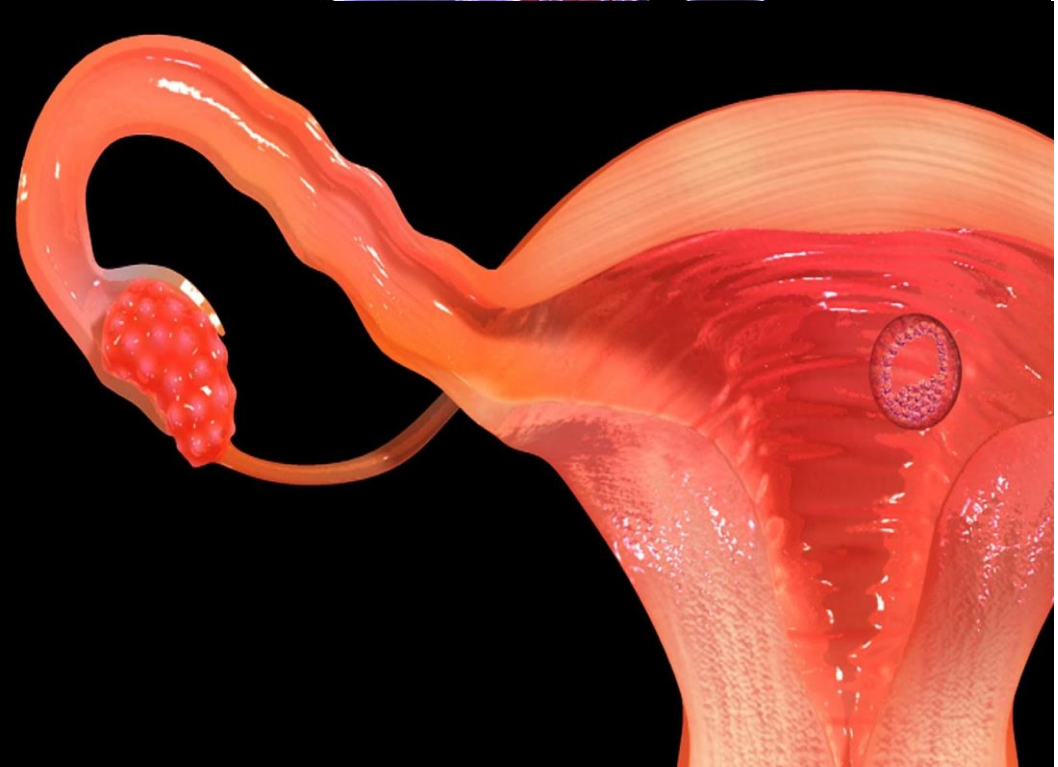


Pathology of the female genital system.

Pathology of the female genital system.

