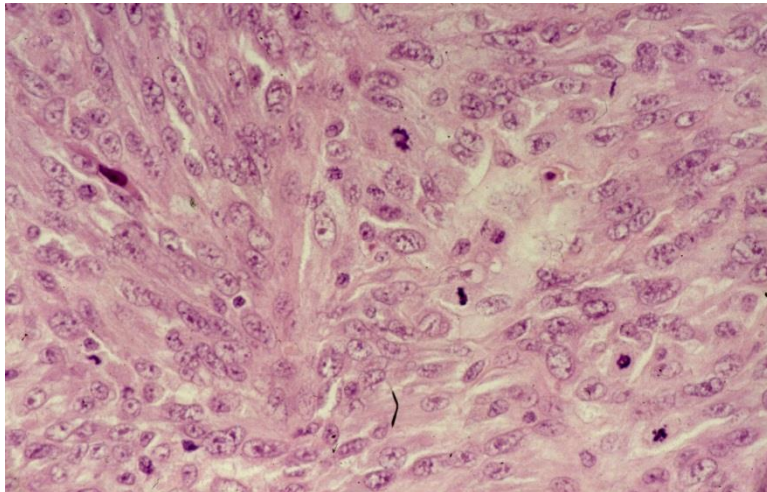
Ritka, kedvezőtlen prognózisú







Nem hám eredetű malignus tumorok





janinakulka@gmail.com