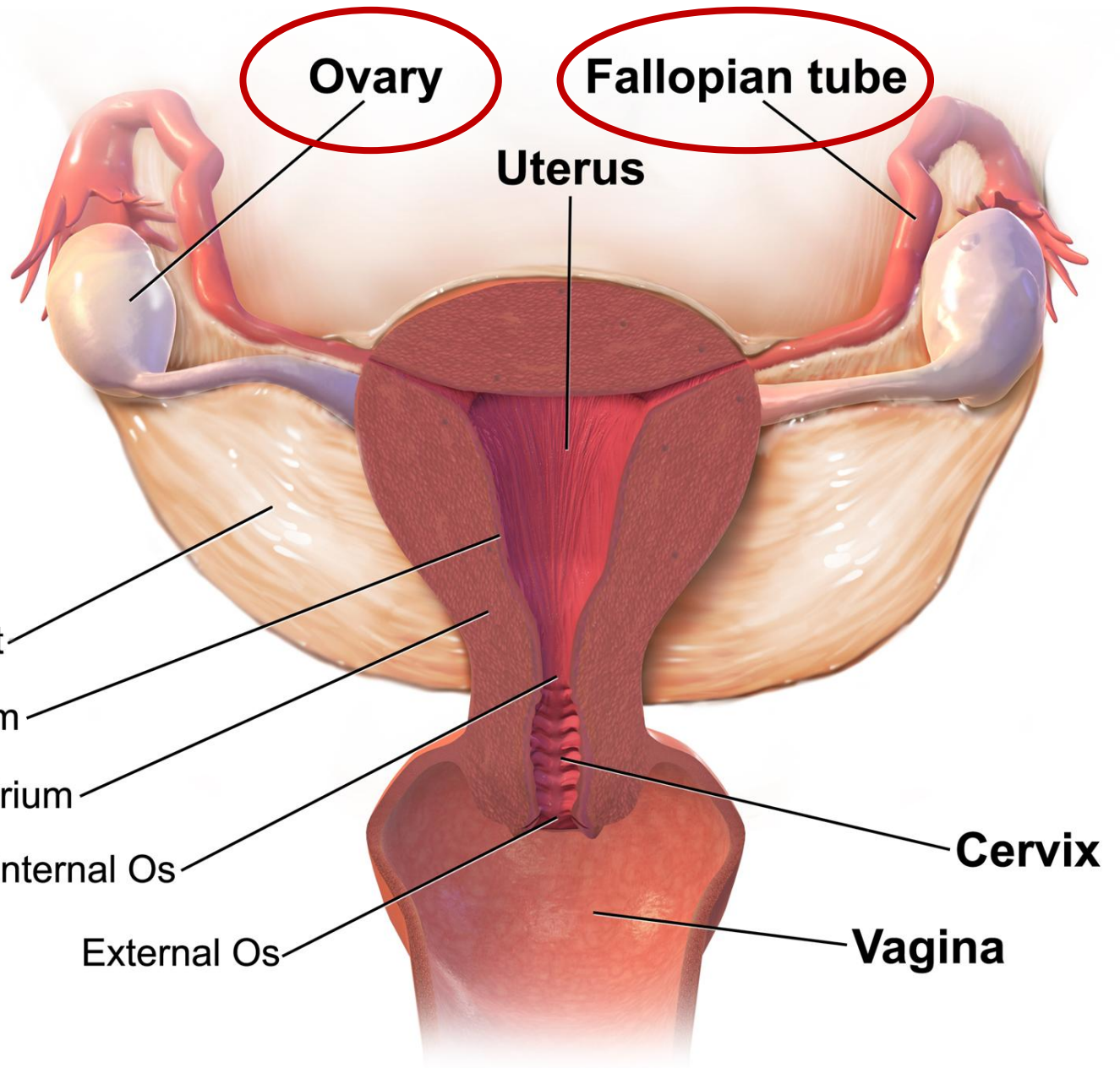
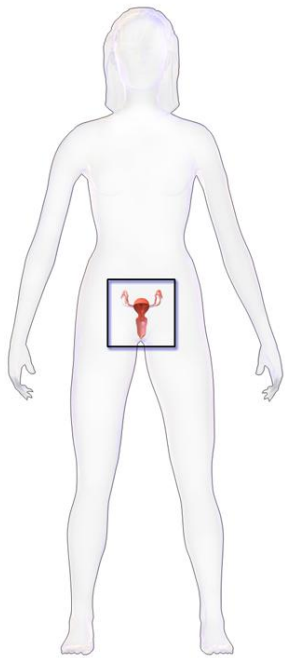


A petevezető és a petefészek patológiája

Kulka Janina



Ovary

Fallopian tube

Uterus

Broad ligament

Endometrium

Myometrium

Internal Os

External Os

Cervix

Vagina

Hormonális szabályozás

- Hypophysis
 - GnRH
- Hypothalamus
 - LH
 - FSH
- Ovarium stroma (theca sejtek, granulosa sejtek)
 - Oestrogen
 - Progesteron
 - Inhibin
 - Androgen

Fejlődéstan - OVARIUM

- 4. gestatios hét:
 - megjelenése a szikzacskó falában
- 5-6. gestatios hét:
 - Primordialis csírasejtek vándorlása az ivarléc felé
- Később...:
 - Az ivarléc proliferáló mesodermális hámja alkotja a gonad hámját
 - 46 XX esetén az osztódó csírasejtek a proliferáló mesodermális hámba jutnak, ezt követően kifejlődnek az ovariumok

OVARIUMOK

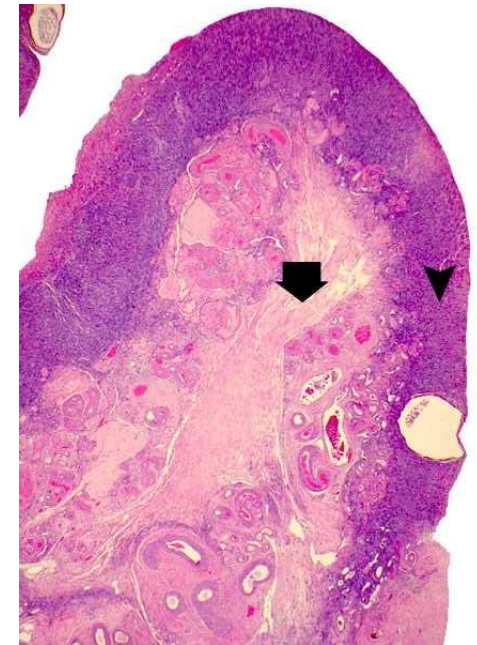
- Főként a **MESODERMA**ból fejlődnek
 - Felszíni hám
 - Stroma
- Csírasejtek **ENDODERMALIS** eredetűek

Fejlődéshez köthető kóros állapotok

- Korai fejlődési zavar: **a petefészkek hiányától korai menopausa bekövetkezéséig terjedő spektrum**
- **Extragonadalis csírasejtes tumorok**
középvonali migráció elmaradása esetén alakulhatnak ki (retroperitoneum, mediastinum, tobozmirigy)

OVARIUMOK - Anatómia

- Méret: 4x3x1,5 cm
- Kéregállomány
 - Sejtdús, fibroblastokból álló réteg
 - Folliculusok és petesejtek
 - Graaf tüszők (fejlődő tüszők)
 - Corpora lutea
 - Corpora albicantia
- Velőállomány
 - Laza mesenchymalis szövet
 - Hilusi sejtek („ambiszexualis”, a here stromalis sejtjeire emlékeztetnek) *Virilizáló tumorok indulhatnak ki innen.*

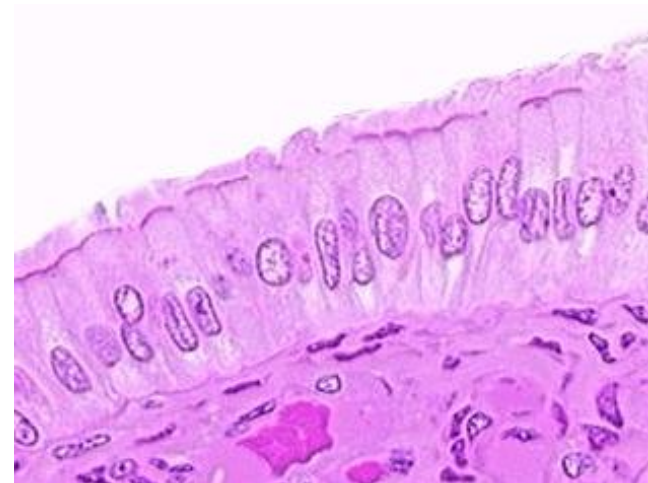
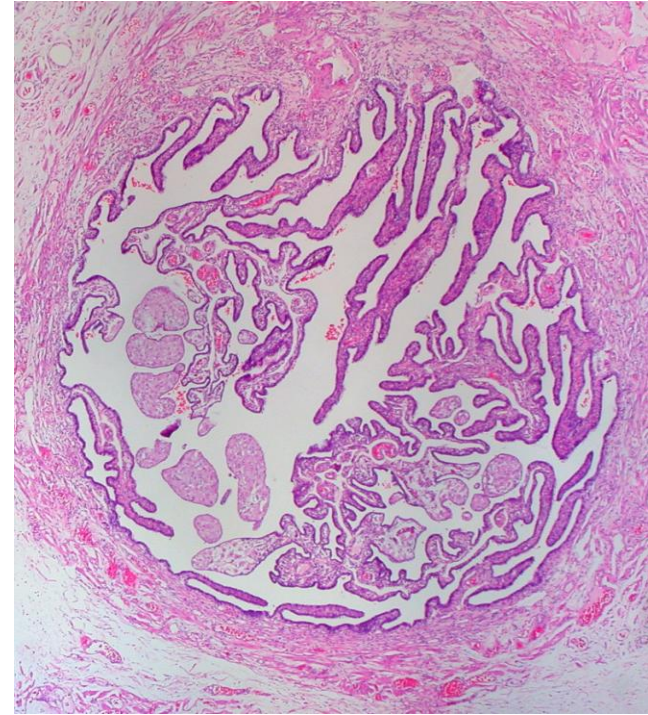


Fejlődéstan - PETEVEZETŐK

- 6. gestatio hét:
 - **A coeloma hám invaginációja** behúzódtást képez, amelyből
- később
 - **A Müllercső (paramesonephric ductusok)** fejlődik, amelyek a coeloma üreg dorsalis területén, magasan helyezkedik el.
- Caudalis irányú növekedés és medialis fúzió
 - A fuzionált ductusok az urogenitalis sinusszal a vestibulumot és a külső genitáliákat alkotják
- ***A nem fuzionált szakaszokból fejlődnek a petevezetők***

PETEVEZETŐK- Anatómia

- A belfelszint bélelő hám a COELOMA HÁMBól fejlődik
- A mucosa magas, karcsú nyúlványokat alkot --- keresztmetszetben papillaris mintázat
- 3 sejttípus:
 - Csillószőrös columnaris sejtek
 - Columnaris, secretoros sejtek
 - Intercalaris sejtek



Az ovariumok és a petevezetők betegségei

Petevezetők

- Gyulladás
 - Tubo-ovarialis abscessus
- Ectopiás terhesség
- Endometriosis
- Adenocarcinoma

Ovarium

- Cysták
 - Egyszerű
 - Follicularis
 - Polycysticus ovarium
 - Corpus luteum cysticum
 - (cysticus tumorok)
- Endometriosis
- Stromalis hyperplasia/hyperthecosis
- Tumorok
 - Epithelialis
 - Csírasejtes
 - Stromalis
 - Kever
 - Metastaticus

Klinikai/Radiológiai vizsgálat

- Fizikális vizsgálat (rutin nőgyógyászati)
- Kismencedei UH
- Transvaginalis UH
- Kismencedei CT és MRI

- Ascites citológia – tumorsejtek jelenléte vagy hiánya

Table 4. Causes of Palpable Mass on Pelvic Examination That May Be Confused with Ovarian Cancer

Gynecologic

Benign

- Ectopic pregnancy
- Endometrioma
- Functional cyst
- Leiomyoma
- Mature teratoma
- Mucinous cystadenoma
- Serous cystadenoma
- Tubo-ovarian abscess or hydrosalpinx

Nongynecologic

Benign

- Appendiceal abscess or mucocele
- Bladder diverticulum
- Diverticular abscess
- Nerve sheath tumors
- Paratubal cyst
- Pelvic kidney
- Ureteral diverticulum

Malignant

- Gastrointestinal cancer
- Metastasis
- Retroperitoneal sarcoma

Laboratóriumi vizsgálatok

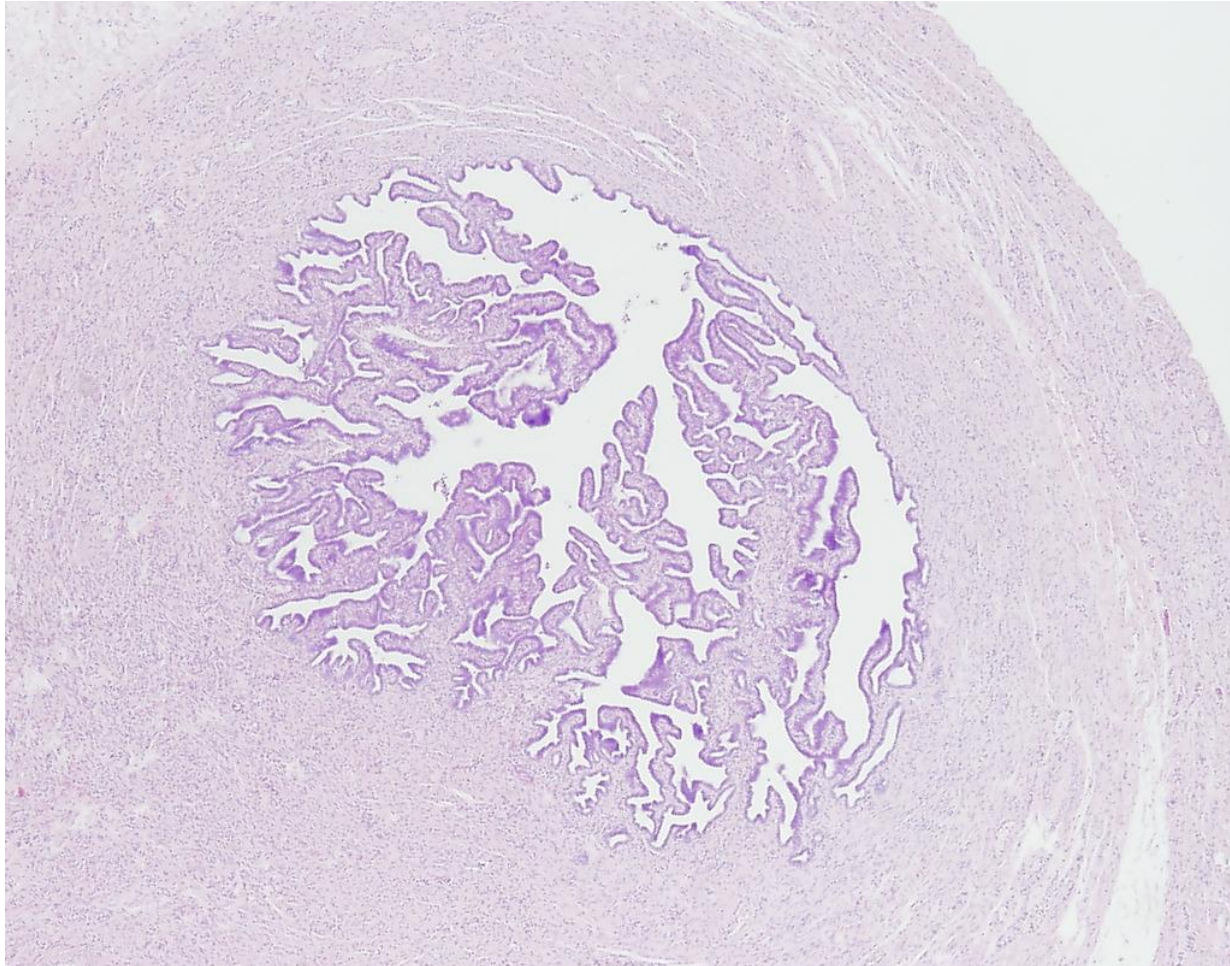
- CA-125
- HE4 (Human Epididymis secretory protein 4)
- ROMA (Risk of Ovarian Malignancy Algorithm)
index = CA-125 és HE4 kombinációja

TABLE**Tumor markers in ovarian masses**

Tumor marker	Ovarian neoplasm
CA-125	Epithelial ovarian cancer
CEA	Mucinous ovarian cancer
HCG	Embryonal carcinoma Choriocarcinoma
Inhibin A or inhibin B	Granulosa cell tumor
Lactate dehydrogenase	Dysgerminoma
α -Fetoprotein	Endodermal sinus tumor Embryonal carcinoma

Abbreviations: CEA, carcinoembryonic antigen; HCG, human chorionic gonadotropin.

PETEVEZETŐ



GYULLADÁS

- Okai
 - *Chlamydia*
 - *Mycoplasma hominis*
 - Coliform bacteriumok
 - gonococcusok
 - streptococcusok és staphylococcusok (postpartum)
 - *Mycobacterium tuberculosis* (tbc-s endometritishez társulhat)

- Tünetek

- Láz
- Kismedencei fájdalom
- Kismedencei tapintható terime

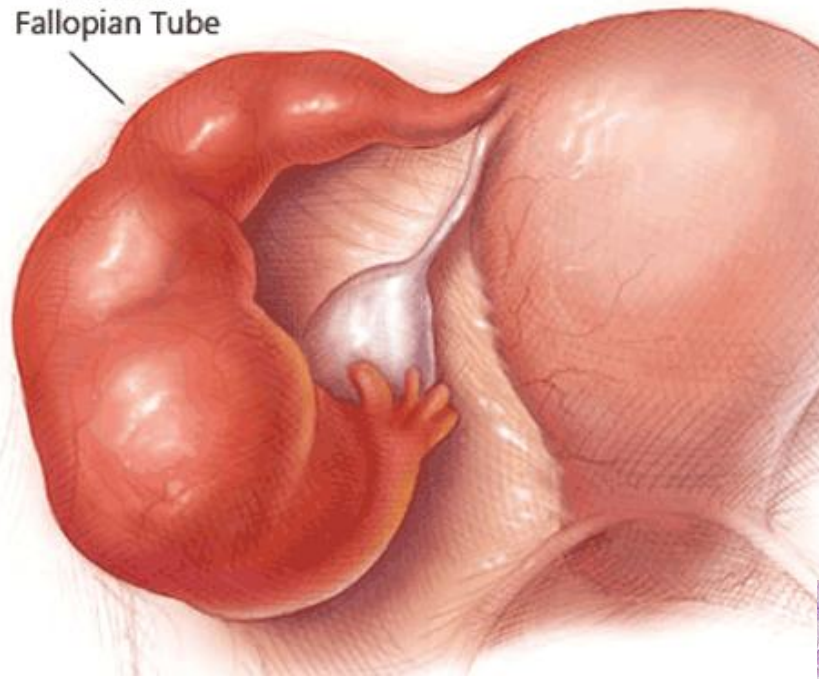


- Következmények/szövődmények

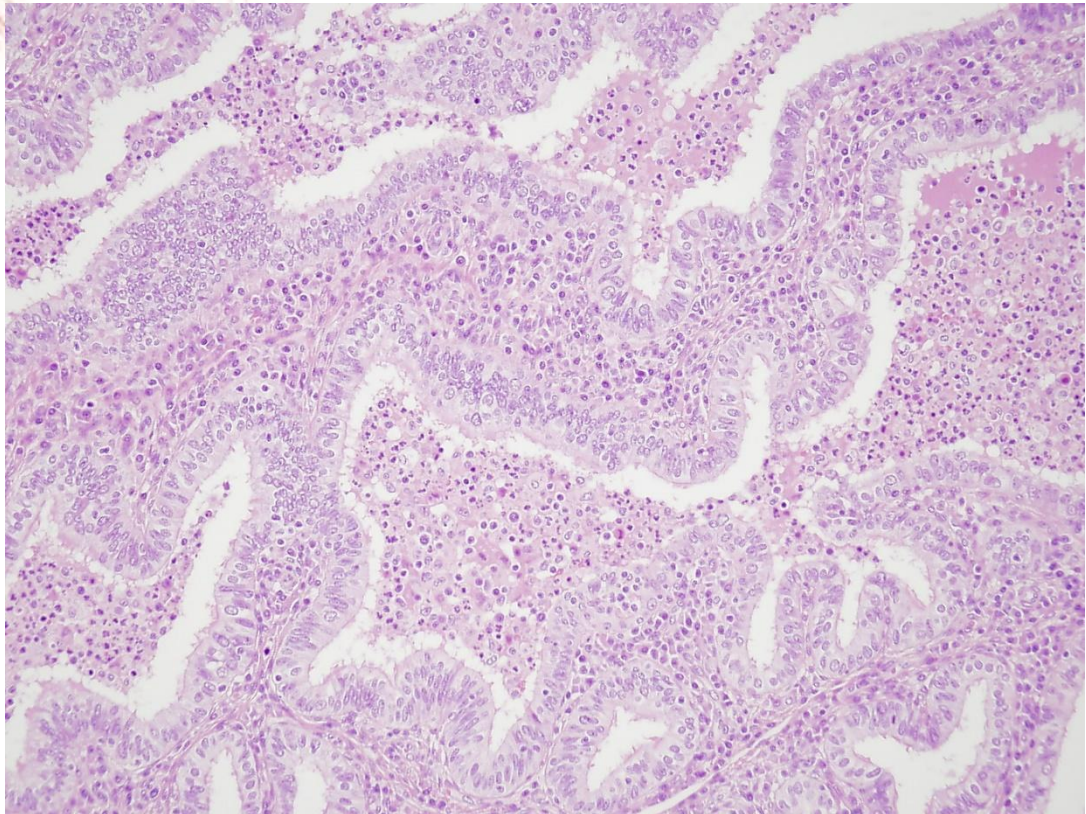
- Pyosalpinx
- Septicaemia
- Tubo-ovarialis abscessus
- Hydrosalpinx (mucosa elpusztulhat)
- Ectopiás terhesség veszélye nő
- Infertilitás (adhesiók vagy a lumen teljes elzáródása)



Inflamed Fallopian Tube



Normal Fallopian Tube



ECTOPIAS TERHESSÉG

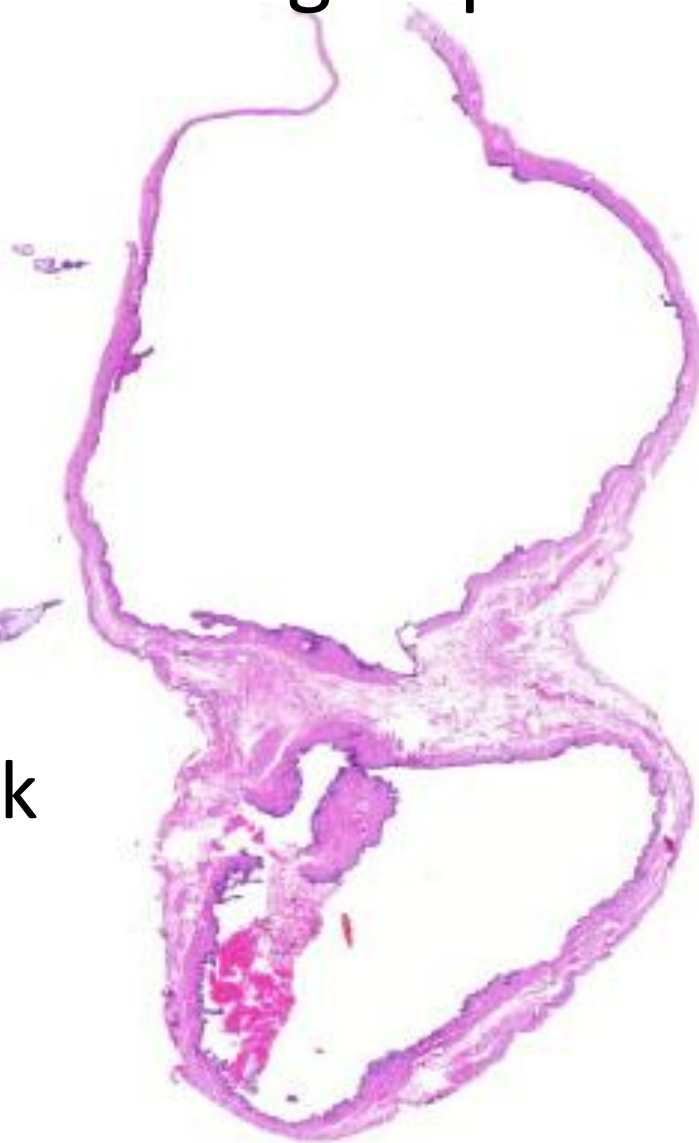
- Definíció: Terhesség a méh üregén kívül
- Petevezetőben a leggyakoribb
- Alhasi fájdalom, ruptura esetén hasúri vérzés lehet (*hemascos* or *hemoperitoneum*)
- Terhességre jellemző elváltozás az endometriumban (*Arias-Stella jelenség*)