I. Microspecimens:

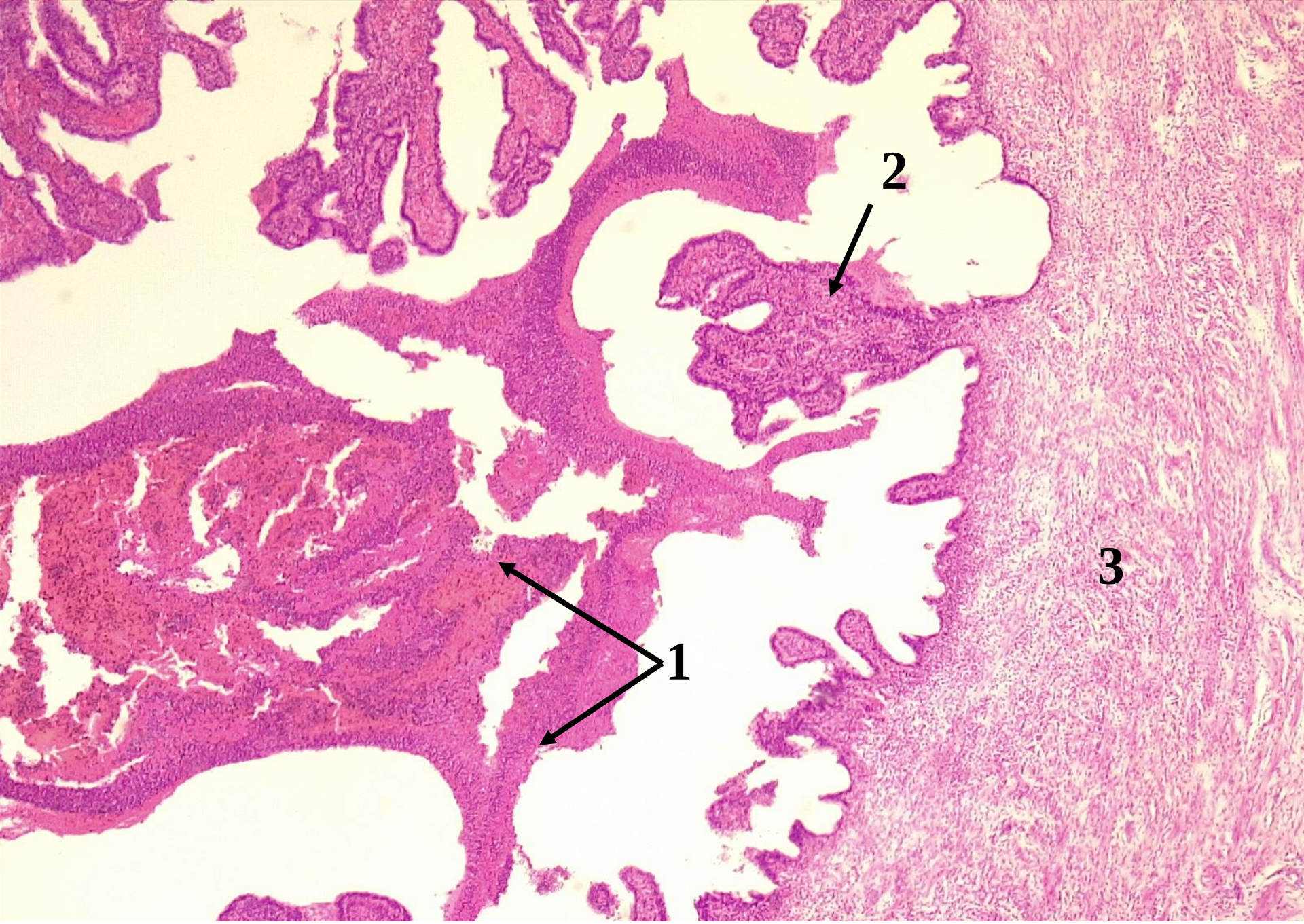
№ 63. Suppurative salpingitis. *(H.E. stain).*

Indications:

1. Neutrophilic leukocytes in lumen of fallopian tube.
2. Neutrophilic leukocyte infiltration of tubular mucosal villi.
3. Wall of fallopian tube.

Villi of the uterine mucosa are thickened, hyperemic with diffuse infiltration by neutrophil leukocytes, and between villi are neutrophil agglomerations. Wall of the fallopian tube is thickened, edematous, vessels are dilated, hyperemic, diffuse infiltration of the wall with neutrophilic leukocytes (phlegmonous inflammation) is observed.

Purulent salpingitis is an inflammation of the fallopian tube of infectious origin. It is found in pelvic inflammatory disease - ascending infection of the female genital tract (with chlamydia, mycoplasma, gonococci, colibacilli), postpartum or post abortion inflammation (with streptococci and staphylococci), in cases of intrauterine devices. It can be complicated by salpingo-oophoritis. tube-ovarian abscess, pyosalpinx, local or generalized peritonitis, passage into chronic salpingitis.



№ 63. Suppurative salpingitis. *(H.E. stain).*

№ 41. Fibroleiomyoma of uterus. *(Masson's trichrome stain).*

Indications:

1. Smooth muscle cell bundles (red color).
2. Fibrous connective tissue bundles (collagen fibers of blue color).

The tumor consists of bundles of smooth muscle cells, arranged disorderly, in places in vortex, having varying thickness and orientation, some sectioned longitudinally, others obliquely or transversely, the cytoplasm is colored red; these muscle bundles are interwoven with bundles of blue-colored collagen fibers.

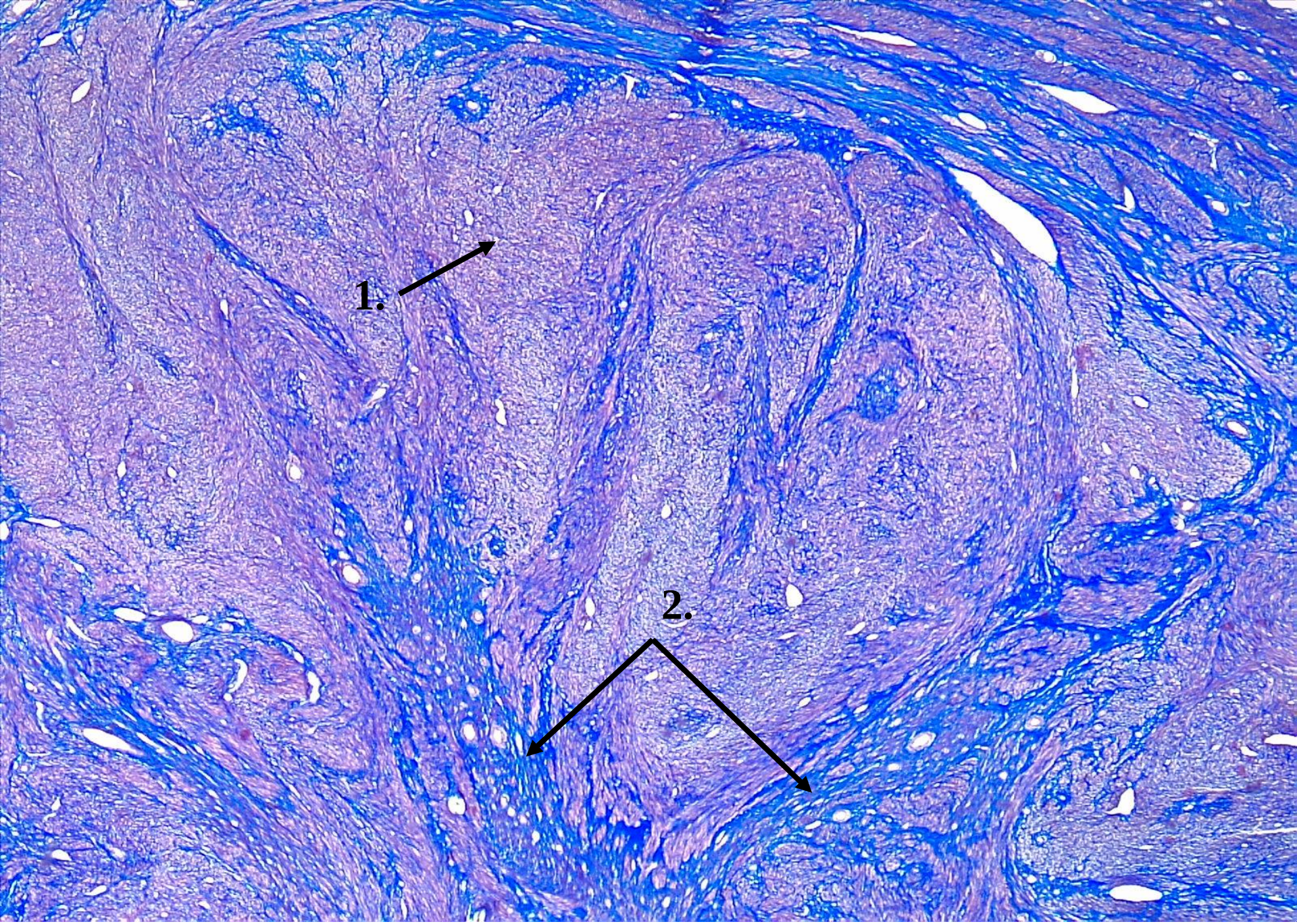
№ 41. Fibroleiomyoma of uterus. *(H.E. stain).*

Indications:

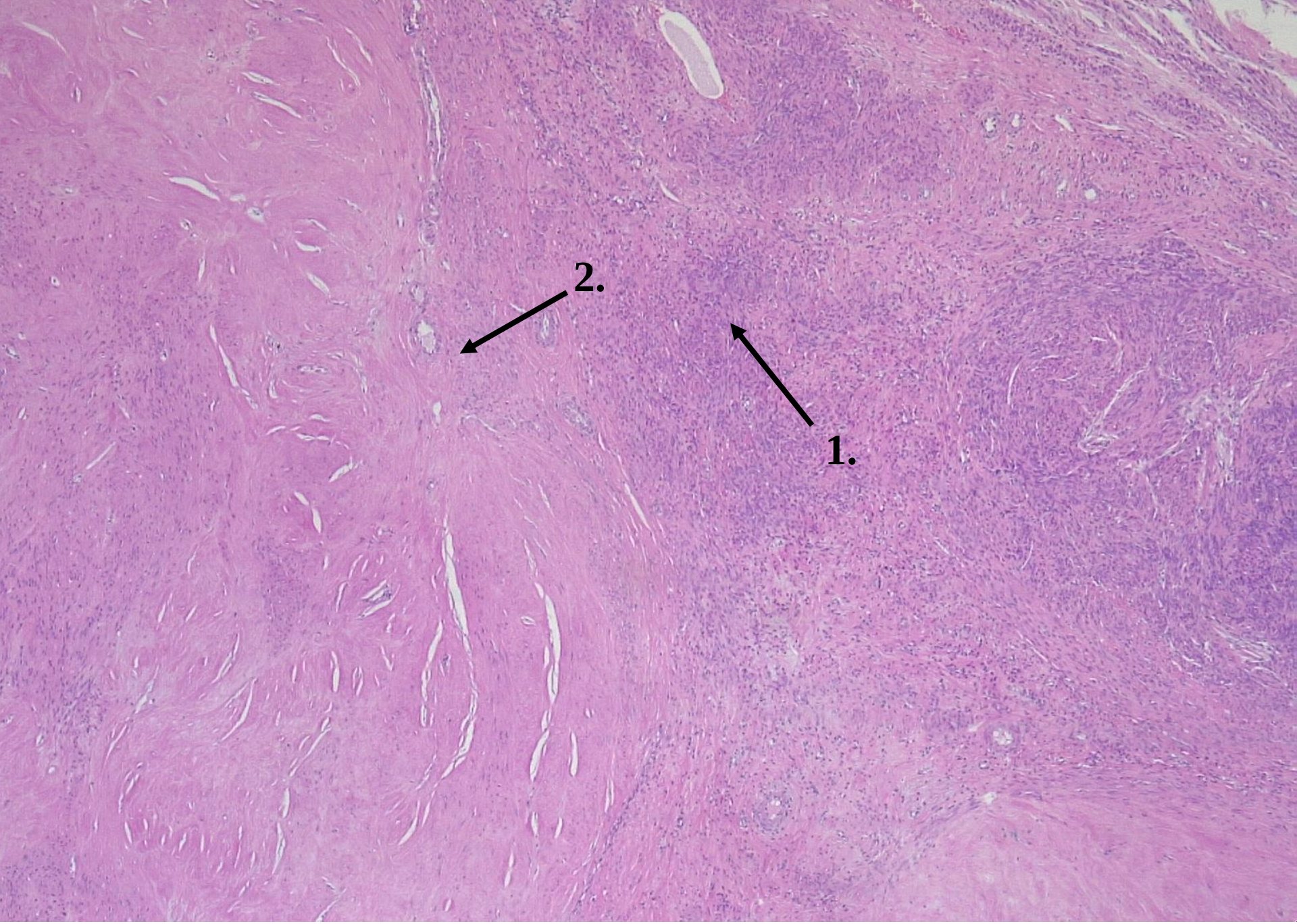
1. Smooth muscle cell bundles.
2. Fibrous connective tissue bundles.

Leiomyocytes are well differentiated, similar to normal ones; the tumor node is well delimited, surrounded by a fibrous capsule; outbreaks of hyalinosis are observed, in which the fusion and homogenization of collagen bundles take place; these foci have a homogeneous appearance and are colored eosinophilic.

Leiomyoma is the most common benign tumor of the uterus, which is derived from the smooth muscle cells of the myometrium or the average blood vessel. It is found in 30-50% of women of reproductive age, evolving for a long time asymptomatic and is accidentally detected at a regular gynecological examination. The first clinical symptom is uterine bleeding (menorrhagia / metrorrhagia). It is sensitive to estrogen, due to which it increases during pregnancy and regresses in menopause. Because in parallel with the proliferation of the muscle parenchyma, the proliferation of the fibrous connective tissue stroma also takes place, the name fibroleomyoma is more correct. Malignant transformation (leiomyosarcoma) is extremely rare, in less than 0.5% of cases