Tágult petevezető

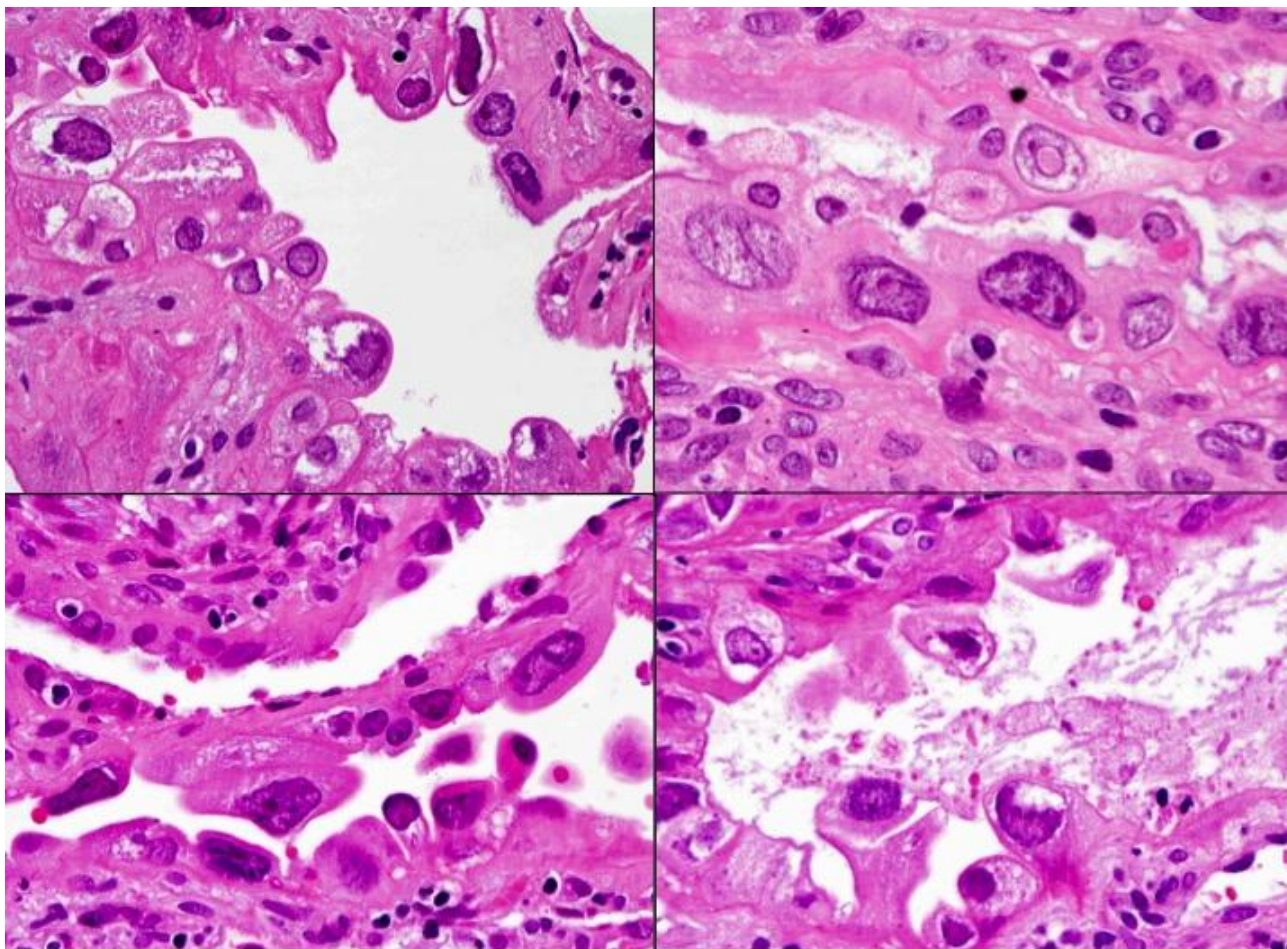


Placenta bolyhok



Vérzés/véralvadék

Az endometriumban: Arias-Stella reakció

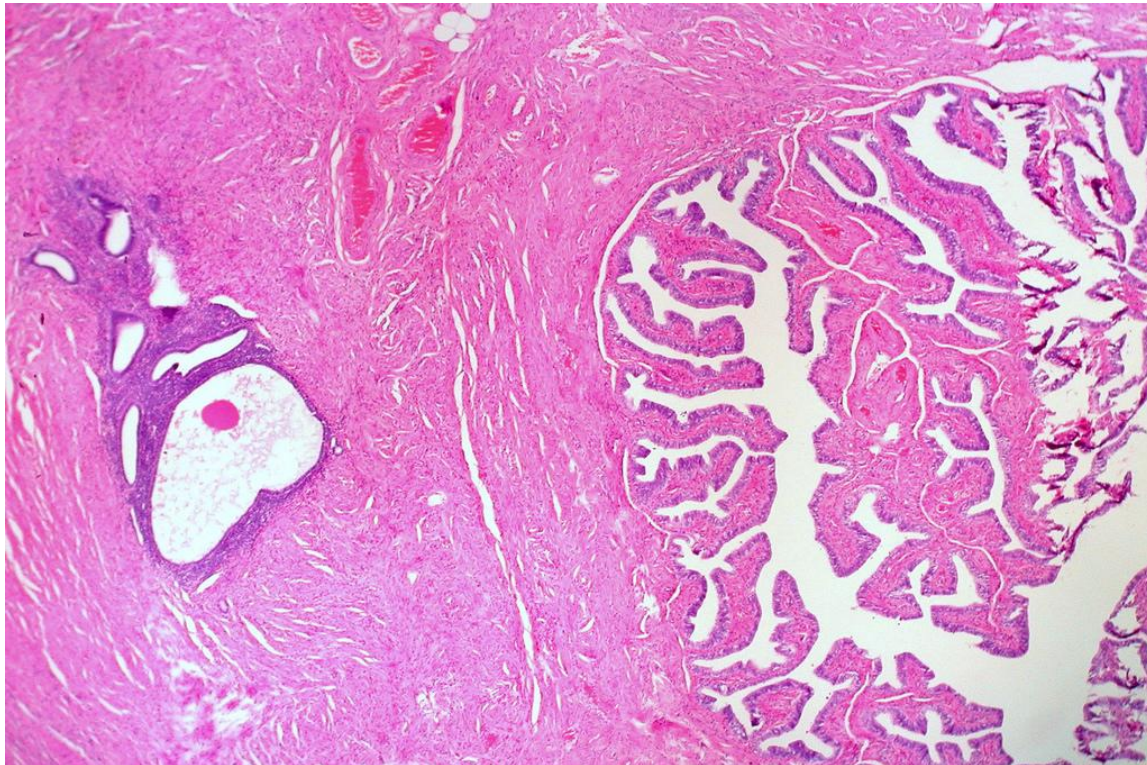


Hobnail growth pattern as well as nuclei with a vesicular configuration while glands showing no / minimal secretory activity discernible in the combination picture. In the upper right image, monstrous cell pattern with giant, bizarre nuclei with homogenous chromatin containing nuclear pseudo-inclusion is visible.

ENDOMETRIOSIS

- Definíció: **endometrium mirigyek és stroma a méhtesten kívül**
- Endometriosis előfordulhat még
 - Douglas üreg
 - Kismedencei peritoneum
 - Ovarium
 - Uterus serosai felszín
 - Cervix
 - Vulva
 - Vagina
 - Extra-genitalis lokalizációk: bél, húgyhólyag

- Etiologia ismeretlen, de...
 - **Retrográd menstruáció**
 - **Metaplasia** révén a mesothel sejtek Müller-cső típusú sejtekké alakulhatnak



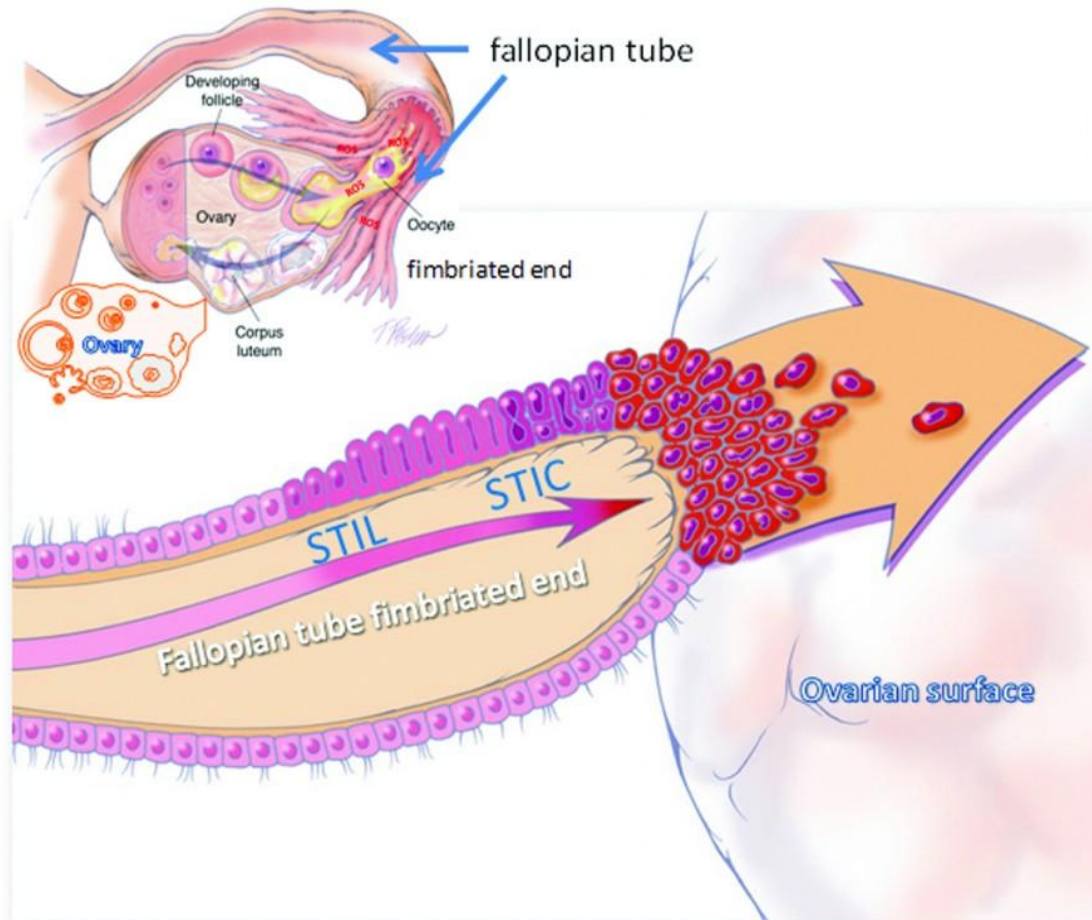
Az endometriosis mikroszkópos (diagnosztikus) jellemzői

- 1) Endometrialis mirigyek
- 2) Endometrialis stroma
- 3) Hemosiderin tartalmú macrophagok

Legalább két komponensnek jelen kell lennie a diagnózis felállításához

ADENOCARCINOMA

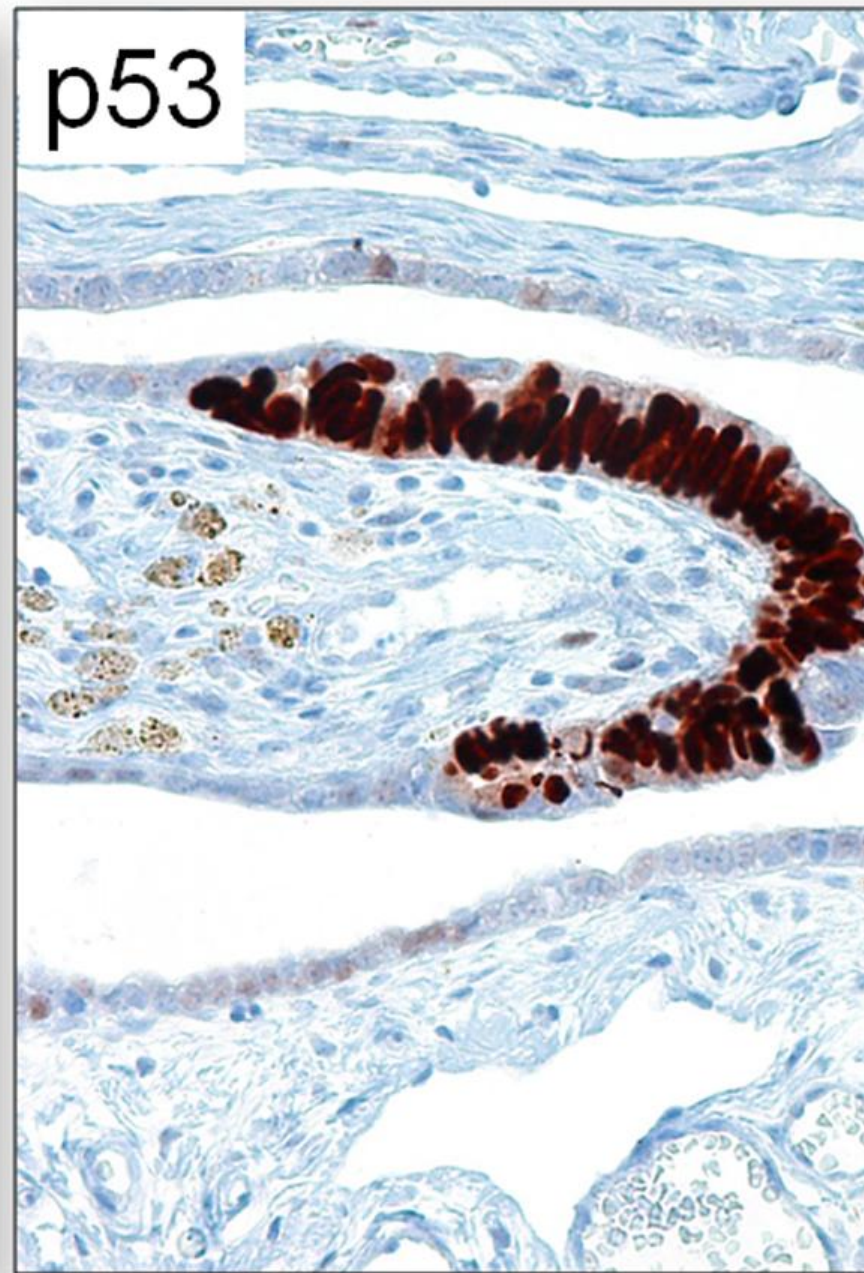
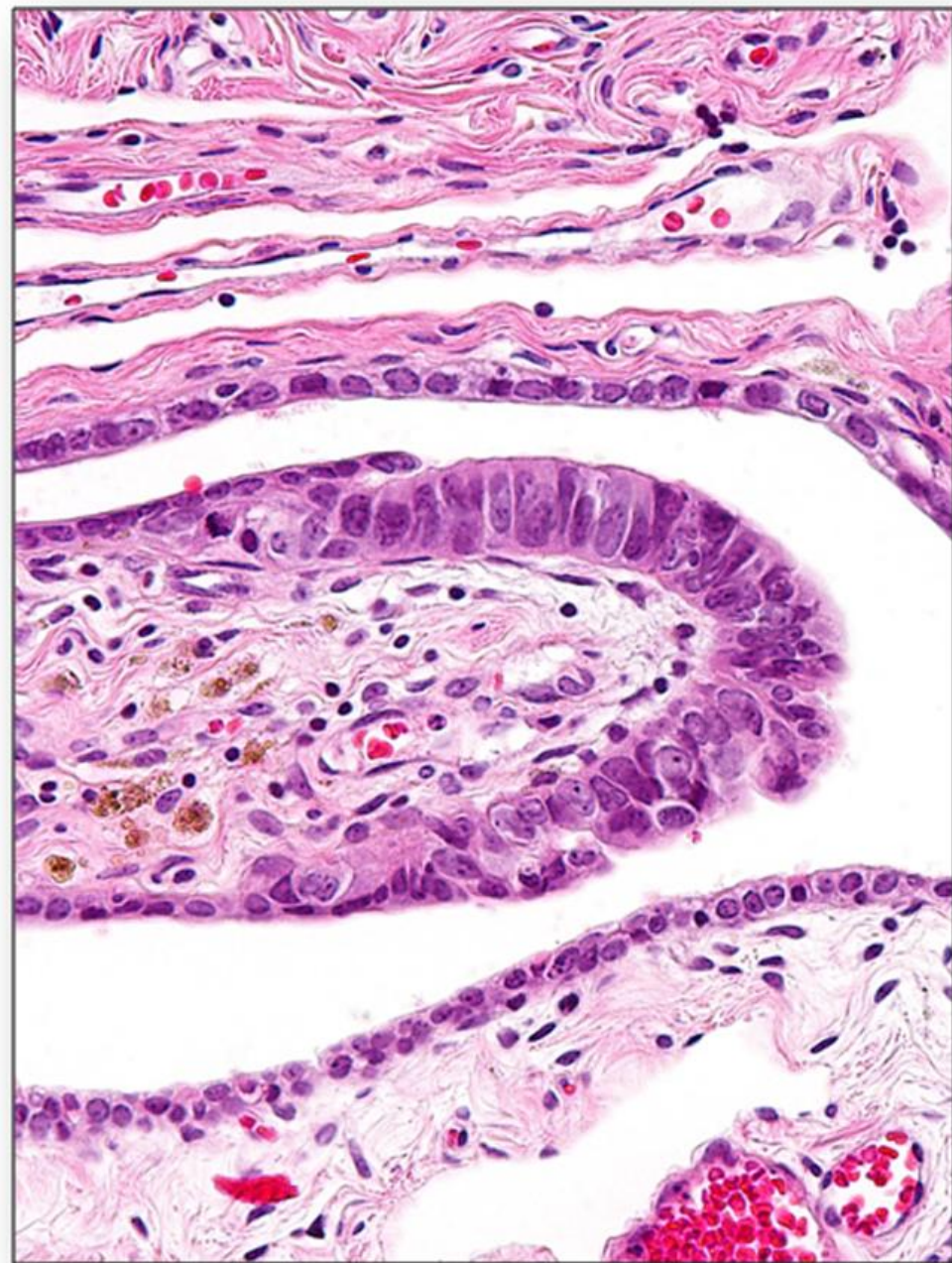
- A petevezetők hámjából indulnak ki a high grade serosus carcinomák, amelyeket sokáig petefészek eredetűnek véltek
- **Precursor: serosus tubalis intraepithelialis carcinoma (STIC)** a petevezetők fimbriális végén
 - TP53 az esetek > 90% -ában
 - BRCA1 és BRCA2 mutáció hordozó betegek preventív salpingectomiás mintáiban gyakori
 - Kevésbé gyakori wtBRCA esetén, de vs. a sporadikus „ovarium” serosus carcinomák is a petevezetőkből indulnak ki
 - **A petevezető eredetű carcinomák a diagnózis idején már beszűrik az ovariumo(ka)t, a csepleszt és a hasüreget (*high grade, előrehaladott stádiumú carcinomák*).**