№ 41. Fibroleiomyoma of uterus. *(Masson's trichrome stain).*



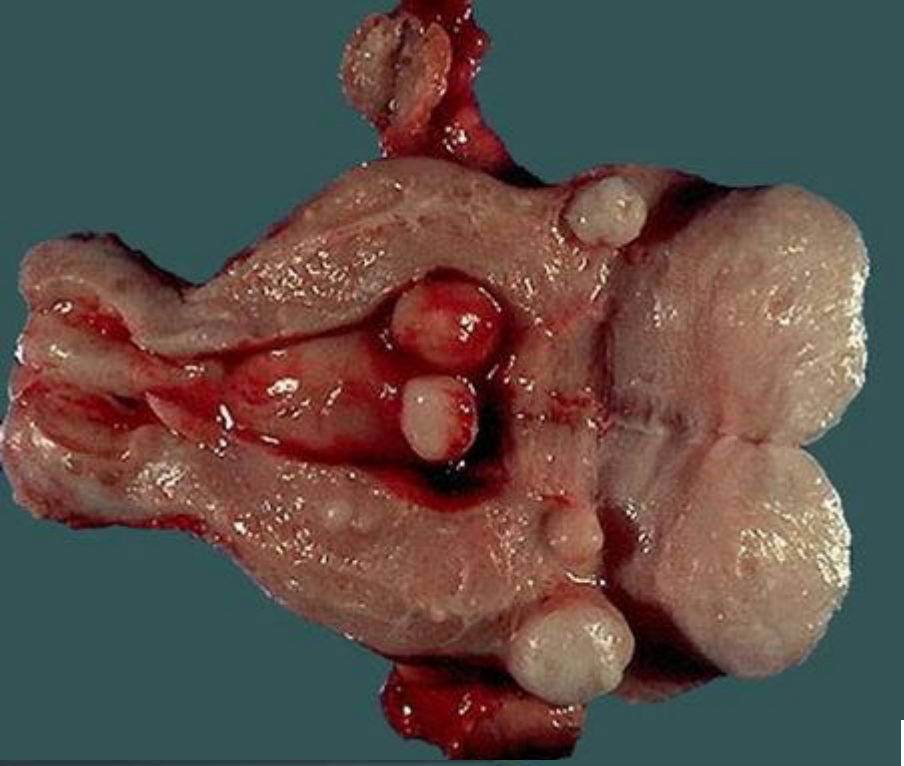
№ 41. Fibroleiomyoma of uterus. *(H.E. stain).*

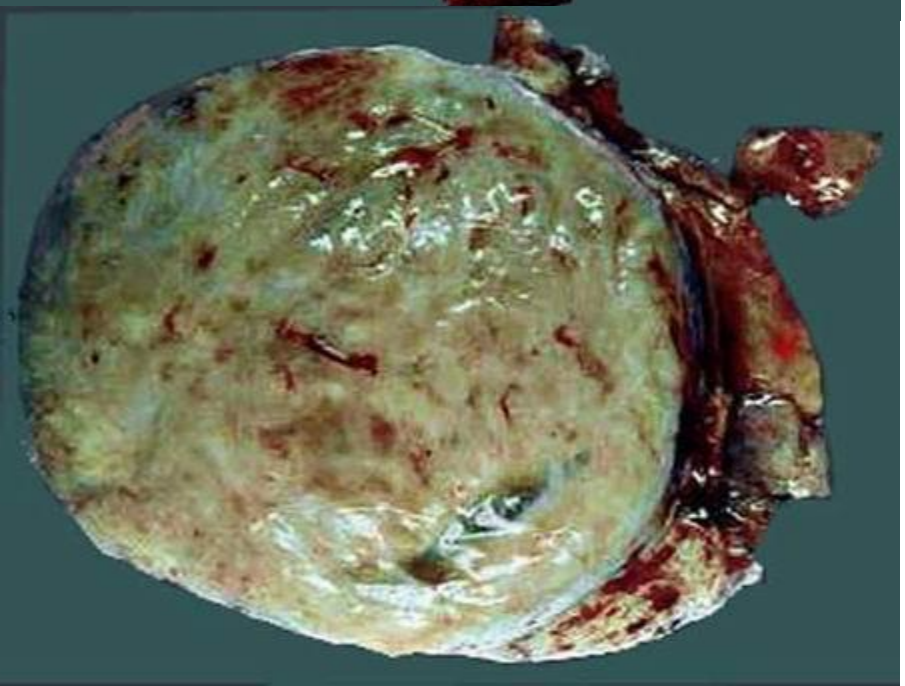
I. Macrospecimens:

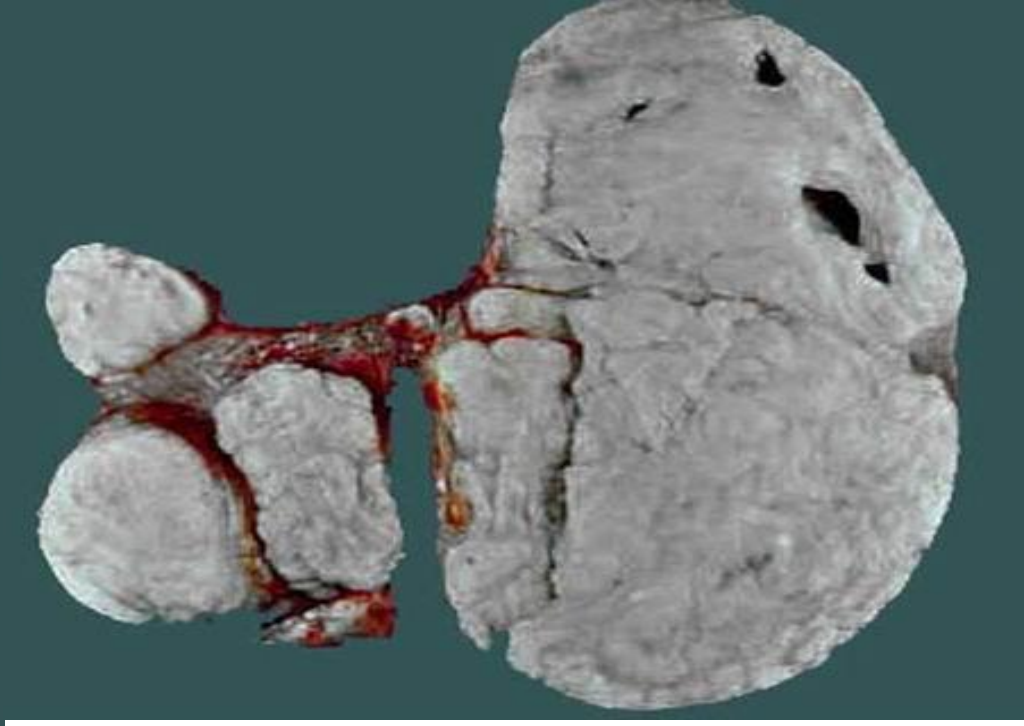
№ 104. Fibroleiomyoma of uterus.

In the uterine wall solitary or multiple tumor nodules are observed, with variable size from 1-2 cm to very large, well-defined, dense, located in subserous layer, intramural (in the thickness of the uterine wall) or submucosal layer; on the cut section they have fibrillar structure, pink smooth muscle bundles and whitish connective tissue have disordered whorled arrangement (tissue atypia). There may be present secondary changes: hemorrhages, foci of necrosis, cystic cavities, foci of hyalinosis, in which fusion and homogenization of collagen bundles takes place; these foci have a smooth, glossy, grayish white appearance. Outbreaks of myxomatosis are also possible, in which the consistency becomes flabby.

Leiomyoma is a benign tumor of muscular origin, which develops from the smooth muscle tissue itself or from the walls of blood vessels. Because in parallel with the proliferation of the muscle parenchyma, the proliferation of the connective tissue stroma also takes place, the name fibroleomyoma is more correct. Leiomyoma is the most common benign tumor of the uterus, it is clinically manifested by uterine hemorrhage (metrorrhagia).







№ 104. Fibroleiomyoma of uterus.

№ 105. Uterine corpus carcinoma.