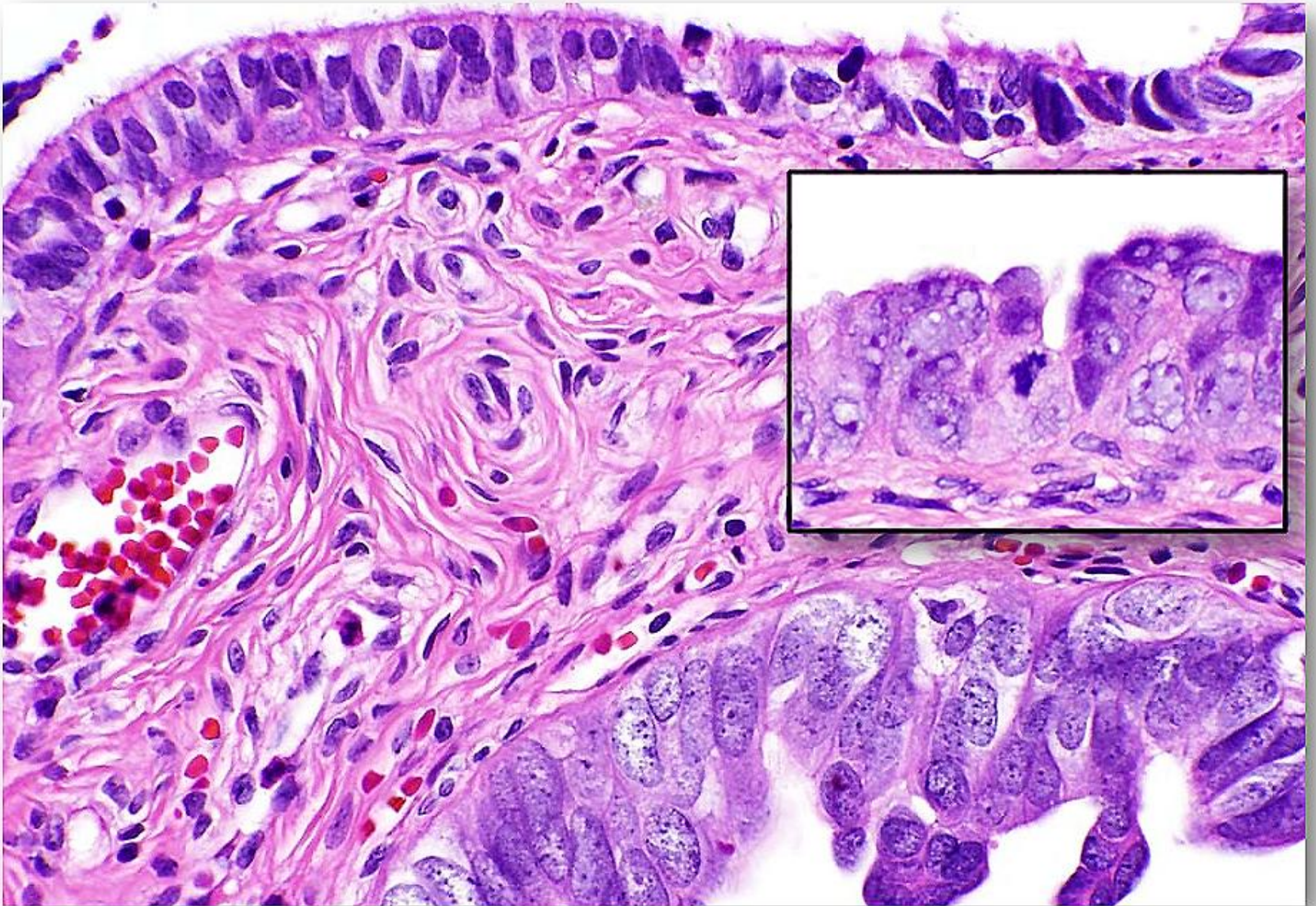


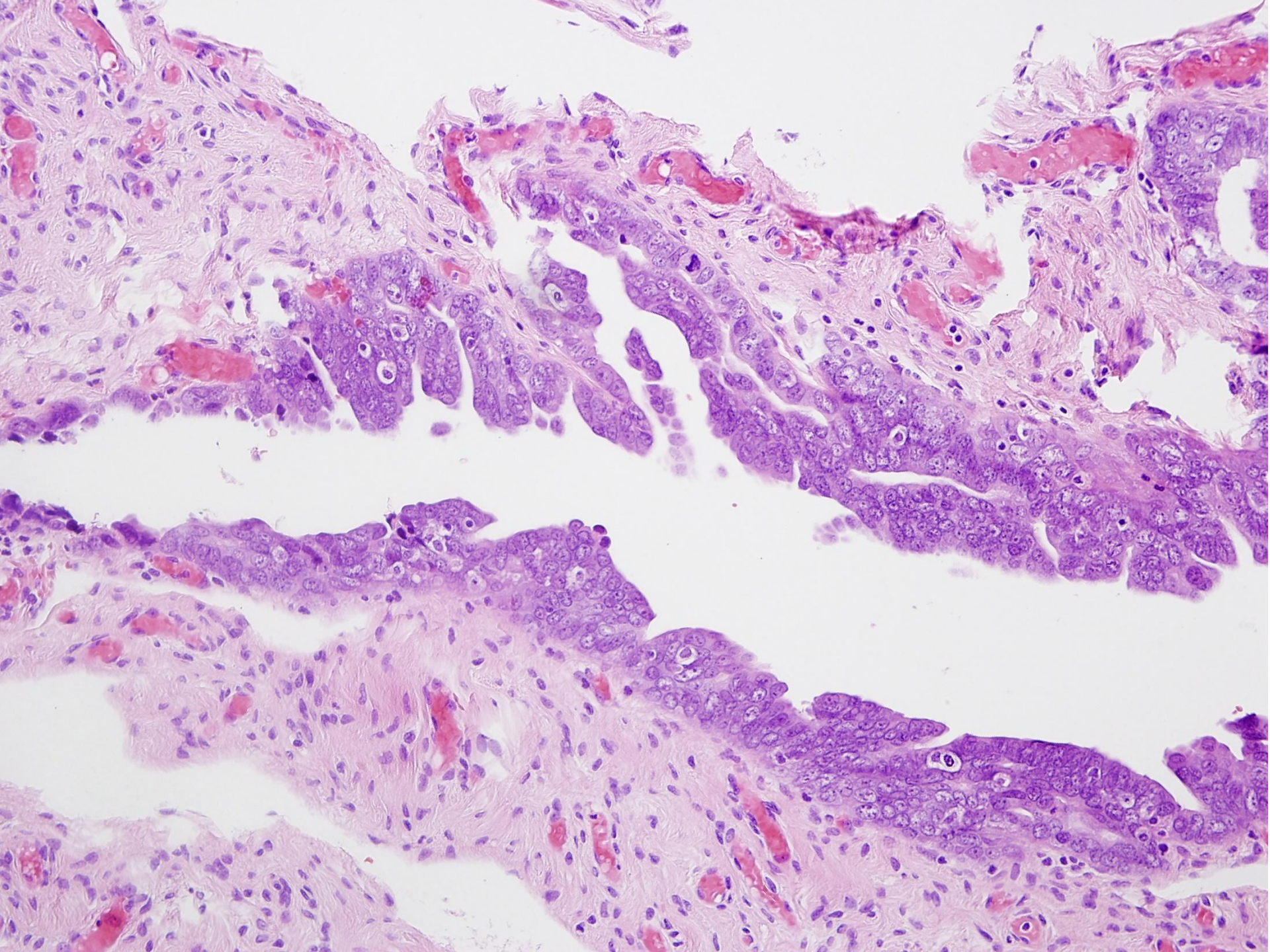
A STIC diagnosztikus jellemzői

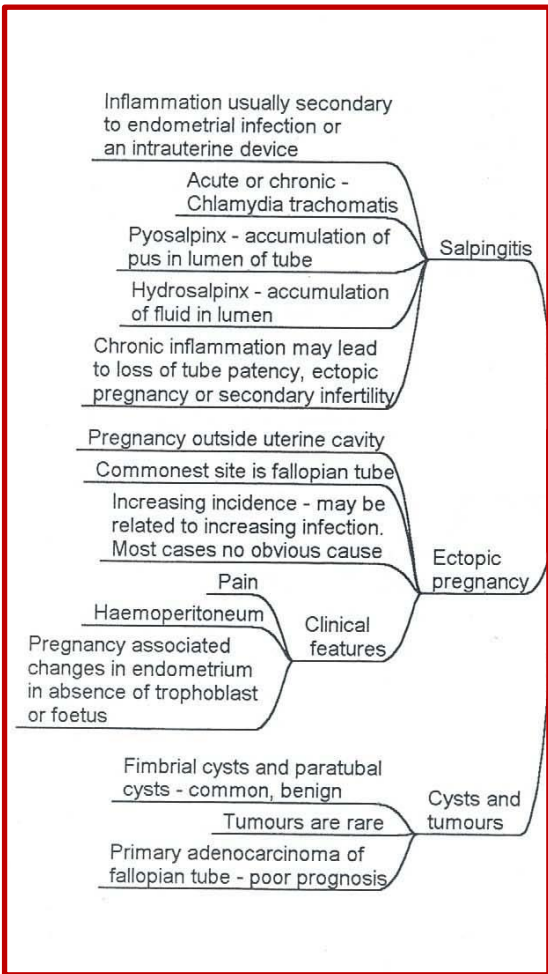
- 1) sejtmag nagy méretű,
- 2) - hyperchromasiás,
- 3) - egyenetlen chromatin eloszlású,
- 4) kifejezett nucleolus,
- 5) mitotikus aktivitás,
- 6) apoptosis,
- 7) sejt polaritás zavar
- 8) "rojtos" hám

Proposed development of ovarian HGSC by direct shedding and implantation of STIC cells from the fimbria onto the ovarian surface.



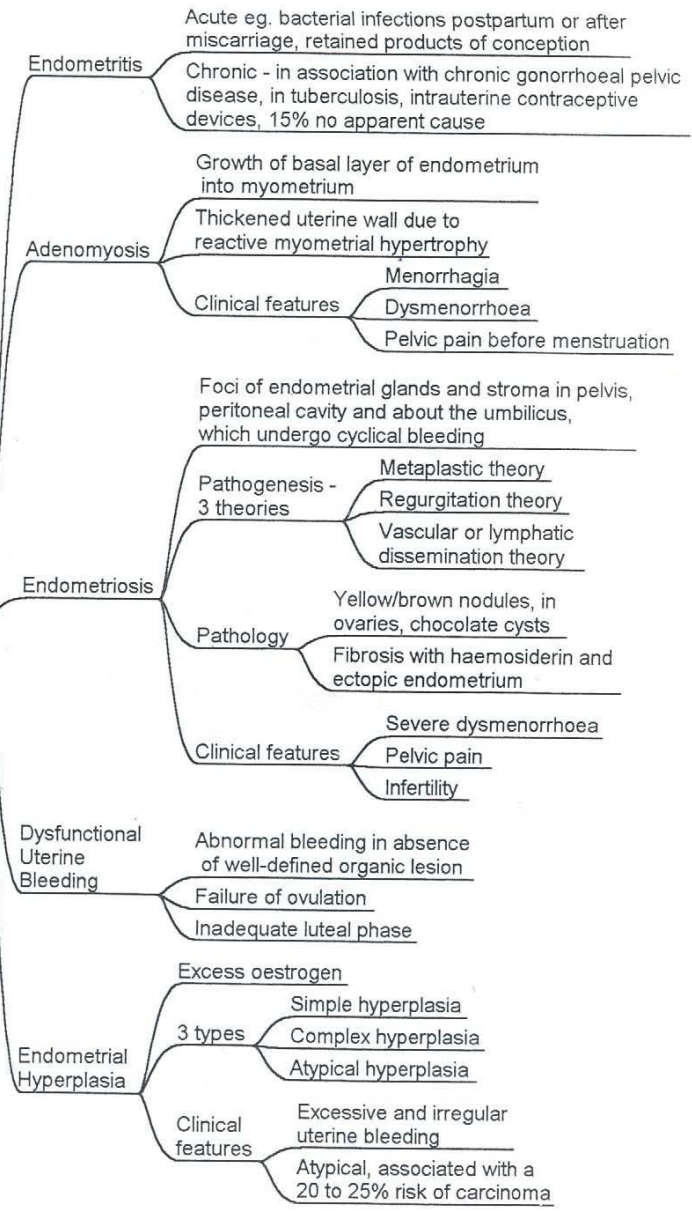






Uterus and Fallopian Tubes

Uterus



OVARIUM

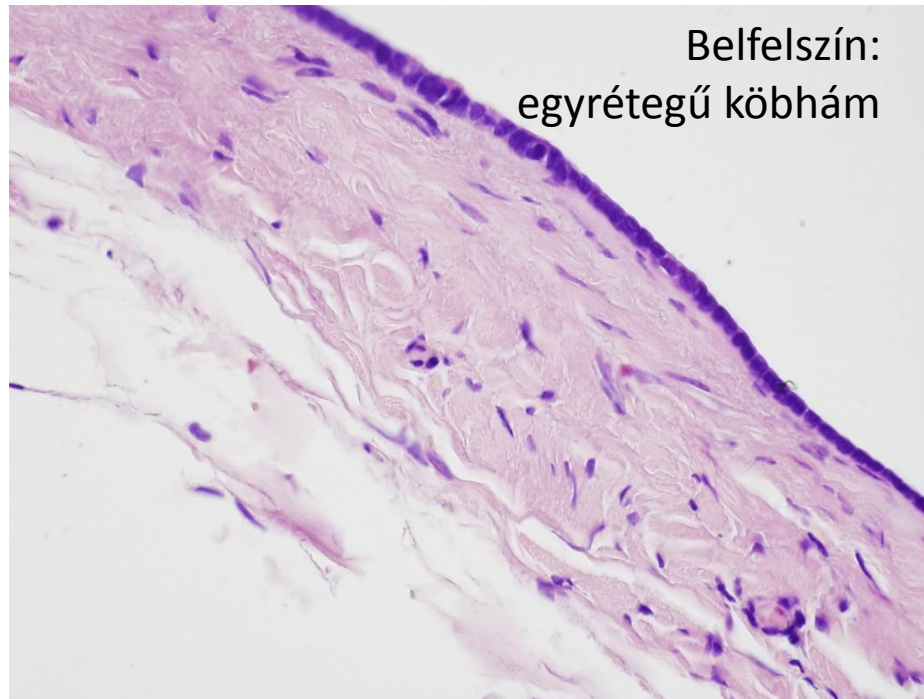
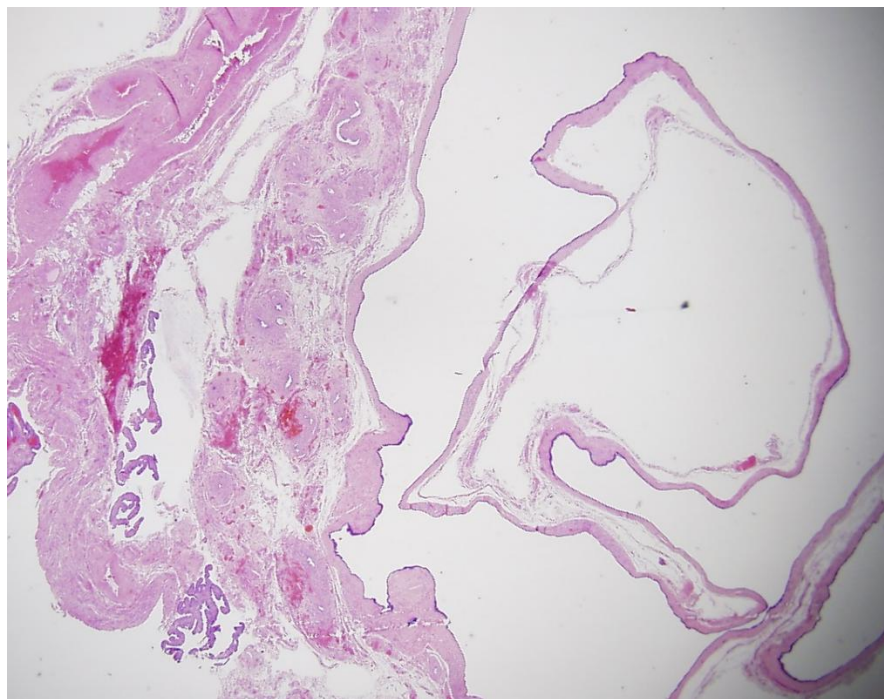
CYSTÁK

- Simplex
 - A coeloma hám invaginatioja
- Follicularis
 - Polycystás Ovarium (PCO)
 - ANOVULATIO, ELHÍZÁS, HIRSUTISMUS, Virilismus
 - Cysticus, megnagyobbodott ovariumok
 - A reproduktív korú nők 3-6%-a érintett
 - Oligomenorrhea
 - Androgenek zavart bioszintézise
 - ***Insulin rezisztencia***
- Corpus luteum cysta
 - Klinikailag cysticus tumort utánozhat
- Edometrioid
 - „csokoládé cysta”
- ***CYSTICUS TUMOROK***
 - *Felsőzíni hám tumorai*

Simplex cysta



Sima külső-
és belső
felszín



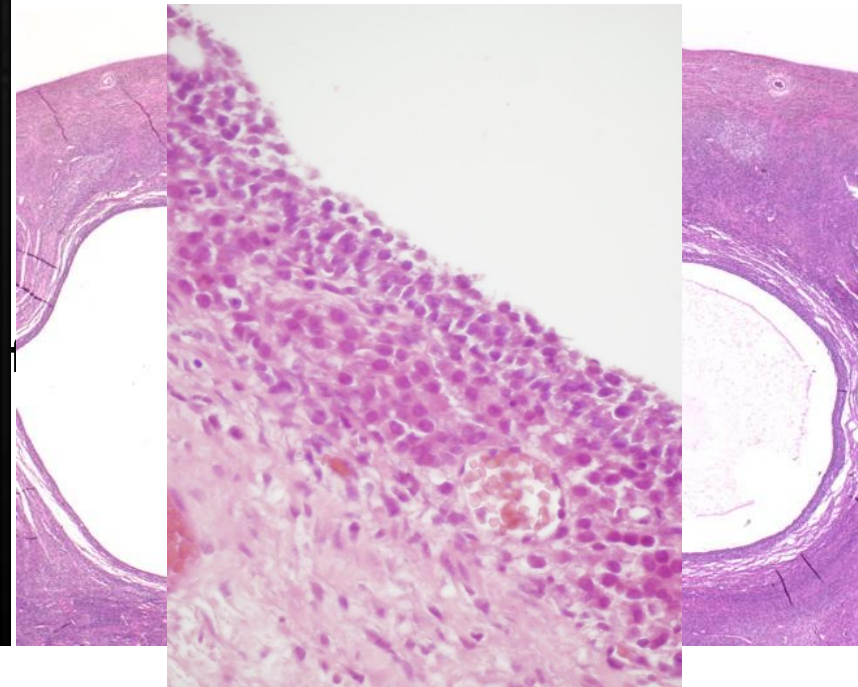
Belfelszín:
egyrétegű köbhám

Follicularis cysta

Polycysticus ovarium szindróma



A kéreg többszörös m, sima belfelszínű cystái



A cysták belfelszínén: granulosa sejtek

Polycystas Ovarium - PCO

Háttér:

insulin rezisztencia

→ hyperinsulinemia

→ csökkent steroid hormone binding globulin (SHBG) és insulin-like growth factor-1 (IGF-1)

→ szabad androgen és ösztrogén szint nő

→ inhibin termelés fokozódik

→ FSH szint emelkedés gátlódik

→ elégtelen folliculus érés

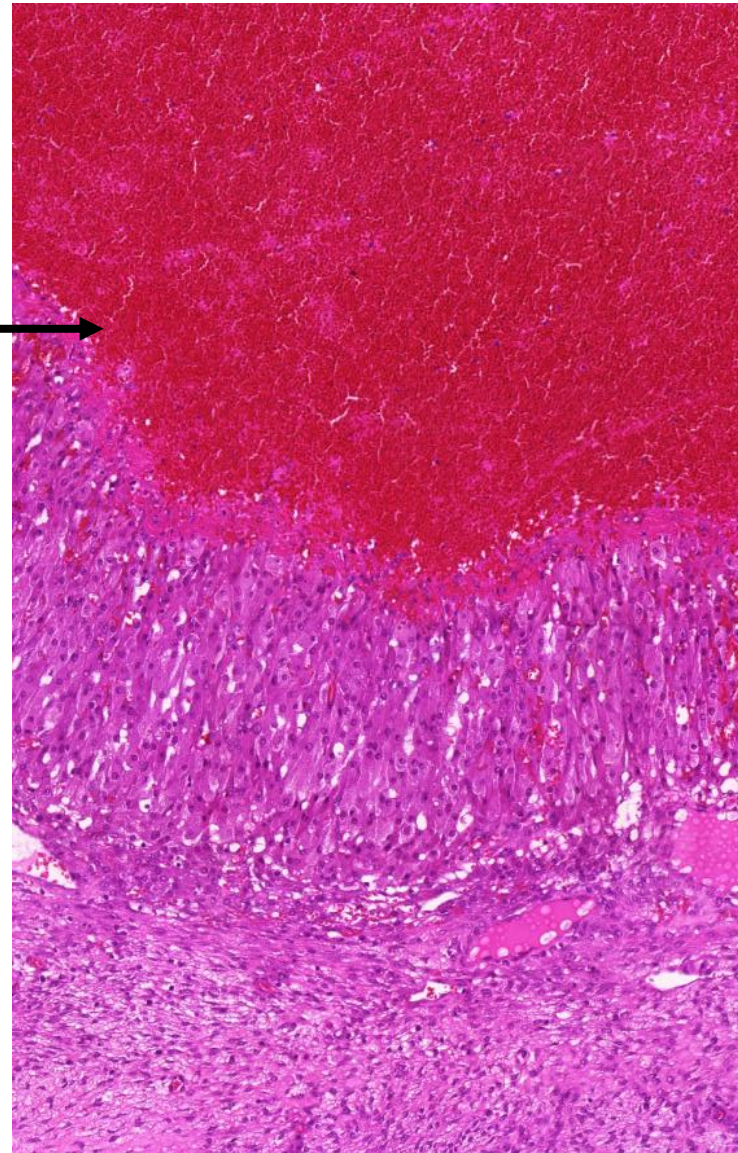
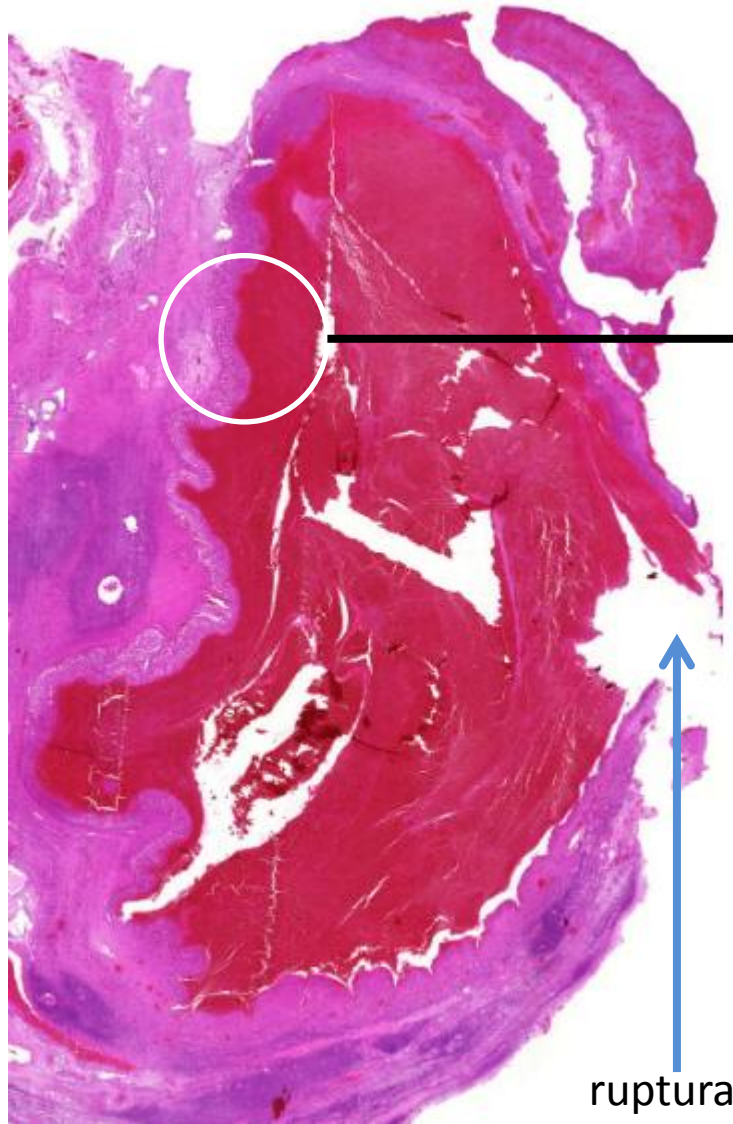
LH szint magas (de hiányzik a ciklus közepi emelkedés, ami az ovulációt eredményezi) → theca hypertrophia → fokozott androgen termelés az ovariumban → aromatáz → ösztrogén szint nő

Corpus luteum cysta

- Szoliter cysta
- Sárgás



Cysticus - vérzések corpus luteum



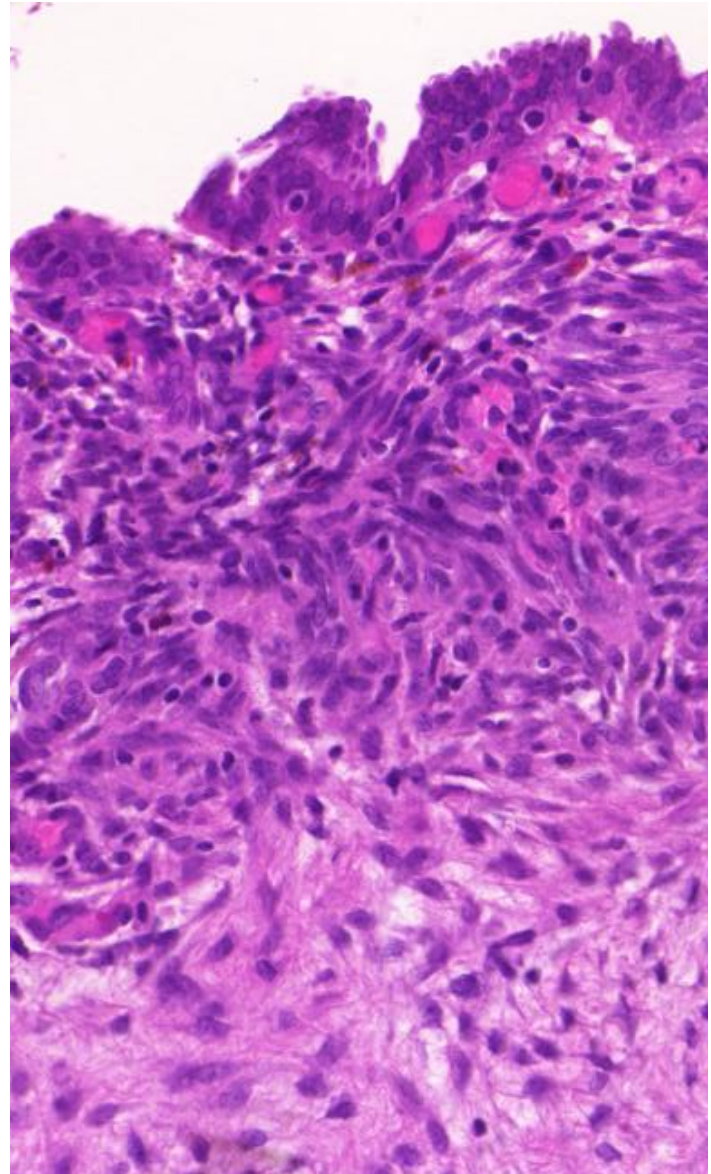
Luteinizált
theca- és
granulosa
sejtek

Endometriosis – endometriotic cysta

Endometrialis hámbélés

Endometrialis stroma

Hemosiderin



Stromalis hyperplasia/hyperthecosis

- Postmenopausalis nők
- Tünetek: hyperoestrogenismus, hyperandrogenismus, virilismus, obesitás, kóros glukóz terhelési teszt
- Megnagyobbodott ovariumok (akár 7 cm), nincsenek cysták
- hypercellularis stroma luteinizált stromasejtekkel (androgen termelés)

Az ovarium tumorai

Benignus: 80%

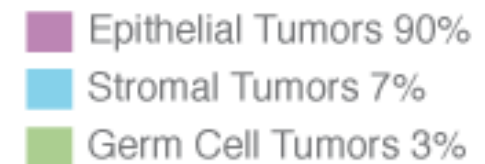
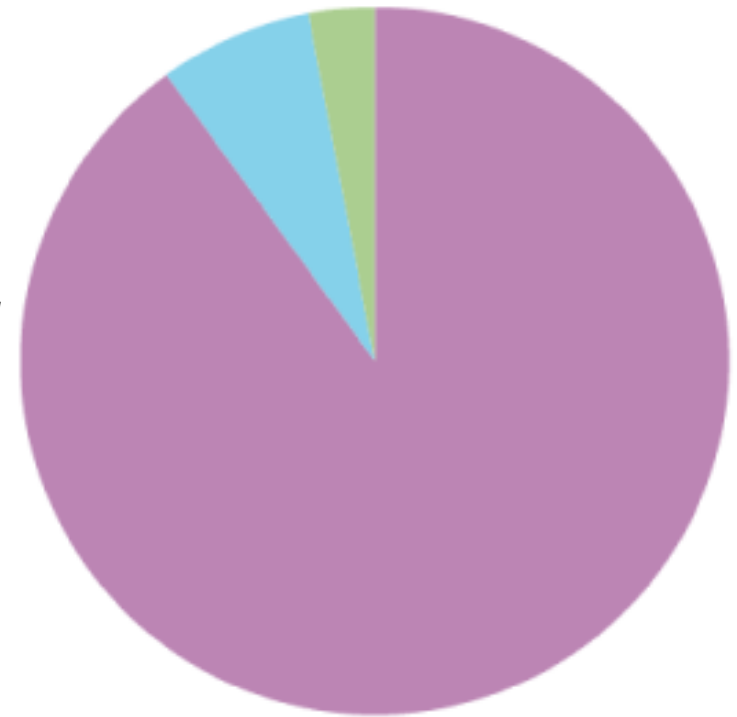
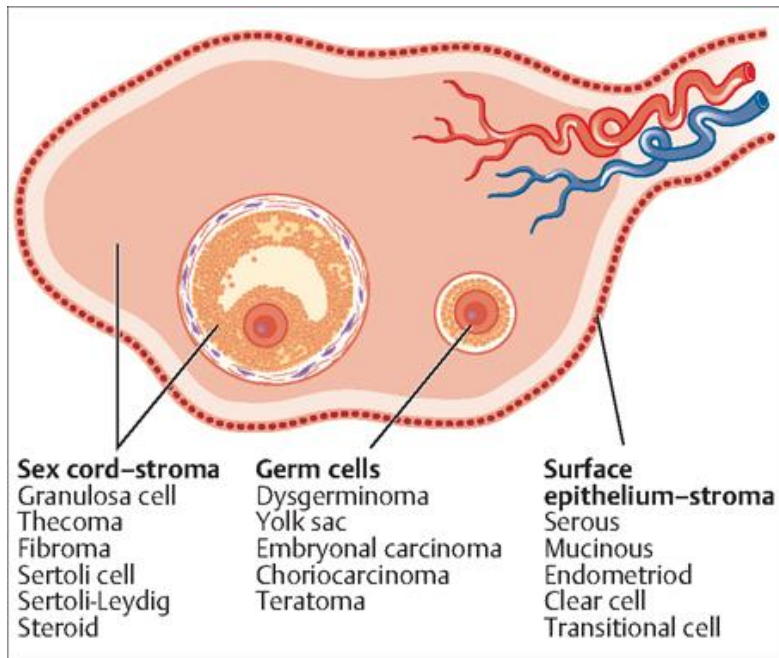
Életkor: 20-45

Malignus tumorok

Életkor: 45-65

A nőkben előforduló rosszindulatú daganatok 3%-a

Az 5. leggyakoribb daganatos halálok



WHO Classification of tumours of the ovary^{a,b}

Epithelial tumours		Malignant
Serous tumours		Malignant Brenner tumour
Benign		
Serous cystadenoma	8441/0	
Serous adenofibroma	9014/0	
Serous surface papilloma	8461/0	
Borderline		
Serous borderline tumour / Atypical proliferative serous tumour	8442/1	
Serous borderline tumour - micropapillary variant / Non-invasive low-grade serous carcinoma	8460/2*	
Malignant		
Low-grade serous carcinoma	8460/3	
High-grade serous carcinoma	8461/3	
Mucinous tumours		
Benign		
Mucinous cystadenoma	8470/0	
Mucinous adenofibroma	9015/0	
Borderline		
Mucinous borderline tumour / Atypical proliferative mucinous tumour	8472/1	
Malignant		
Mucinous carcinoma	8480/3	
Endometrioid tumours		
Benign		
Endometrioid cyst		
Endometrioid cystadenoma	8380/0	
Endometrioid adenofibroma	8381/0	
Borderline		
Endometrioid borderline tumour / Atypical proliferative endometrioid tumour	8380/1	
Malignant		
Endometrioid carcinoma	8380/3	
Clear cell tumours		
Benign		
Clear cell cystadenoma	8443/0	
Clear cell adenofibroma	8313/0	
Borderline		
Clear cell borderline tumour / Atypical proliferative clear cell tumour	8313/1	
Malignant		
Clear cell carcinoma	8310/3	
Brenner tumours		
Benign		
Brenner tumour	9000/0	
Borderline		
Borderline Brenner tumour / Atypical proliferative Brenner tumour	9000/1	

Germ cell tumours		Wolffian tumour
Dysgerminoma	9060/3	Small cell carcinoma, hypercalcaemic type
Yolk sac tumour	9071/3	Small cell carcinoma, pulmonary type
Embryonal carcinoma	9070/3	Wilms tumour
Non-gestational choriocarcinoma	9100/3	Paraganglioma
Mature teratoma	9080/0	Solid pseudopapillary neoplasm
Immature teratoma	9080/3	
Mixed germ cell tumour	9085/3	
Monodermal teratoma and somatic-type tumours arising from a dermoid cyst		Mesothelial tumours
Struma ovarii, benign	9090/0	Adenomatoid tumour
Struma ovarii, malignant	9090/3	Mesothelioma
Carcinoid	8240/3	
Strumal carcinoid	9091/1	
Mucinous carcinoid	8243/3	
Neuroectodermal-type tumours		
Sebaceous tumours		
Sebaceous adenoma	8410/0	
Sebaceous carcinoma	8410/3	
Other rare monodermal teratomas		
Carcinomas		
Squamous cell carcinoma	8070/3	
Others		
Germ cell - sex cord-stromal tumours		
Gonadoblastoma, including gonadoblastoma with malignant germ cell tumour	9073/1	
Mixed germ cell-sex cord-stromal tumour, unclassified	8594/1*	
Miscellaneous tumours		
Tumours of rete ovarii		
Adenoma of rete ovarii	9110/0	
Adenocarcinoma of rete ovarii	9110/3	
		Soft tissue tumours
		Myxoma
		Others
		Tumour-like lesions
		Follicle cyst
		Corpus luteum cyst
		Large solitary luteinized follicle cyst
		Hyperreactio luteinalis
		Pregnancy luteoma
		Stromal hyperplasia
		Stromal hyperthecosis
		Fibromatosis
		Massive oedema
		Leydig cell hyperplasia
		Others
		Lymphoid and myeloid tumours
		Lymphomas
		Plasmacytoma
		Myeloid neoplasms
		Secondary tumours

2014

T - Primary Tumour

TNM FIGO

TX		Primary tumour cannot be assessed
T0		No evidence of primary tumour
T1	I	Tumour limited to the ovaries
T1a	IA	Tumour limited to one ovary (capsule intact) or fallopian tube surface; no malignant cells in ascites or peritoneal washings
T1b	IB	Tumour limited to one or both ovaries (capsules intact) or fallopian tubes; no tumour on ovarian or fallopian tube surface; no malignant cells in ascites or peritoneal washings
T1c	IC	Tumour limited to one or both ovaries or fallopian tubes with any of the following:
T1c1	IC1	Surgical spill
T1c2	IC2	Capsule ruptured before surgery or tumour on ovarian or fallopian tube surface
T1c3	IC3	Malignant cells in ascites or peritoneal washings
T2	II	Tumour involves one or both ovaries or fallopian tubes with pelvic extension below pelvic brim or primary peritoneal cancer
T2a	IIA	Extension and/or implants on uterus and/or fallopian tubes and/or ovaries
T2b	IIB	Extension to other pelvic intraperitoneal
T3	III	Tumour involves one or both ovaries or fallopian tubes, and/or or primary peritoneal carcinoma, with cytologically or N1 histologically confirmed spread to the peritoneum outside the pelvis and/or metastasis to the retroperitoneal lymph nodes
N1	IIIA1	Retroperitoneal lymph node metastasis only
N1a	IIIA1i	Lymph node metastasis up to 10 mm in greatest dimension
N1b	IIIA1ii	Lymph node metastasis more than 10 mm in greatest dimension
T3a	IIIA2	Microscopic extrapelvic (above the pelvic brim) peritoneal involvement with or without retroperitoneal lymph node
T3b	IIIB	Macroscopic peritoneal metastasis beyond the pelvis up to 2 cm in greatest dimension with or without retroperitoneal lymph node metastasis
T3c	IIIC	Macroscopic peritoneal metastasis beyond the pelvis more than 2 cm in greatest dimension, with or without retroperitoneal lymph node metastasis (excludes extension of tumour to capsule of liver and spleen without parenchymal involvement of either organ)
M1	IV	Distant metastasis excluding peritoneal metastasis
M1a	IVA	Pleural effusion with positive cytology
M1b	IVB	Parenchymal metastasis and metastasis to extra-abdominal organs (including inguinal lymph nodes and lymph nodes outside the abdominal cavity)

N — Regional Lymph Nodes

NX	Regional lymph nodes cannot be assessed
N0	No regional lymph node metastasis
N1	Regional lymph node metastasis
N1a	Lymph node metastasis up to 10 mm in greatest dimension
N1b	Lymph node metastasis more than 10 mm in greatest dimension

M — Distant Metastasis

M0	No distant metastasis
M1	Distant metastasis
M1a	Pleural effusion with positive cytology
M1b	Parenchymal metastasis and metastasis to extra abdominal organs (including inguinal lymph nodes and lymph nodes outside the abdominal cavity)

pTNM Pathological Classification

The pT and pN categories correspond to the T and N categories.

pM1 Distant metastasis microscopically confirmed

Note: pM0 and pMX are not valid categories.

pN0 Histological examination of a pelvic lymphadenectomy specimen will ordinarily include 10 or more lymph nodes. If the lymph nodes are negative, but the number ordinarily examined is not met, classify as pN0.

Stage Grouping

Stage IA	T1a	N0	M0
Stage IB	T1b	N0	M0
Stage IC1	T1c1	N0	M0
Stage IC2	T1c2	N0	M0
Stage IC3	T1c3	N0	M0
Stage IIA	T2a	N0	M0
Stage IIB	T2b	N0	M0
Stage IIIA1	T1/T2	N1	M0
Stage IIIA2	T3a	N0/N1	M0
Stage IIIB	T3b	N0/N1	M0
Stage IIIC	T3c	N0/N1	M0
Stage IV	Any T	Any N	M1

Note: There is no longer a T2c category.

References

- American Joint Committee on Cancer (AJCC) Cancer Staging Manual, 7th ed. (2011). Edge SB, Byrd DR, Compton CC, Fritz AG, Greene FL, Trotti III eds. Springer: New York
- International Union against Cancer (UICC): TNM Classification of Malignant Tumours, 7th ed. (2009) Sobin LH, Gospodarowicz MK, Wittekind Ch eds. Wiley-Blackwell: Oxford
- A help-desk for specific questions about the TNM classification is available at <http://www.uicc.org>.
- Prat J, FIGO Committee on Gynecologic Oncology (2014). Staging classification for cancer of the ovary, fallopian tube, and peritoneum. Int J Gynaecol Obstet 124:1-5.

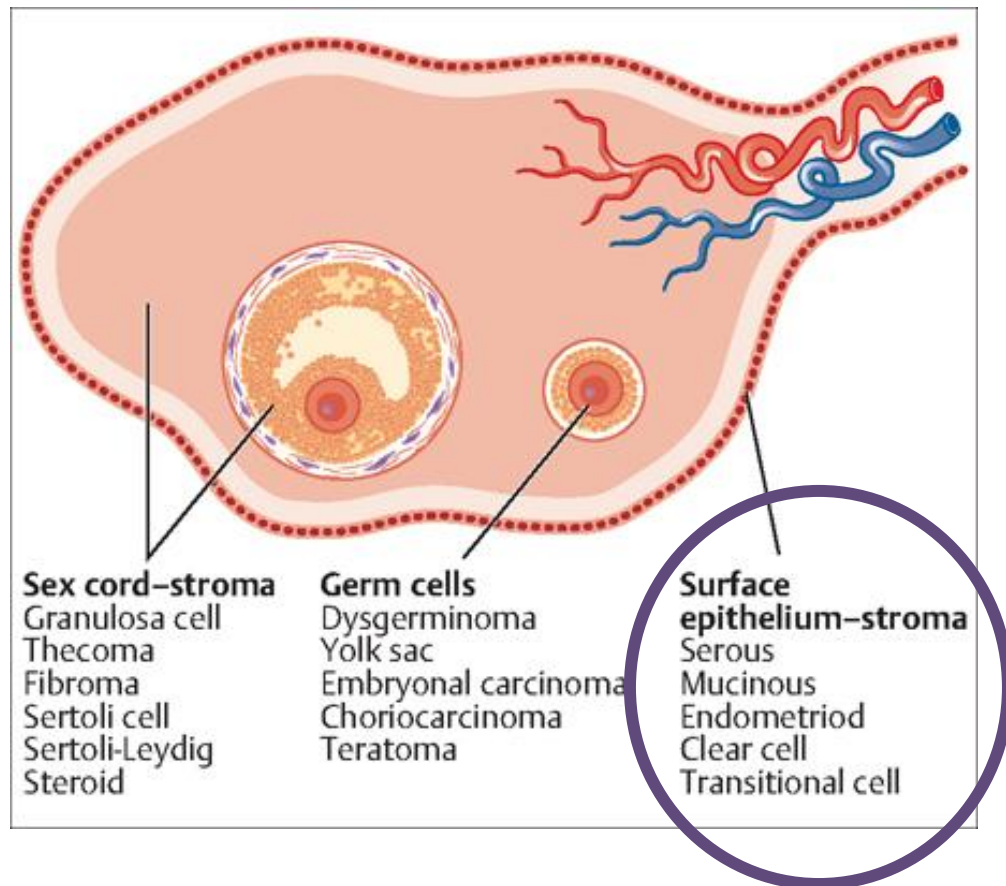
TNM és FIGO Petevezető és petefészek

2017

TABLE 19.3 Frequency of Major Ovarian Tumors

Type	Percentage of Malignant Ovarian Tumors	Percentage That Are Bilateral
Serous	47	
Benign (60%)		25
Borderline (15%)		30
Malignant (25%)		65
Mucinous	3	
Benign (80%)		5
Borderline (10%)		10
Malignant (10%)		<5
Endometrioid carcinoma	20	30
Undifferentiated carcinoma	10	—
Clear cell carcinoma	6	40
Granulosa cell tumor	5	5
Teratoma	1	
Benign (96%)		15
Malignant (4%)		Rare
Metastatic	5	>50
Others	3	—

EPITHELIALIS TUMOROK



- **Serosus**
 - 25% malignus
 - Gyakran kétoldali
 - Psammoma testek
- **Mucinosus**
 - Többségük benignus
 - Extrém nagy méretű lehet
 - Pseudomyxoma peritonei
- **Endometrioid**
 - Többségük malignus
 - 15-30%-ban egyidejű endometrium carcinoma
- Világossejtes
 - Endometrioid diff. variáns
 - „bakancsszeg” sejtek
- Transitionalis sejtes/Brenner tumor
 - Többségük benignus
 - Wolff cső irányú differentiatio

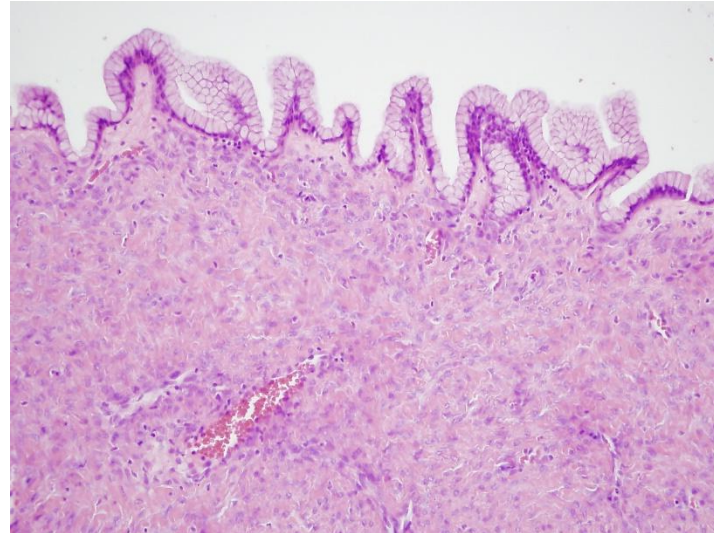
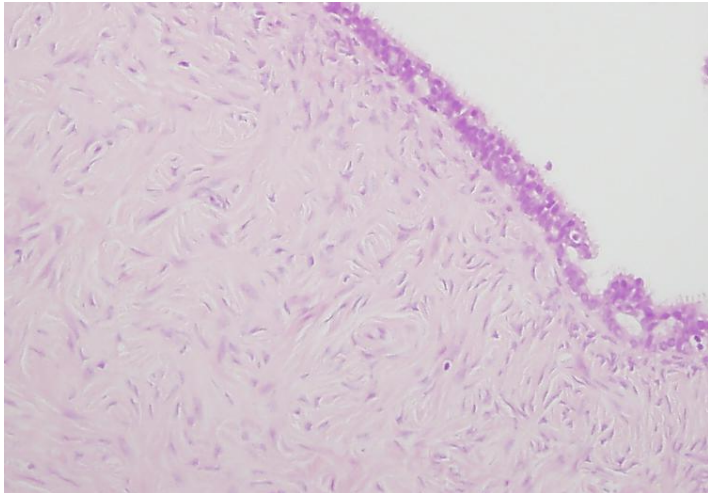
- **BENIGNUS**
 - CYSTADENOMA
 - CYSTADENOFIBROMA
 - ADENOFIBROMA
- **BORDERLINE**
 - FOKOZOTT STRUKTURALIS KOMPLEXITÁS
 - DESTRUKTÍV, INFILTRATÍV NÖVEKEDÉS HIÁNYA
- **MALIGNUS**
 - RENDKÍVÜL KOMPLEX STUKTÚRA
 - INVÁZIÓ

Benignus epithelialis tumorok

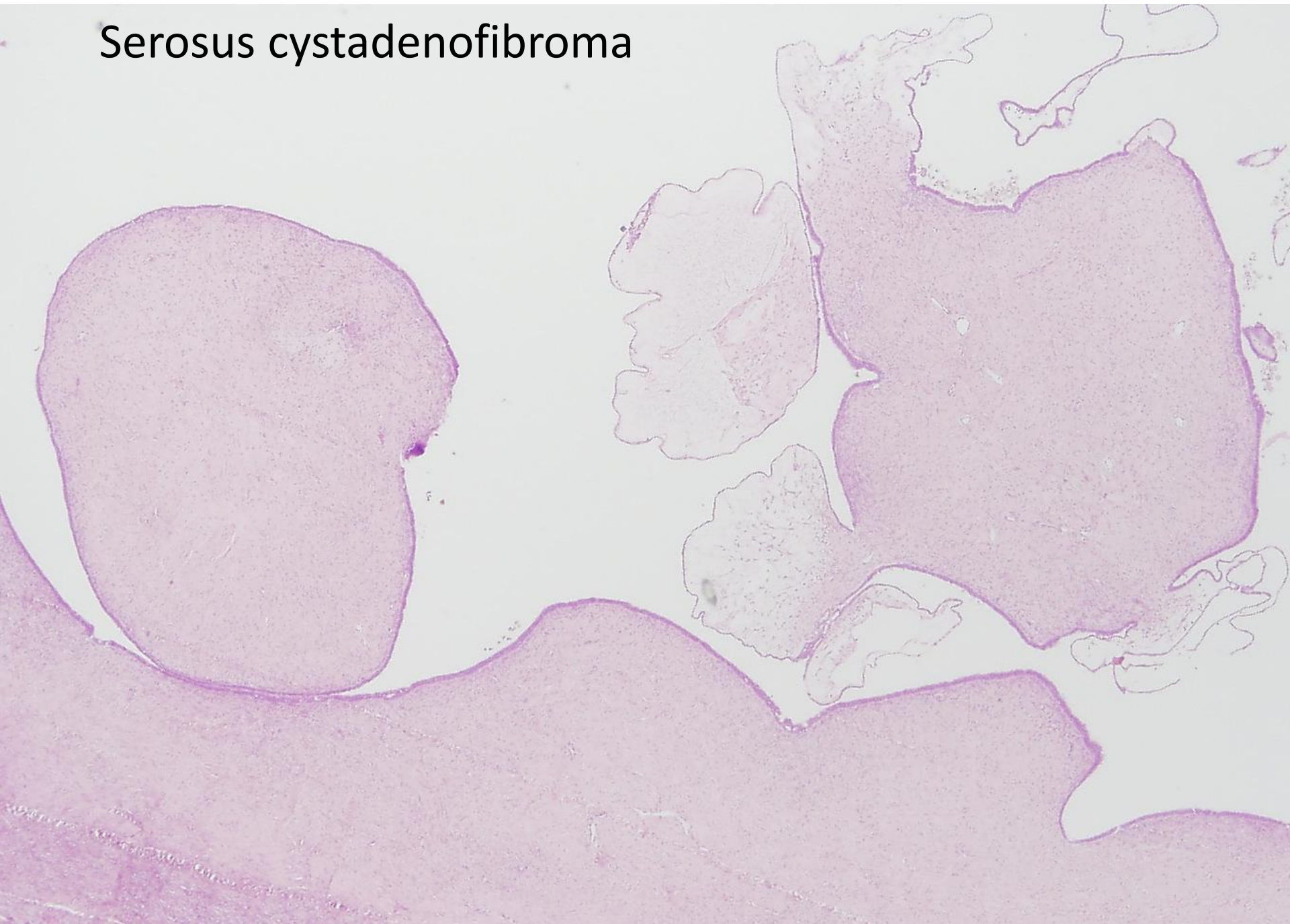
Serosus cystadenoma (25% kétoldali)