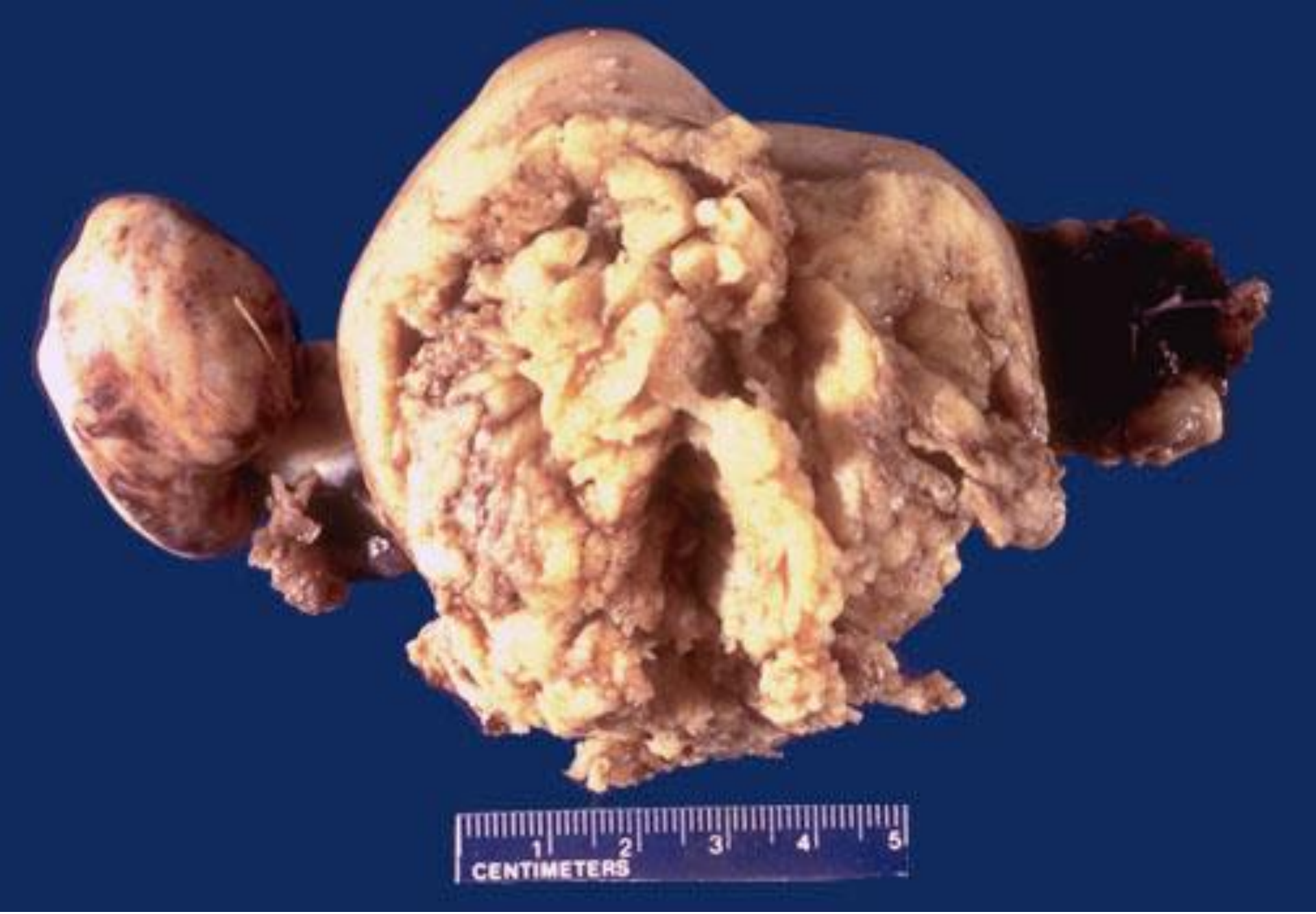
In uterine cavity there is a tumor node with exophytic type of growth, which almost completely fills the cavity, has a rough, irregular surface. On section has gray-whitish color, consistency is friable.

Uterine corpus carcinoma is more common in menopausal age 60-70 years, but it can also occur in young women. The main precursors are glandular hyperplasia of endometrium without atipia (1-3%) and most commonly - atypical glandular hyperplasia / intraepithelial endometrial neoplasia, which coexists with carcinoma in 25-40% of cases. The tumor may has infiltrative or e exophytic type of growth, secondary changes as foci of necrosis, ulceration or inflammation may occur in the tumor node. Uterine corpus carcinoma can infiltrate myometrium, parametrium, cervix, vagina, urinary bladder and colonum. The most common metastases occur in the pelvic, para-aortic and inguinal lymph nodes. Hematogenous metastases are observed in the lungs, liver, bones and other organs.