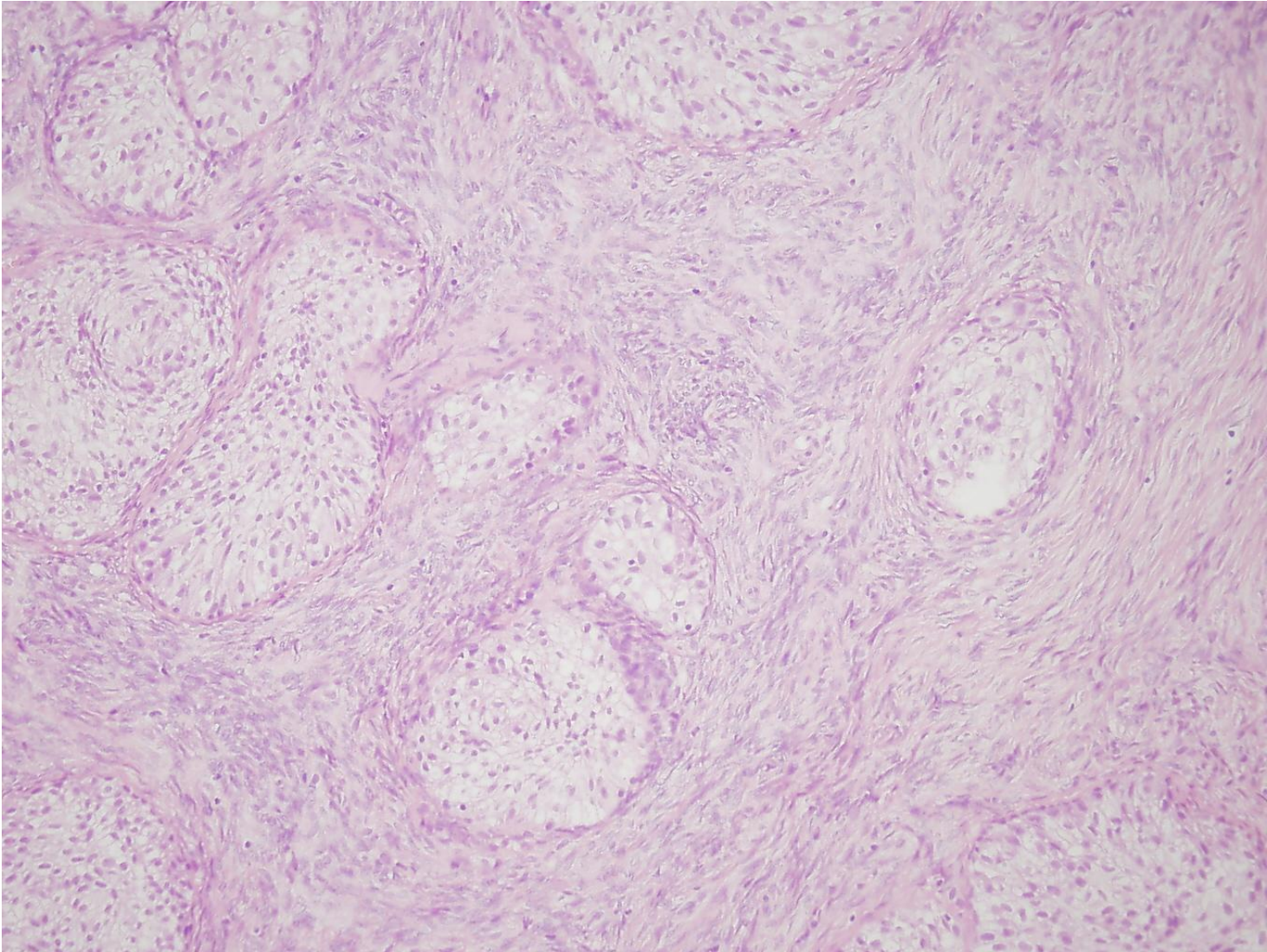
Mucinosus cystadenoma



Serosus cystadenofibroma

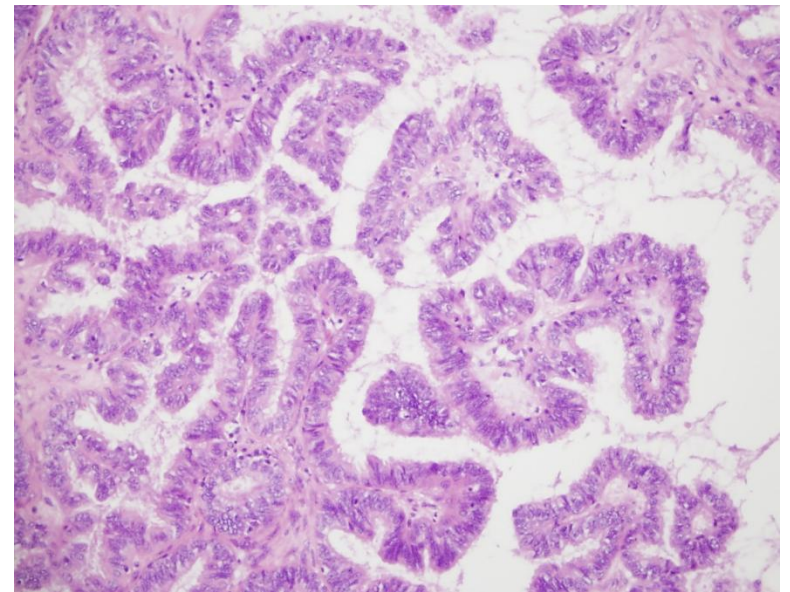
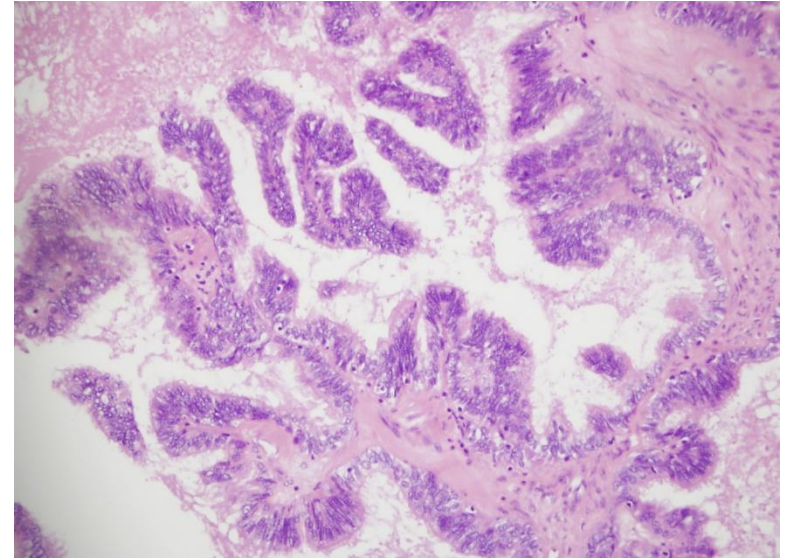
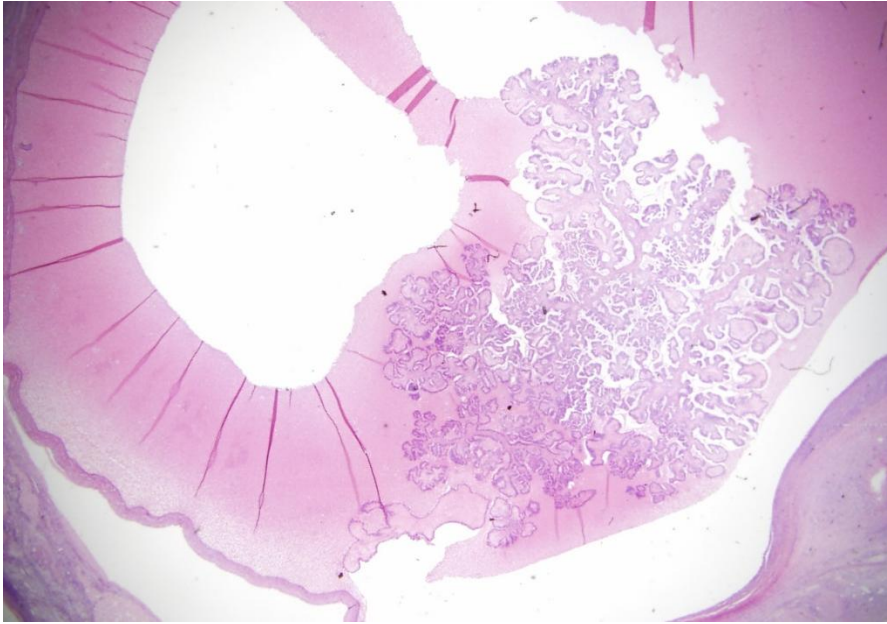


Brenner tumor



Transitionalis sejtek csoportjai tömeges stromában

Serosus *borderline* tumor



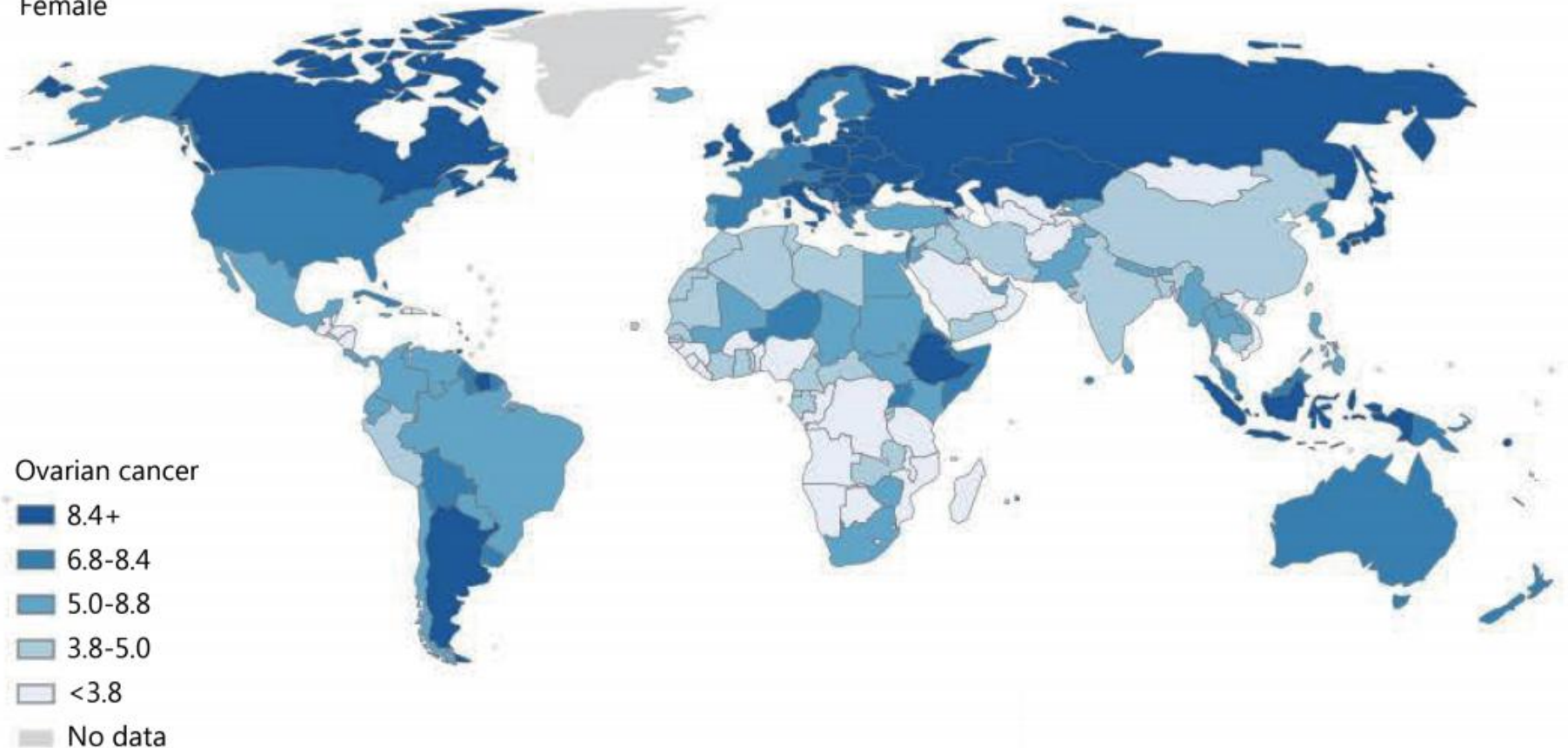
Borderline tumor:

Hisztológiai és citológiai malignitási jegek (komplex struktúra, atypia, mitosisok) *DE NINCS INVÁZIÓ*

Ovarium carcinoma incidenciája

Cancer Biol Med Vol 14, No 1 February 2017

Incidence ASR
Female



Source: GLOBOCAN 2012 (IARC)

Figure 1 Ovarian cancer incidence exhibits wide geographic variation.

Ovarian Cancer



A

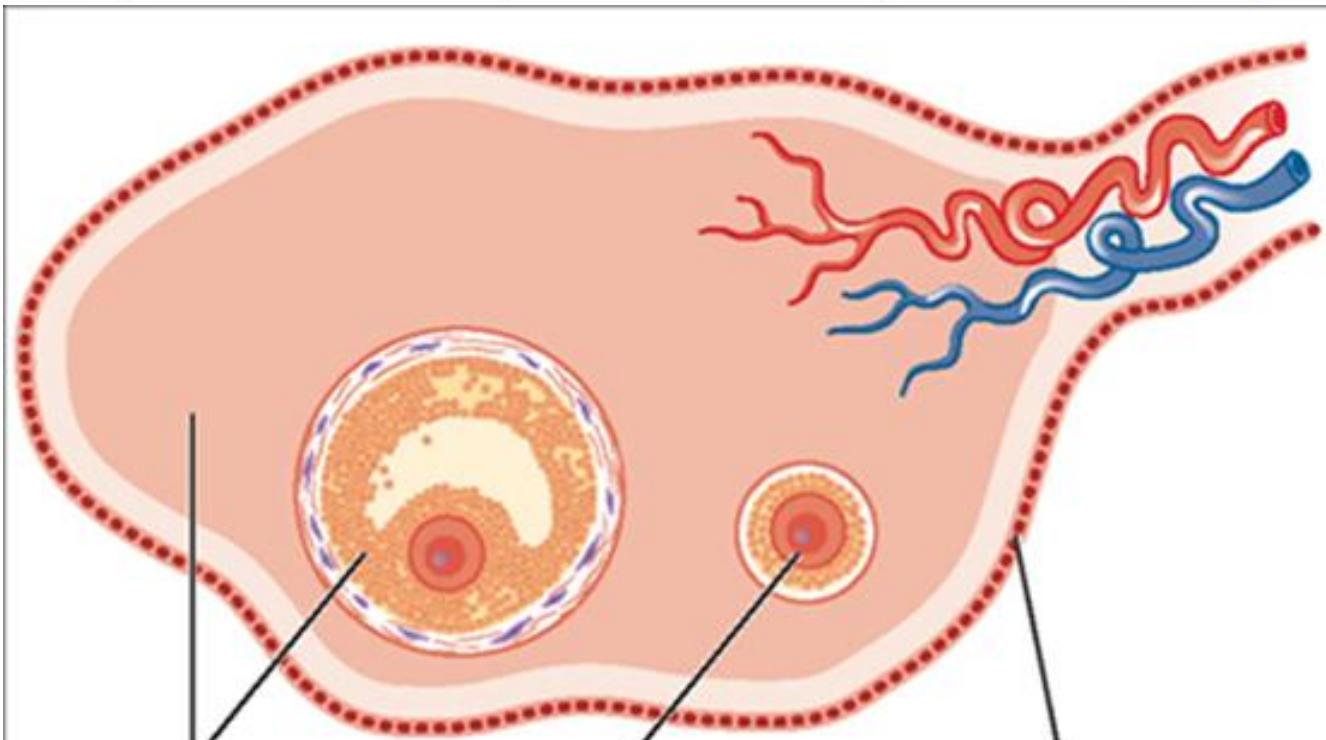
Epithelial (~90%)

Sex-cord stromal

Germ cell

Mixed-cell type

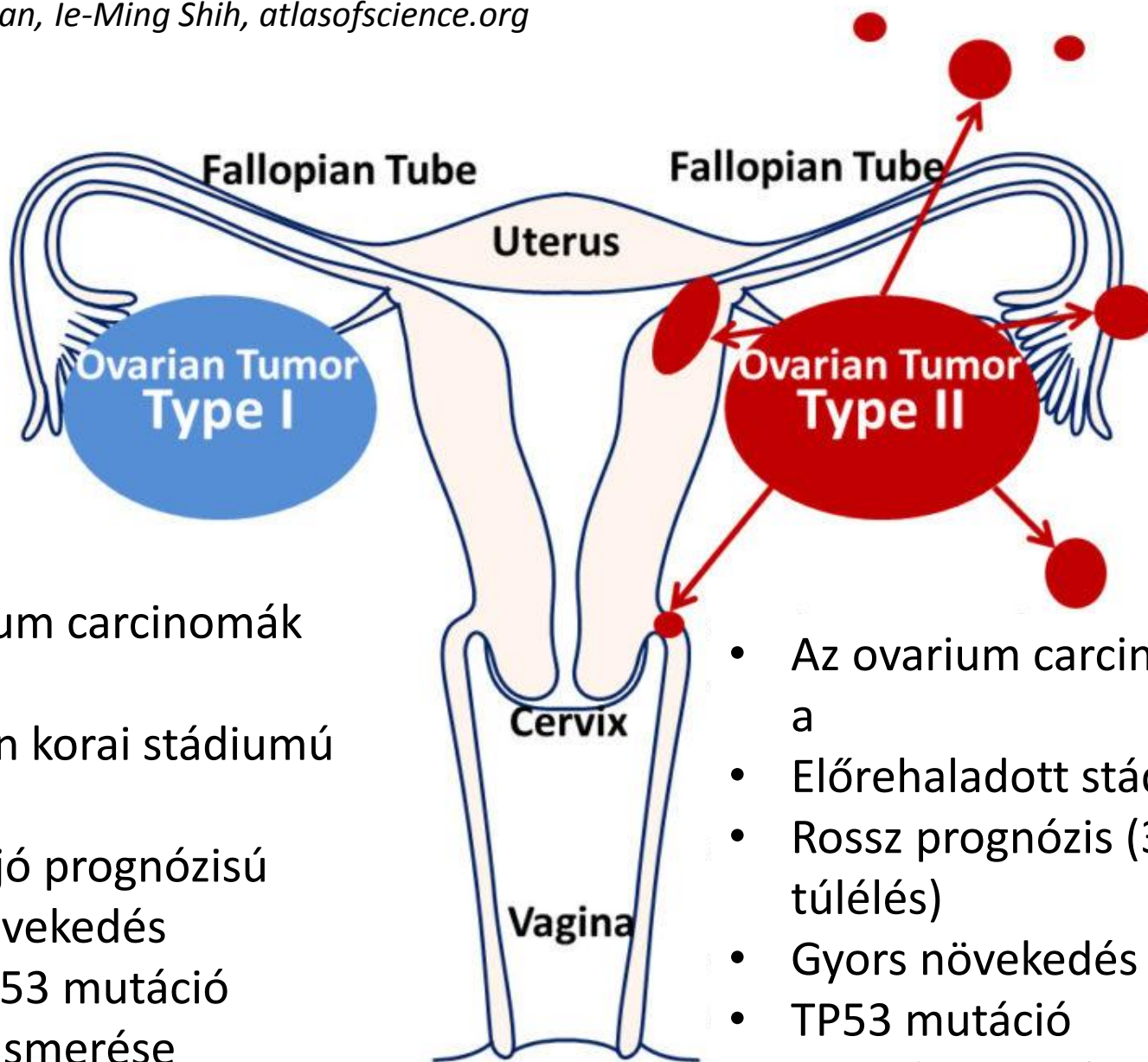
Cell of Origin



Sex cord-stroma
Granulosa cell
Thecoma
Fibroma
Sertoli cell
Sertoli-Leydig
Steroid

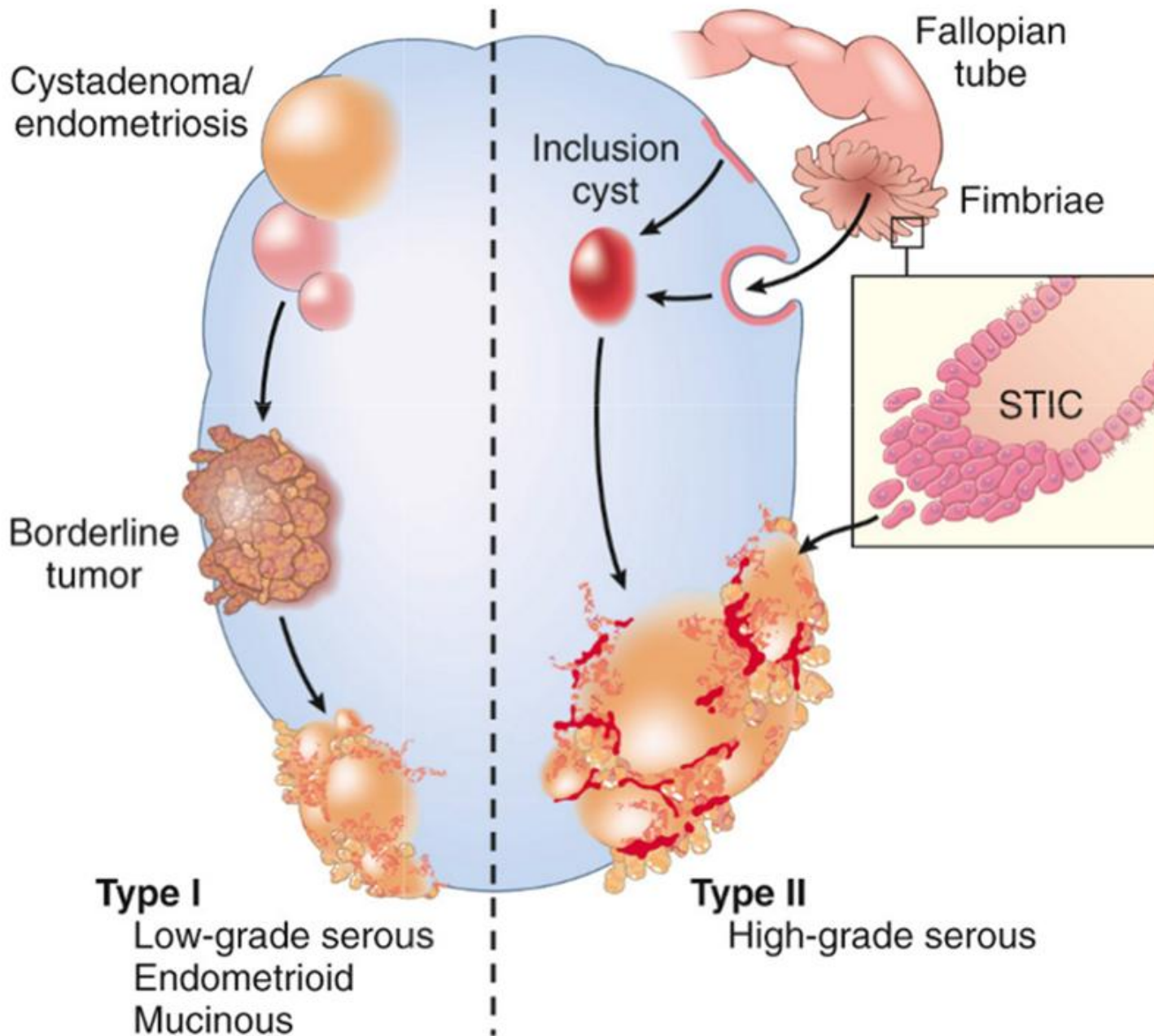
Germ cells
Dysgerminoma
Yolk sac
Embryonal carcinoma
Choriocarcinoma
Teratoma

Surface epithelium-stroma
Serous
Mucinous
Endometriod
Clear cell
Transitional cell

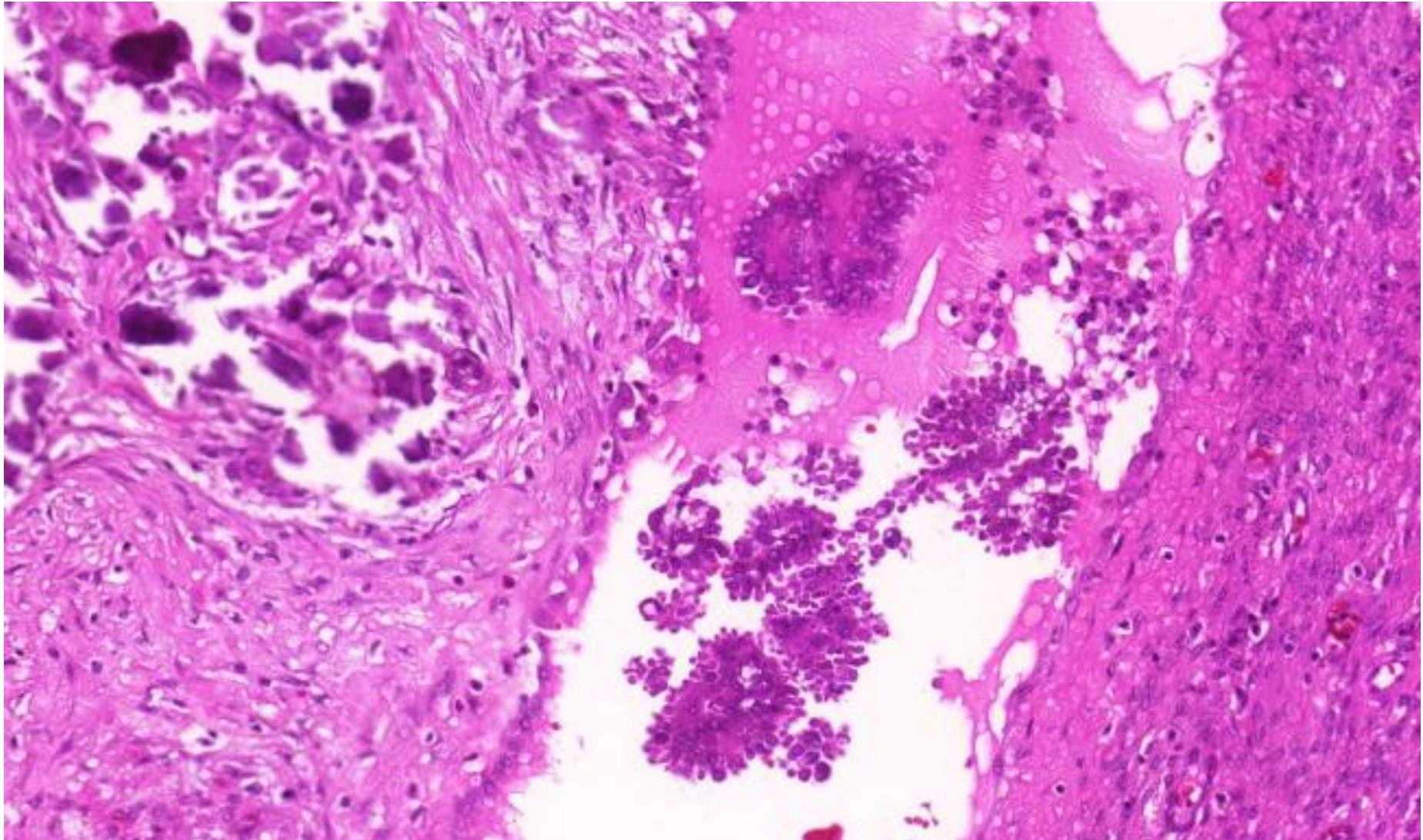


- Az ovarium carcinomák 25%-a
- Általában korai stádiumú (St.I)
- Nagyon jó prognózisú
- Lassú növekedés
- Nincs TP53 mutáció
- Korai felismerése lehetséges
- Rizikófaktor: endometriosis

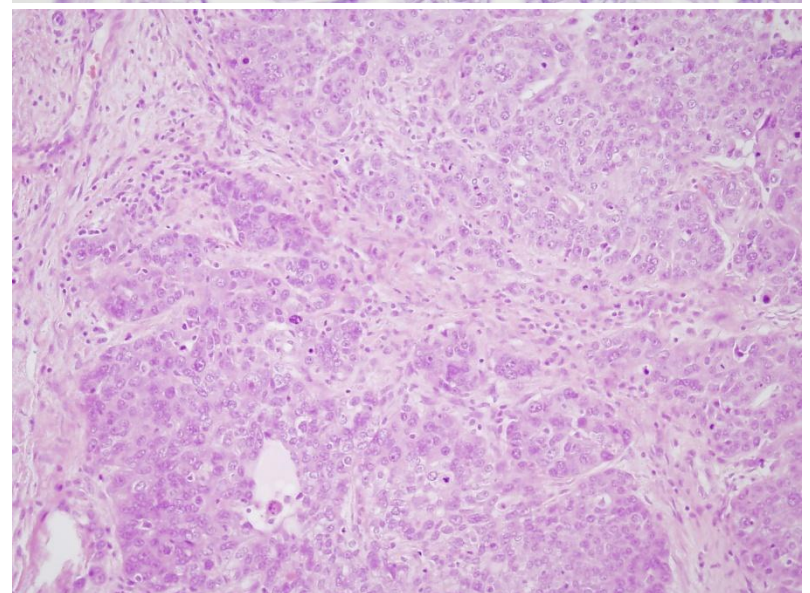
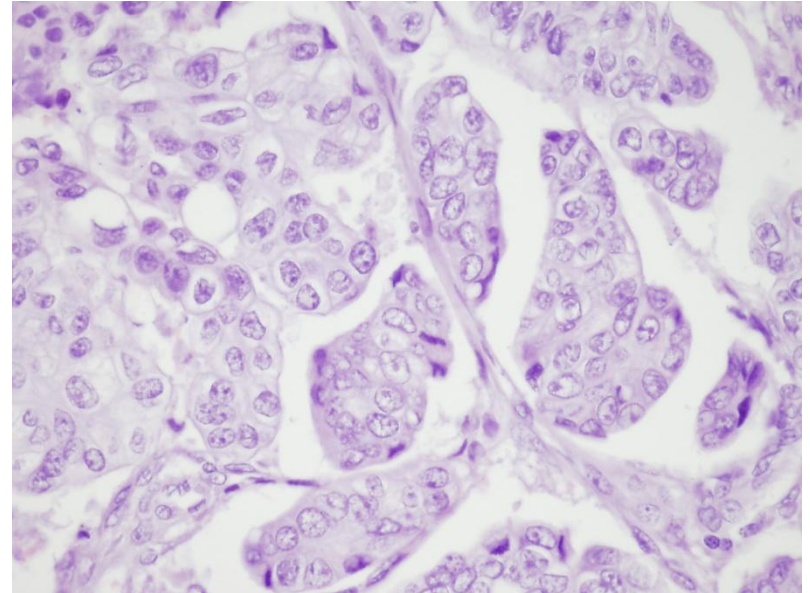
- Az ovarium carcinomák 75%-a
- Előrehaladott stádium
- Rossz prognózis (30%-os túlélés)
- Gyors növekedés
- TP53 mutáció
- Korai felismerés nehéz
- Rizikófaktor: BRCA mutáció



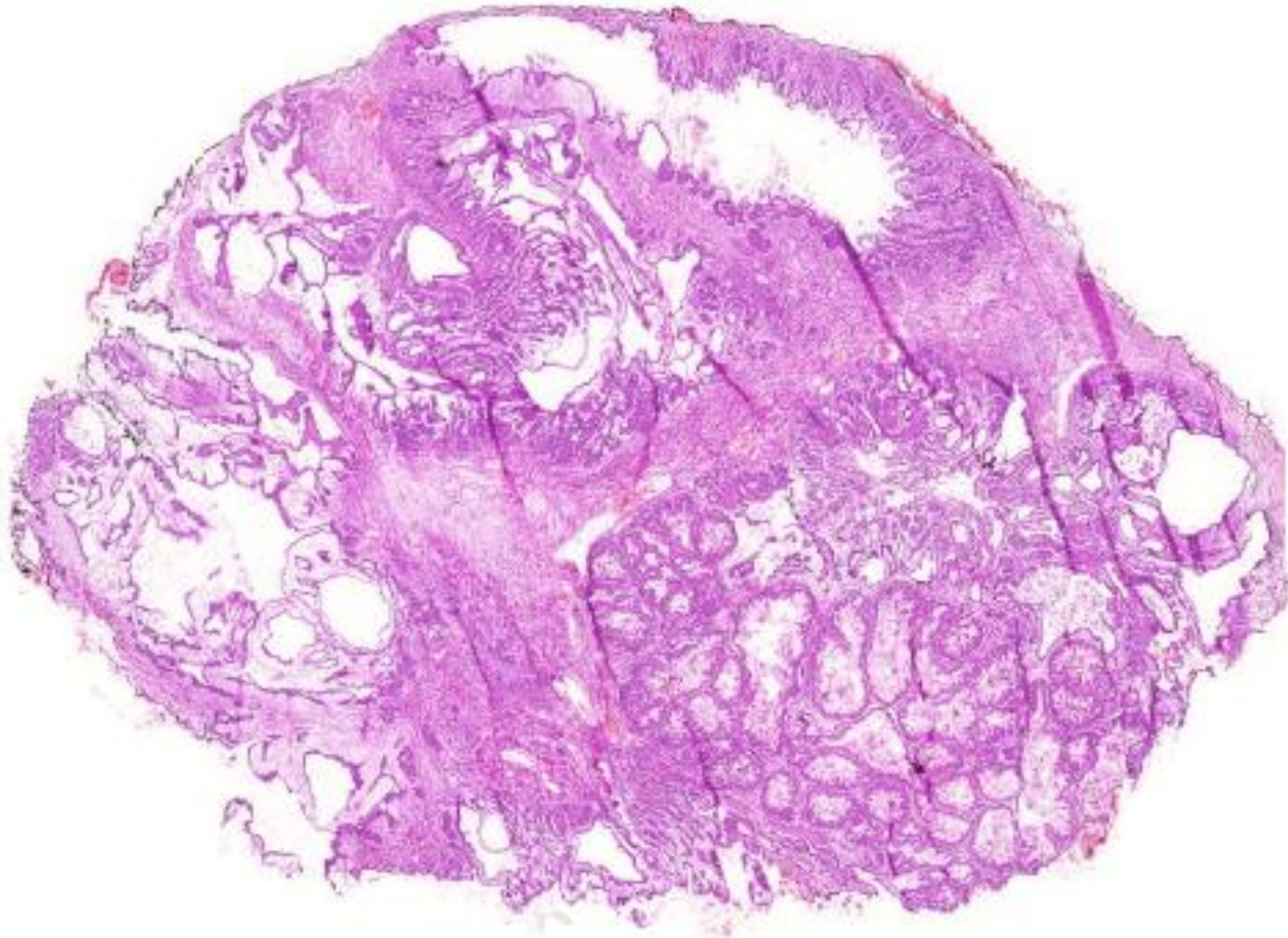
Low grade serous carcinoma



High grade serous carcinoma

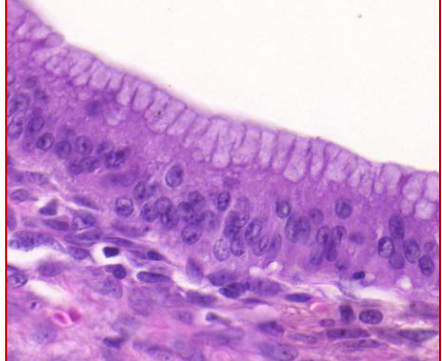
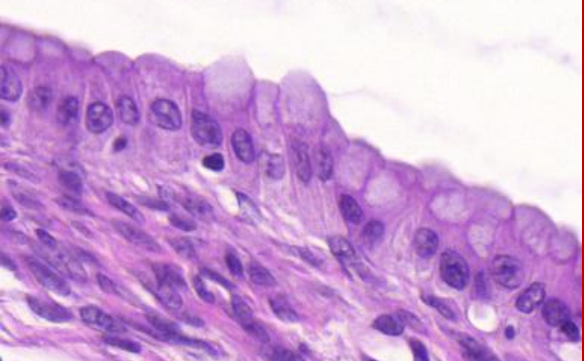
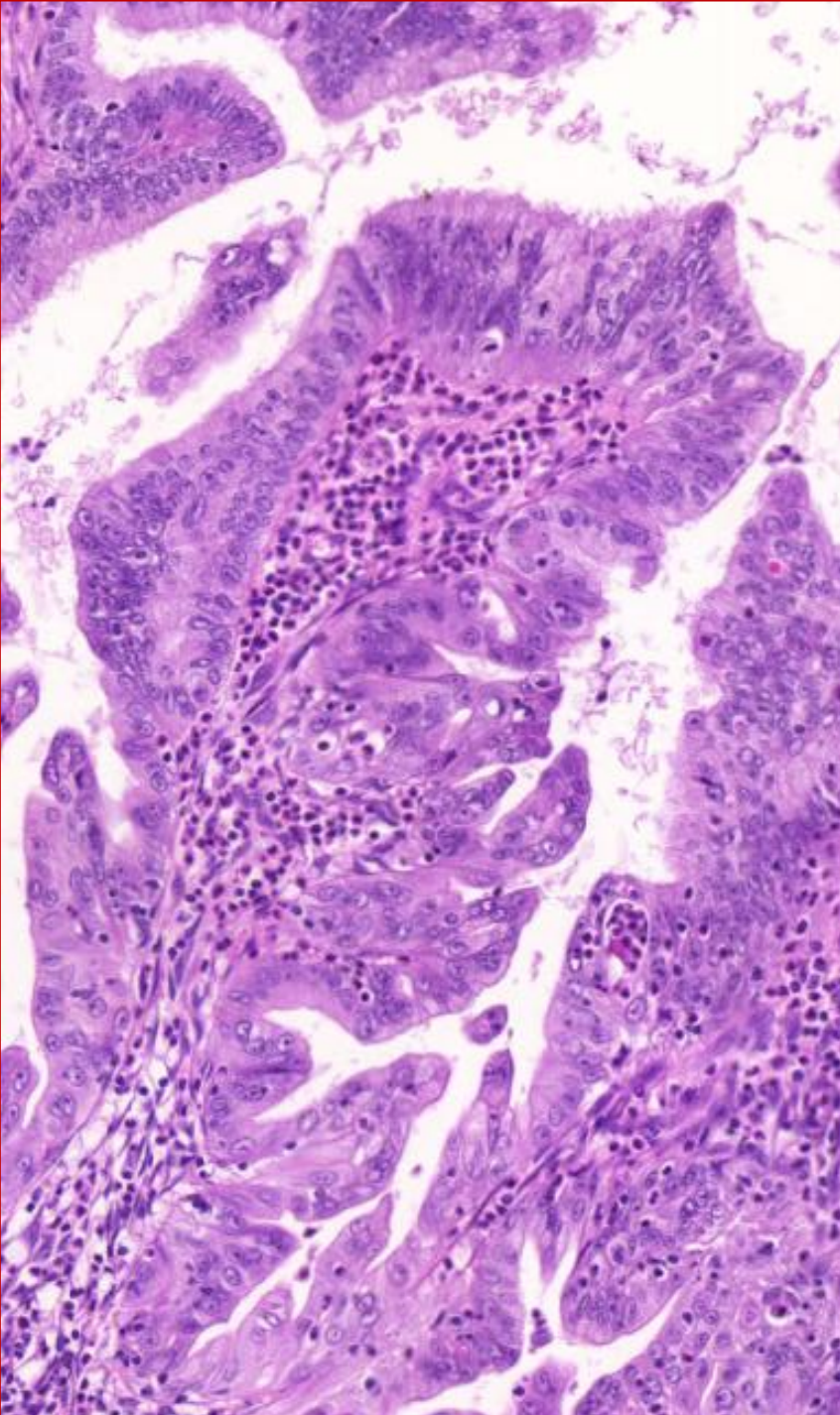
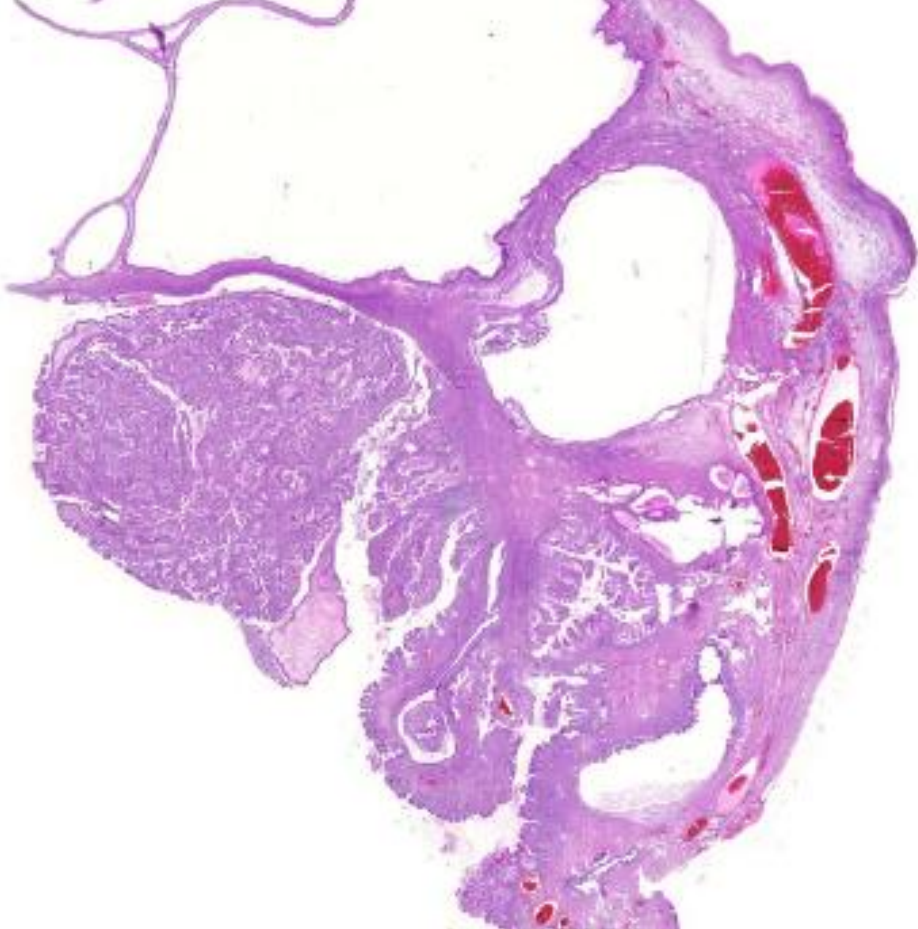


Fagyasztott metszet– cysticus ovarium tumor

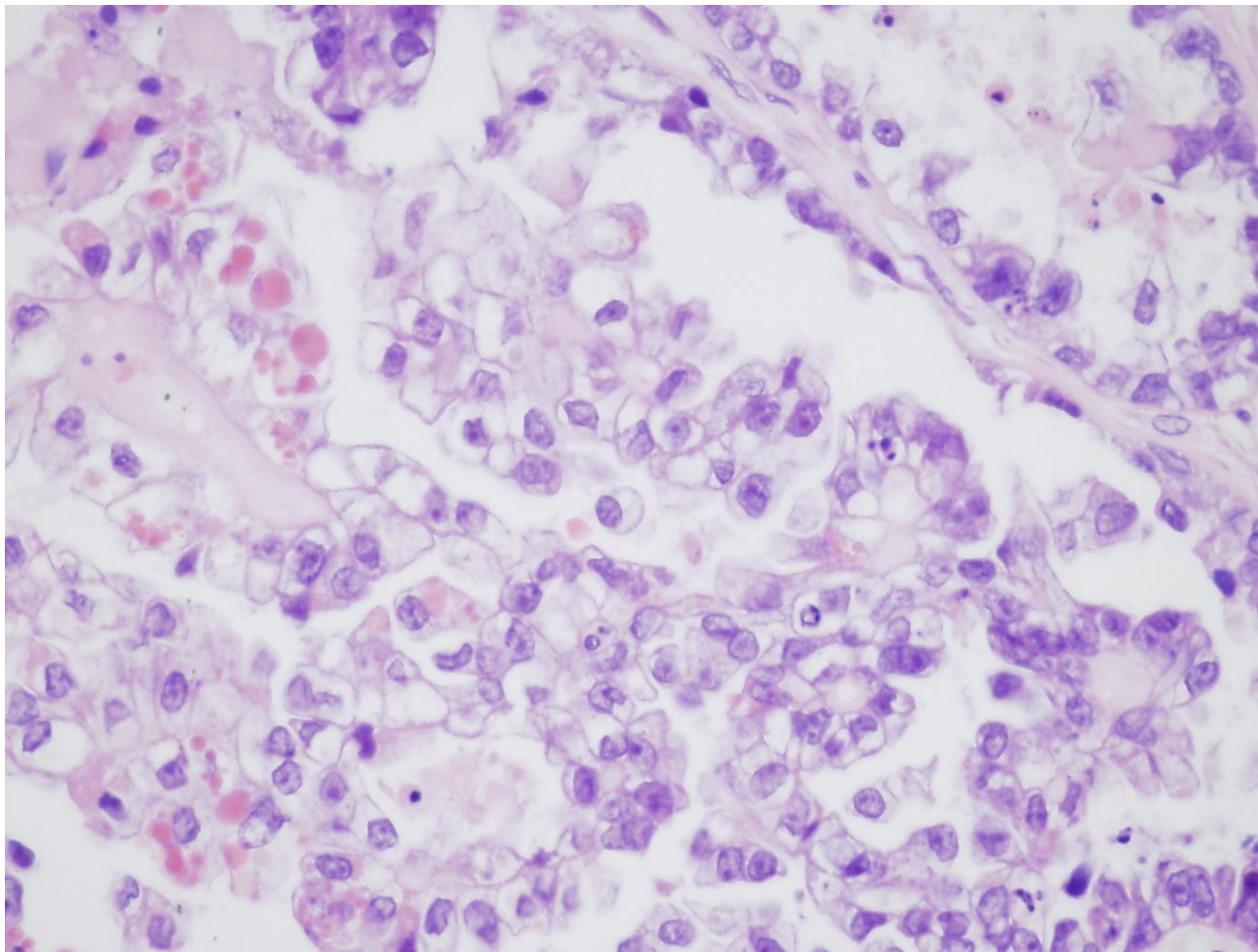


Differenciál diagnosztika: Metasztatikus nyáktermelő adenocarcinoma (pl. colorectalis)

Mucinosus cystadenocarcinoma

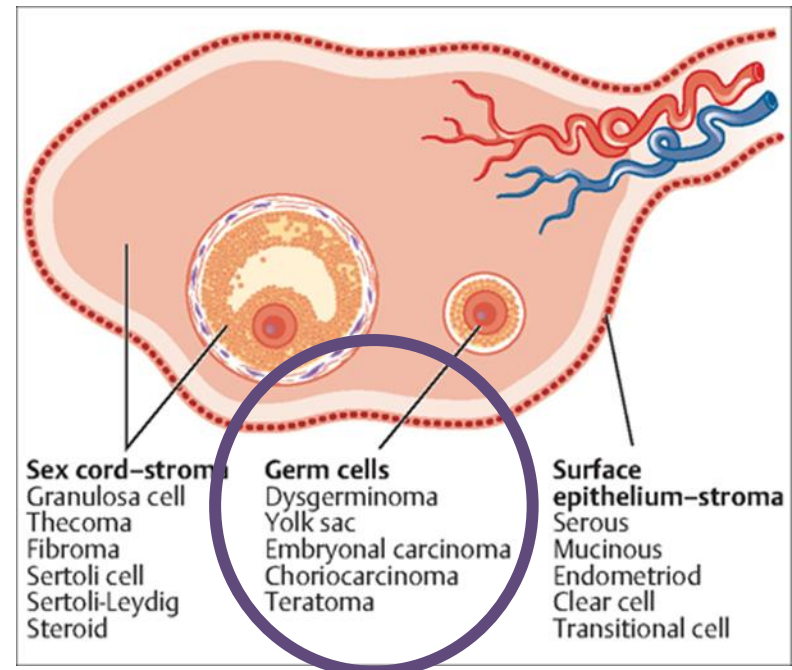


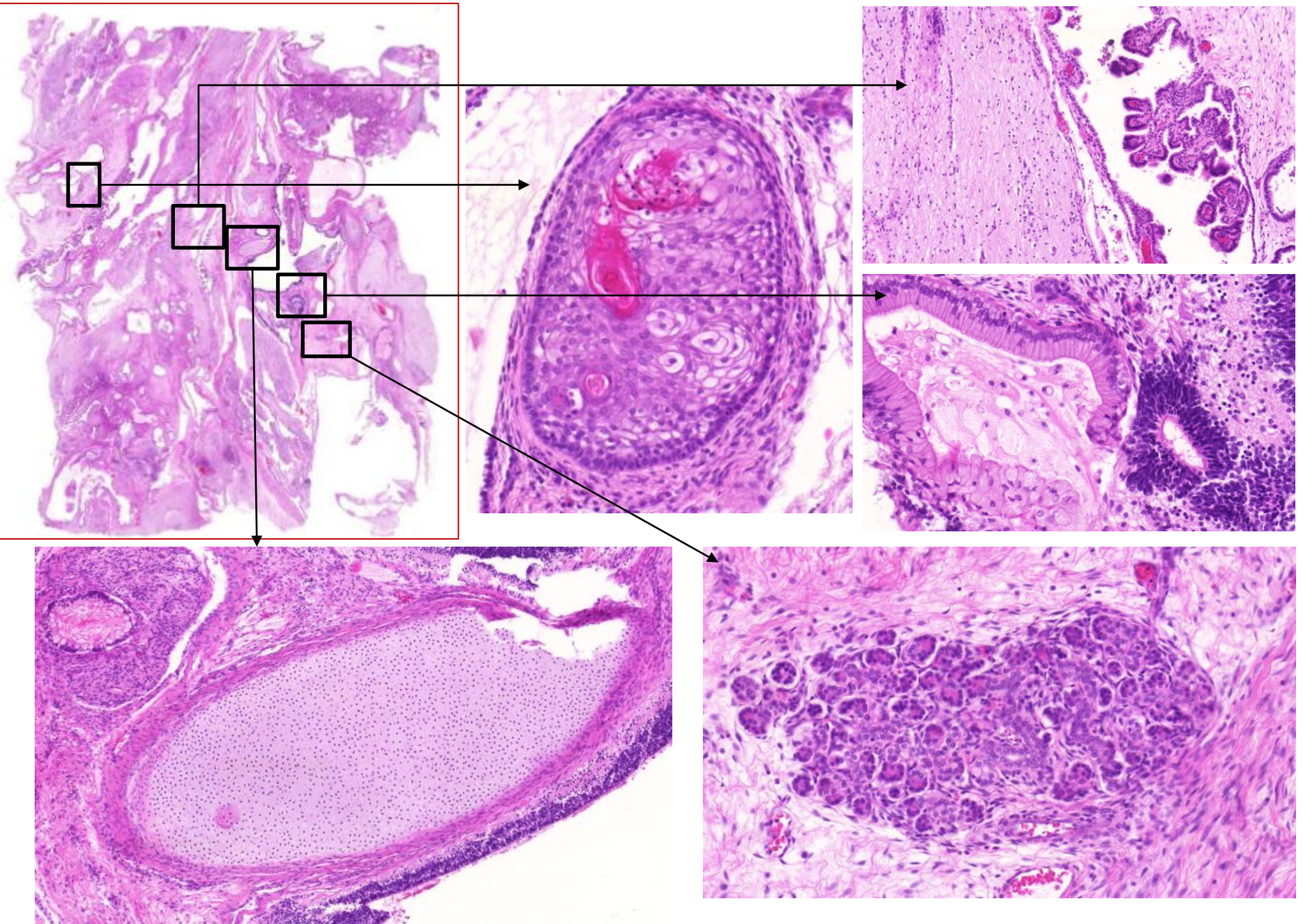
Világossejtes carcinoma



CSÍRASEJTES TUMOROK

- Teratoma
 - *Érett*: leggyakoribb: DERMOID CYSTA
 - *Éretlen*: a grade-et az éretlen neuroectodermális szövet aránya határozza meg
- Dysgerminoma
- Embryonal carcinoma
- Yolk sac tumor
- Choriocarcinoma





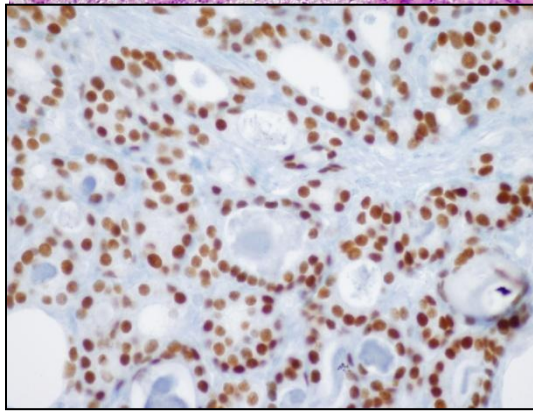
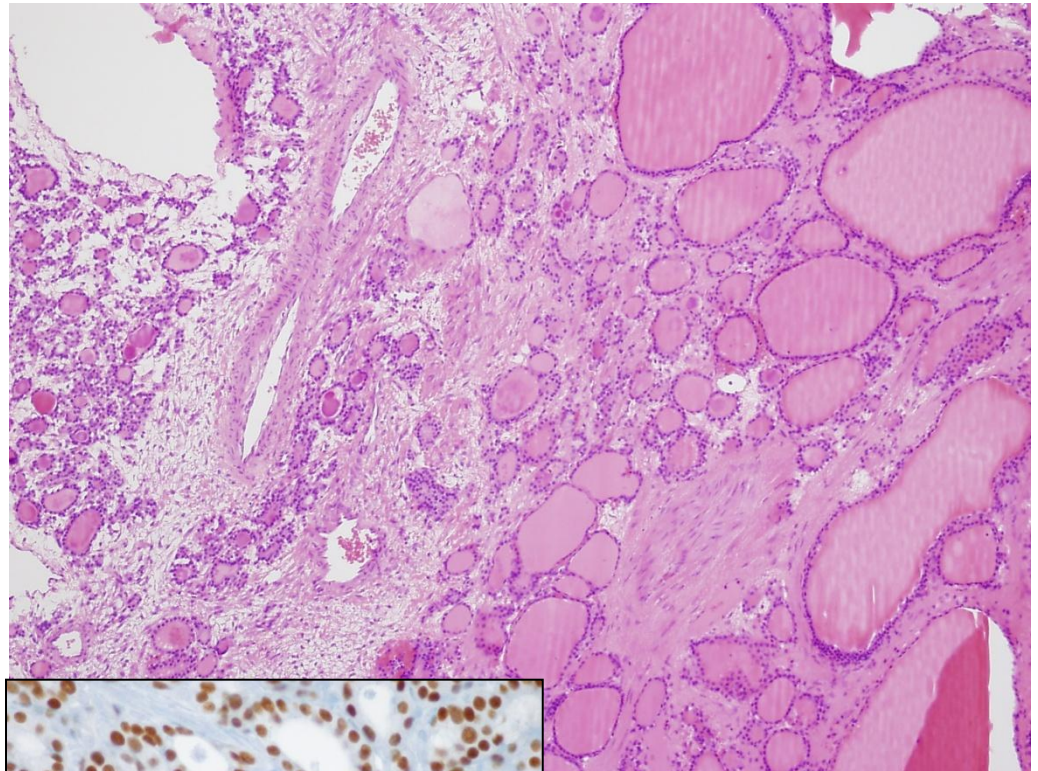
Éretlen teratoma

Table 1.2 Grading of ovarian immature teratomas using a three-tiered grading system compiled from {1382}

Grade	Histological criteria
Grade 1	Tumours with rare foci of immature neuroepithelial tissue that occupy < 1 low power field (40x) in any slide (low-grade).
Grade 2	Tumours with similar elements, occupying 1-3 low power fields (40x) in any slide (high-grade).
Grade 3	Tumours with large amount of immature neuroepithelial tissue occupying > 3 low power fields (40x) in any slide (high-grade).

- **Monodermalis teratoma**

- Struma ovarii →
- Carcinoid ovarii



TTF-1 immunohisztokémiai reakció

Dysgerminoma

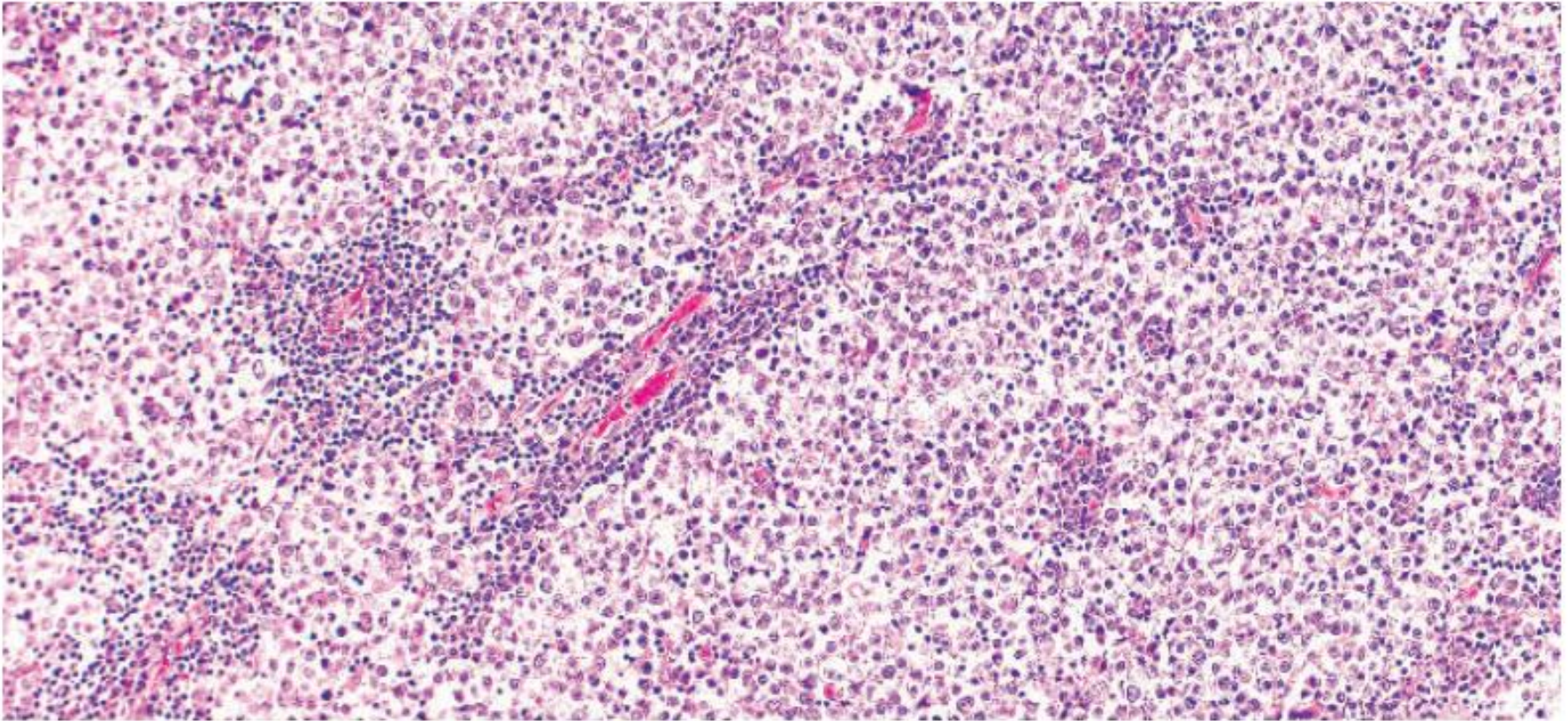
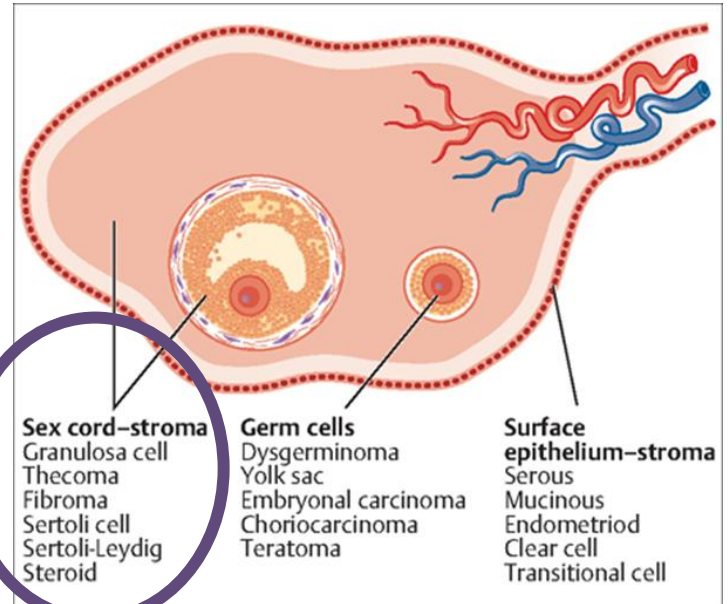


Fig. 1.53 Dysgerminoma. Nests and sheets of dysgerminoma cells are separated by fibrous septa containing lymphocytes

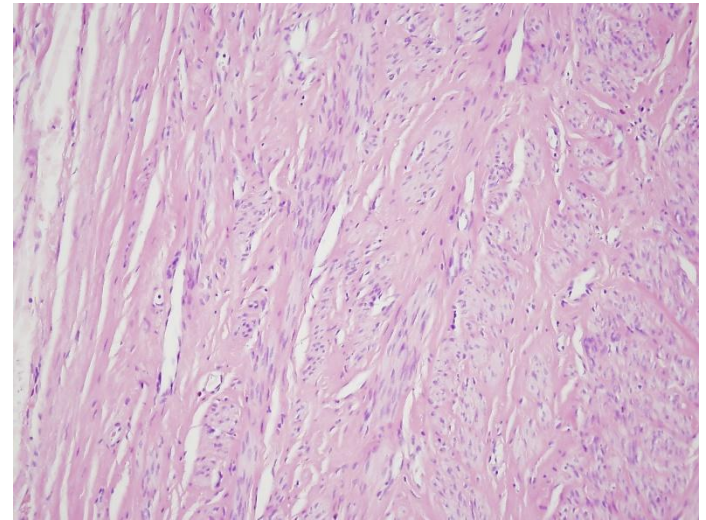
- Embryonalis carcinoma
- Yolk sac tumor
- Non-gestatio choriocarcinoma

SEX-CORD/STROMA TUMOROK

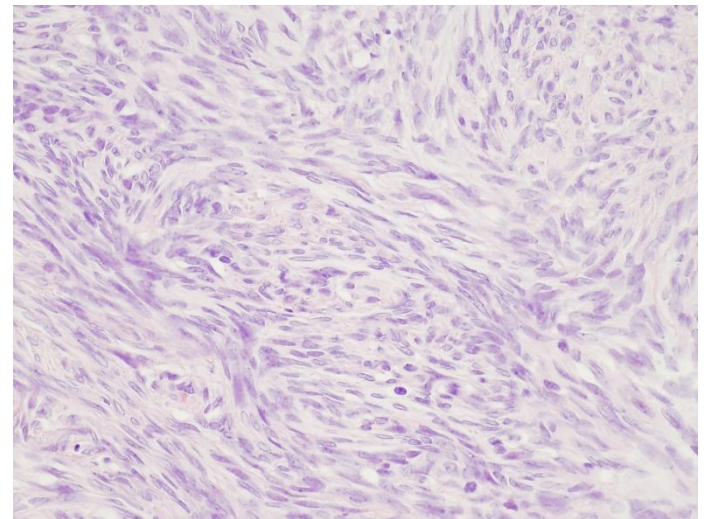
- Fibroma
- Thecoma
- Theco-fibroma
- Granulosa sejtes tumorok
 - Juvenilis granulosa sejtes tumorok
- Sertoli sejtes tumorok
- Leydig sejtes tumorok



Fibroma

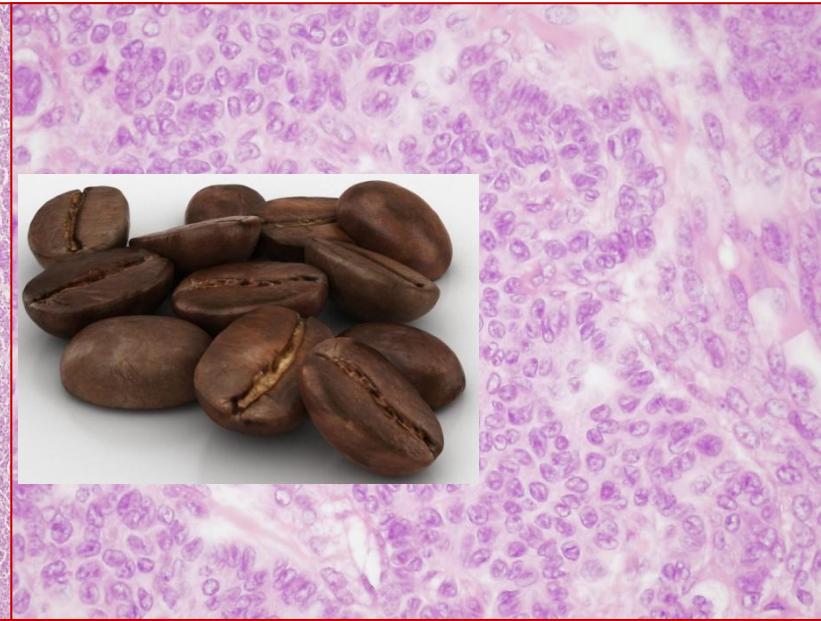
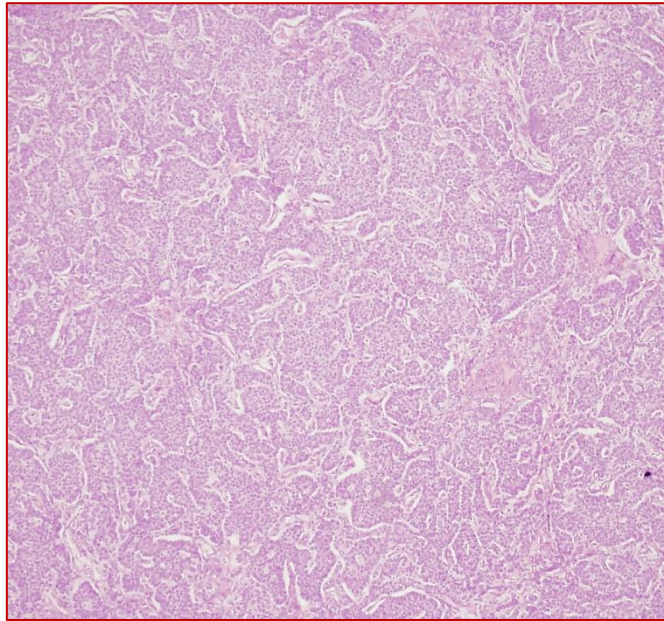


Thecofibroma

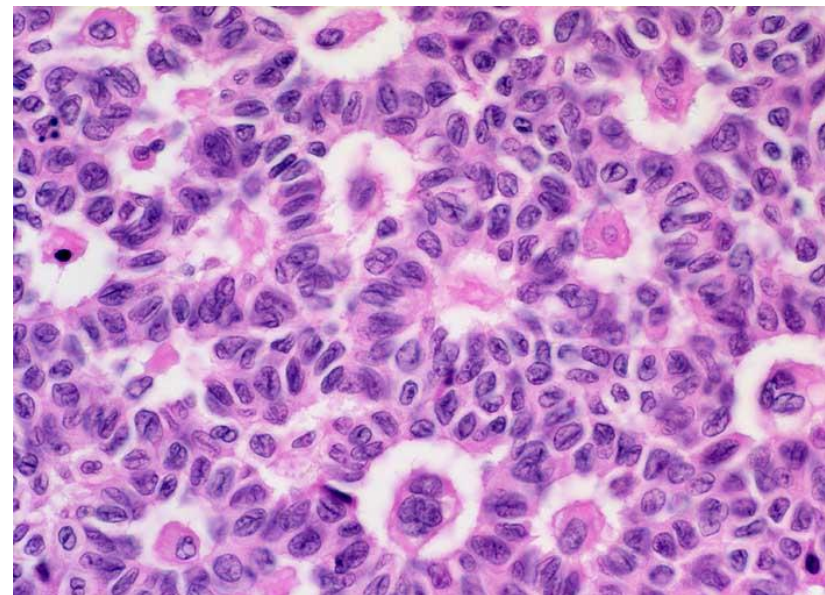


Meigs szindróma: társuló hydrothorax

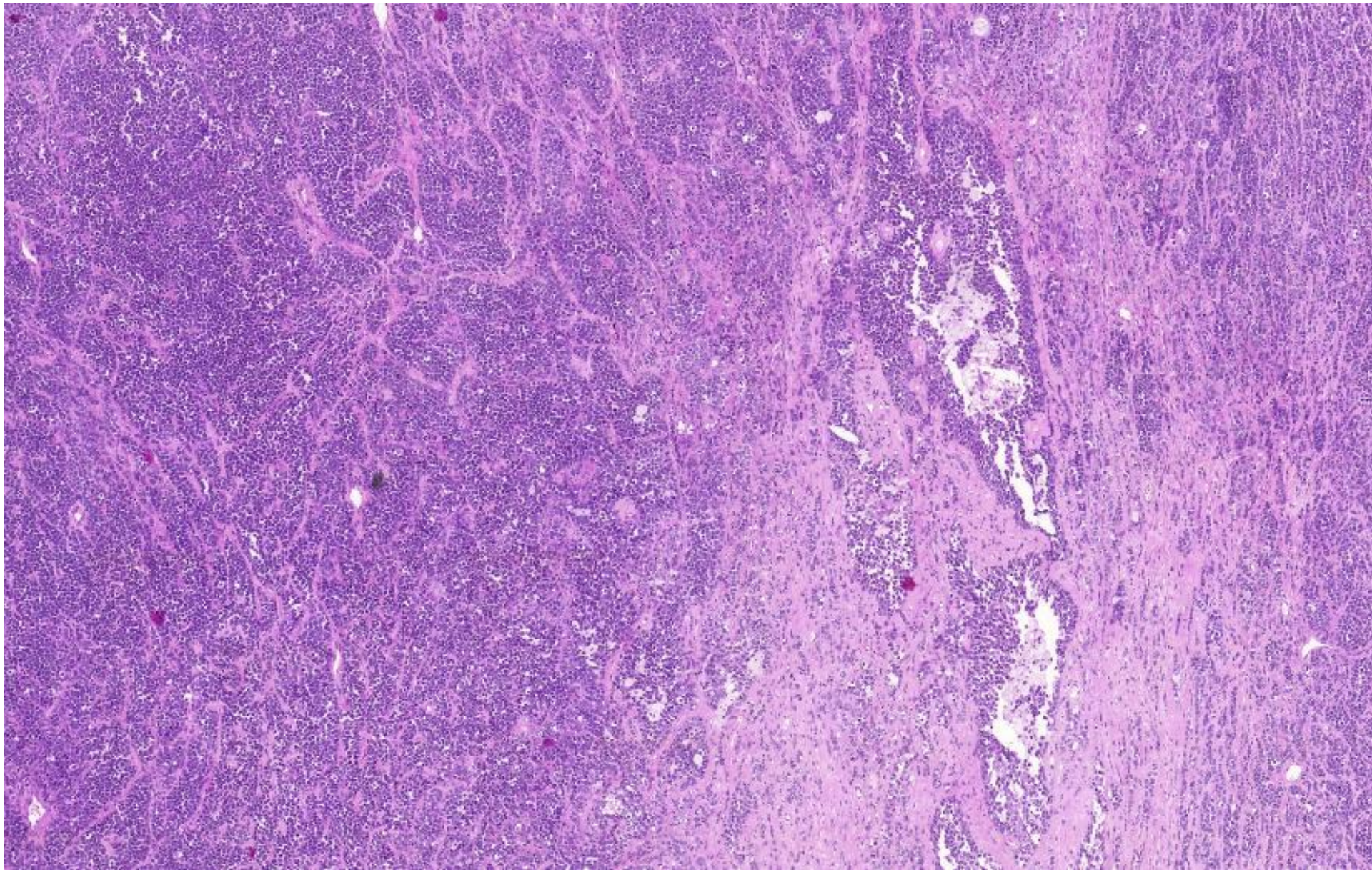
Granulosa sejtes tumor



Call-Exner bodies



EGYÉB TUMOROK



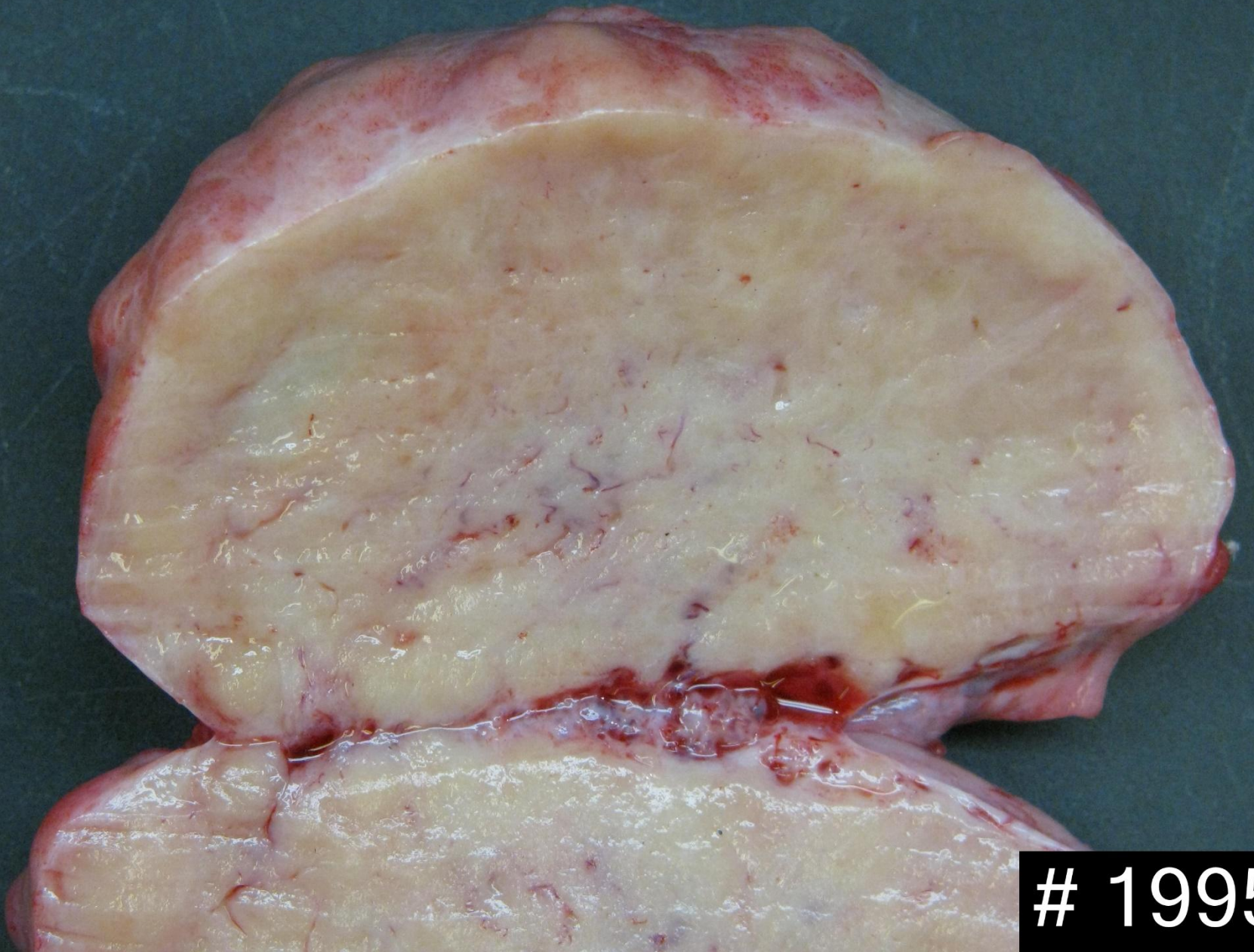
Kissejtes hypercalcaemiás tumor 25. hetes gravida kismédencéjében

METASTATICUS TUMOROK

A malignus ovarium tumorok 5% -a
>50% kétoldali

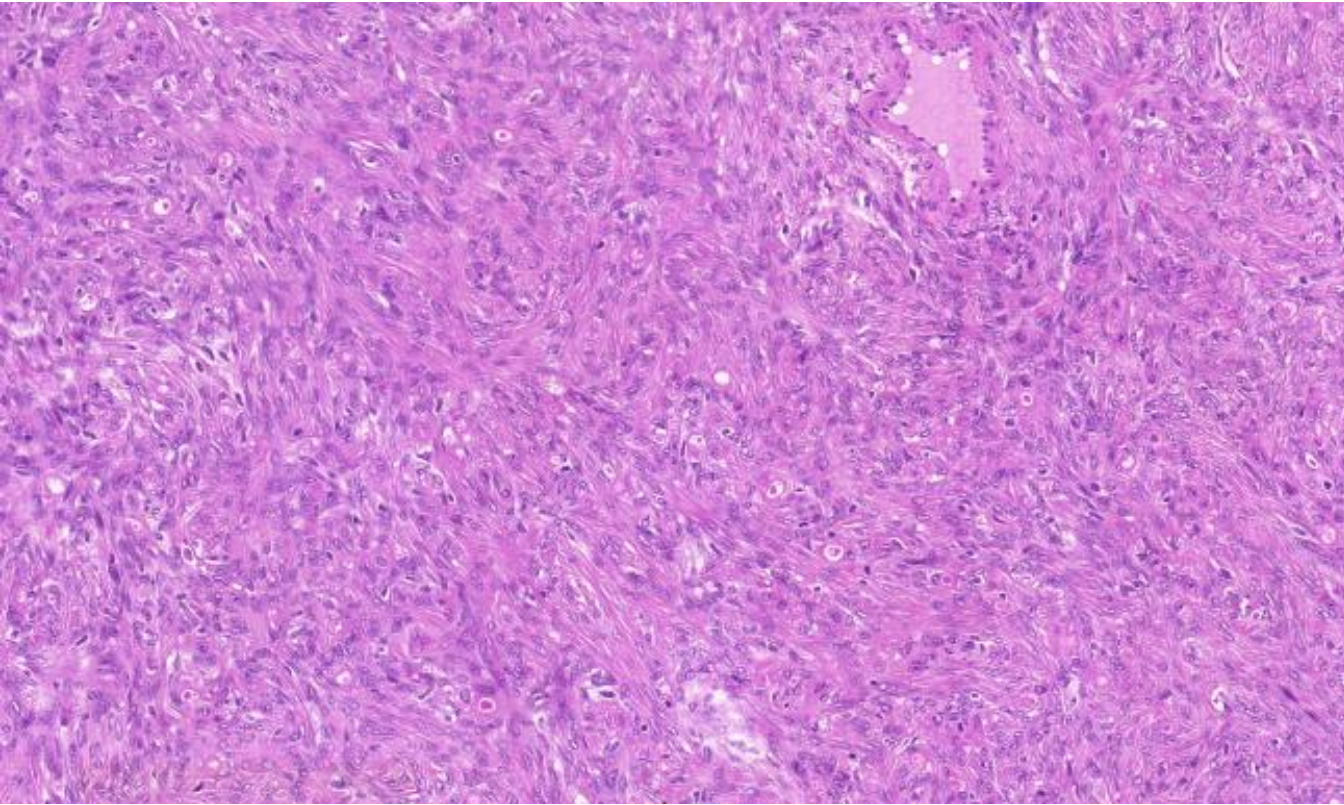
Főleg GI tractus, emlő, tüdő

Mucinosus adenocarcinoma ovarium áttéte:
Krukenberg tumor



1995

45 é, benignusnak vélt kismencedencei terime



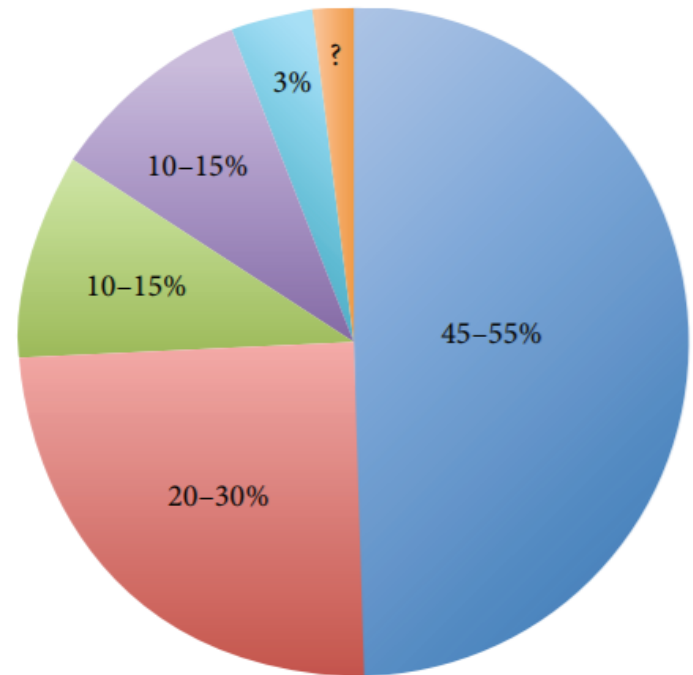
Az ovarium malignus tumorainak áttétképzése

- Peritoneum
 - Ascites
- Ellenoldali ovarium
- Távoli nyirokcsomók
- Máj
- Lép... és
- *Sister Mary Joseph nodulus*



Ovarium carcinoma - Genetika

- Örökletes OC szindrómák/csírasejtes mutációk



- BRCA 1
- BRCA 2
- Genes involved in DSB repair
- MMR genes (Lynch SDR)
- TP53 (Li-Fraumeni SDR)
- Other genes

Table 2. Örökletes szindrómák fokozott ovarium carcinoma rizikóval

<i>Syndrome</i>	<i>Gene mutations</i>	<i>Features/epidemiology</i>	<i>Lifetime ovarian cancer risk</i>
Hereditary breast and ovarian cancer syndrome	<i>BRCA1</i> and <i>BRCA2</i> tumor suppressors, possibly others	10 times more common in Ashkenazi Jews; associated with breast, <u>ovarian, fallopian tube, peritoneal</u> , and pancreatic cancers	<i>BRCA1</i> : 25% to 65% <i>BRCA2</i> : 10% to 30%
Hereditary nonpolyposis colorectal cancer (Lynch syndrome)	<i>MLH1</i> , <i>MLH3</i> , <i>MSH2</i> , <i>MSH6</i> , <i>TGFBR2</i> , <i>PMS1</i> , and <i>PMS2</i>	Increased risk of colon cancer, as well as endometrial and <u>ovarian cancers</u>	10%
<i>MUTYH</i> -associated polyposis	<i>MUTYH</i>	Polyps in the colon and small intestine; increased risk of colon and other cancers, including <u>ovarian</u> and bladder cancers	No good data available
Peutz-Jeghers syndrome	<i>STK11</i>	Polyps in the stomach and intestine in teenagers; increased risk of esophageal, stomach, small intestine, and colon cancers, as well as <u>epithelial ovarian cancer and stromal tumors</u> (sex cord tumor with annular tubules)	No good data available
<i>PTEN</i> hamartoma tumor syndrome	<i>PTEN</i>	Increased risk of thyroid disorders and thyroid, breast, and <u>ovarian cancers</u>	No good data available

Information from references 10, 11, 13, and 14.

Type I (low grade) ovary carcinoma

Table 1. Type I ovarian cancers: Frequencies of selected potentially pathogenic genomic alterations.

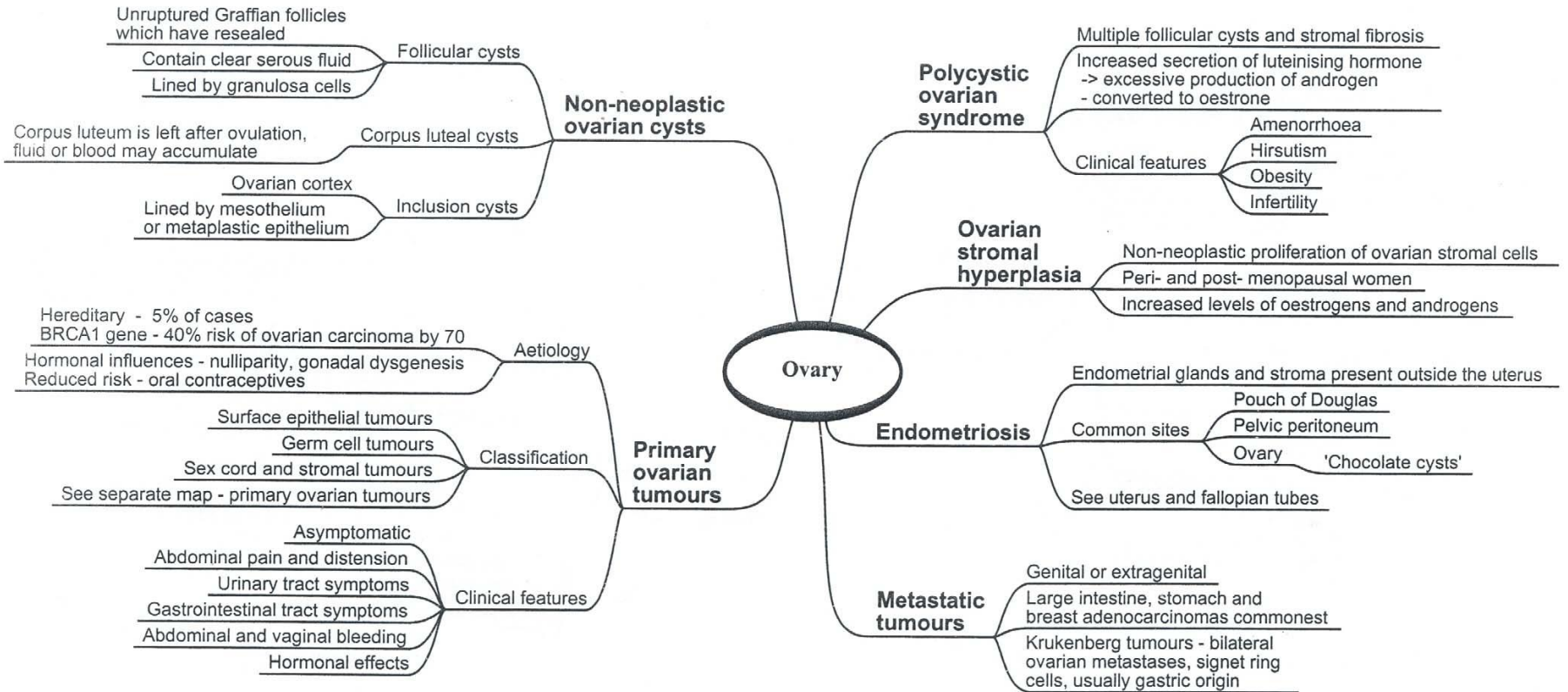
Gene Alterations	Low-Grade Serous Cancer	Ovarian Clear Cell Carcinoma	Endometrioid	Mucinous
	Mutations			
<i>BRAF</i>	33% ^a ; 38% ^b ; 16% ^c	0% ^e ; 1% ^f	24% ^a	0% ^k ; 23% ^l ; 5% ^m ;
<i>KRAS</i>	19% ^b ; 35% ^a ; 21% ^c	<1% ^a ; 7% ^f	<1% ^a	50% ^k ; 68% ⁿ ; 65% ^m
<i>PIK3CA</i>	11% ^b	25% ^e ; 33% ^f	12% ^e	14% ^m
<i>PTEN</i>	20% ^d	0% ^e ; 5% ^f	14% ^j ; 31% ^e	3% ^m
<i>ARID1A</i>	–	46% ^g ; 57% ^h	30% ^g	9% ^l
<i>CTNNB1</i>	–	0% ^e ; 3% ^f	23% ^e ; 24% ^j	5% ^m
<i>CDKN2A</i>	–	–	–	19% ^m
<i>TP53</i>	–	–	–	57% ^m ; 52% ^l
	Copy number alterations			
<i>ERBB2</i> (HER2; gain)	–	14% ⁱ	–	12% ^m ; 19% ^o

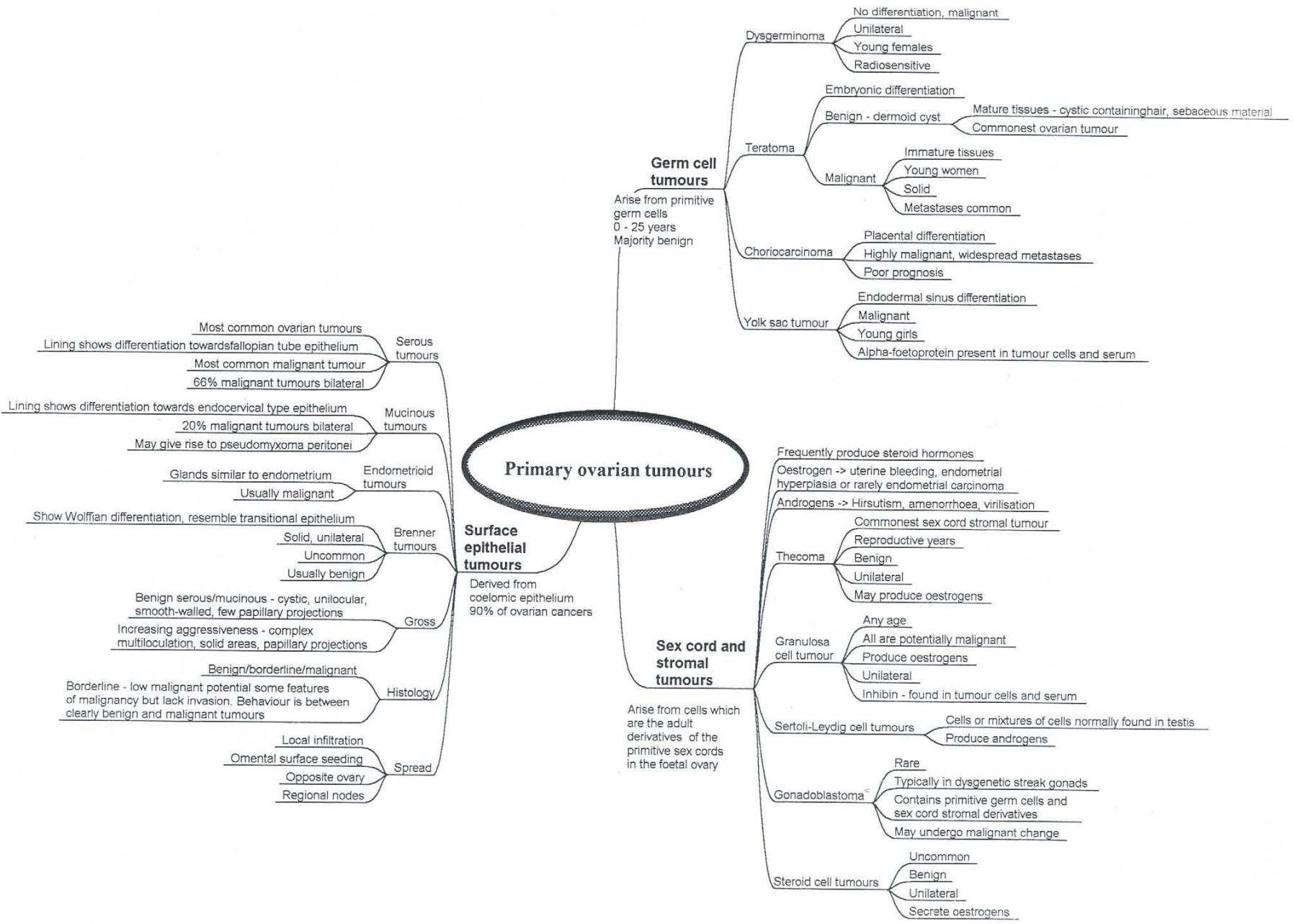
^a Singer et al. [29]; ^b Jones et al. [20]; ^c Hunter et al. [32]; ^d Landen, et al. [23]; ^e Willner et al. [25]; ^f Kuo et al. [24]; ^g Wiegand et al. [27]; ^h Jones et al. [26]; ⁱ Tan et al. [22]; ^j Catasus et al. [34]; ^k Gemignani et al. [30]; ^l Ryland et al. [35]; ^m Mackenzie et al. [36]; ⁿ Cuatrecasa et al. [31]; and ^o Angelesio et al. [37]; HER2: human epidermal growth factor receptor 2; – Dashed lines indicate that data are unavailable or not included.

Type II (high grade) ovarium carcinoma

Gene	Frequency of Mutations	Frequency of Copy Number Alterations ^b
<i>TP53</i>	96%	0.9%
<i>BRCA1</i> ^c	12%	0.6%
<i>BRCA2</i>	11%	2%
<i>MYC</i>	0%	31%
<i>MECOM</i>	0.6%	22%
<i>CCNE1</i>	0%	20%
<i>PRKCI</i>	0.6%	19%
<i>EIF5A2</i>	0%	18%
<i>PIK3CA</i>	0.6%	17%
<i>NOTCH3</i>	0.9%	11%
<i>KRAS</i>	0.6%	11%
<i>RAB25</i>	0%	7%
<i>AKT2</i>	0%	6%
<i>AURKA</i>	0%	3%
<i>PIK3R1</i>	0.3%	2% ^d
<i>AKT1</i>	0%	3%
<i>ERBB2</i>	0.9%	2%
<i>KIT</i>	2%	1%
<i>FGF1</i>	0%	1%
<i>EGFR</i>	2%	0.4%
<i>BRAF</i>	0.6%	5%
<i>PTEN</i>	0.6%	6% ^d
<i>RB1</i>	2%	7% ^d
<i>NF1</i>	4%	6% ^d
<i>ETV4</i>	0%	0.5%
<i>FOXM1</i>	0%	5%
<i>LSR</i>	0%	8%
<i>CD9</i>	0.3%	6%
<i>RAB11FIP4</i>	0%	3% ^d
<i>FGFRL1</i>	0%	3%

^a The Cancer Genome Atlas Research Network [16]; ^b Other genes with copy number alterations exceeding a frequency of 15% include *NDRG1*, *EPPK1*, *PLEC*, *RECQL4*, *PTK2*, *EXT1*, and *RAD21*; ^c Promoter hypermethylation is also present in 12% of *BRCA1*; and ^d Represented by all or mostly all copy number deletions.





#1

DEADLIEST GYNECOLOGIC CANCER