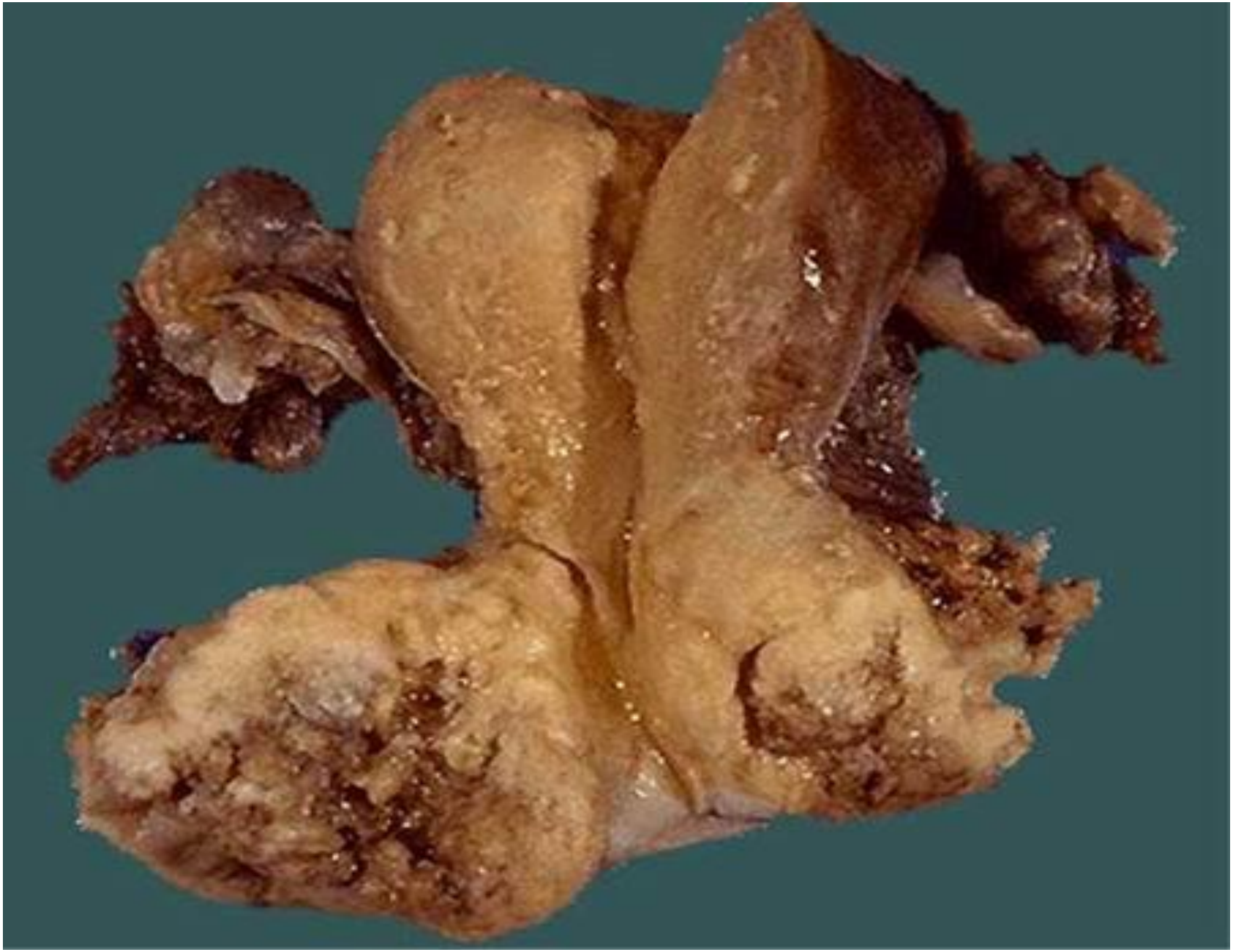
№ 106. Uterine cervical carcinoma

In cervix of the uterus there is a tumor node with exo-endophytic type of growth, which infiltrates cervical wall, has regular shape, with imprecise limits, rough surface, it is nodular of gray-yellow color.

Cervical carcinoma ranks 2-3 in all cancers in women. It is most commonly found in the average age of 55 years. It is preceded in most cases by HPV infection, especially serotypes 16 and 18, HPV 16 causing squamous cell carcinoma and HPV 18 - cervical adenocarcinoma. Morphological manifestations of papillomavirus infection are squamous intraepithelial lesions, which may be low and high grade (LSIL and HSIL). The predominant histological forms of cervical carcinoma are keratinized or non-keratinized squamous cell carcinoma (~ 70%) and adenocarcinoma (10-25%). Macroscopically, the carcinoma of the vaginal portion of the cervix grows more frequently exophytic, and the carcinoma of the cervical canal - endophytic. The tumor may invade the cervical wall, vagina and adjacent pelvic organs, e.g., urinary bladder, rectum. Lymphogenous metastases occur in the pelvic, retroperitoneal, and inguinal lymph nodes and hematogenous - in the lungs, liver, and other organs.



№ 105. Uterine corpus carcinoma.

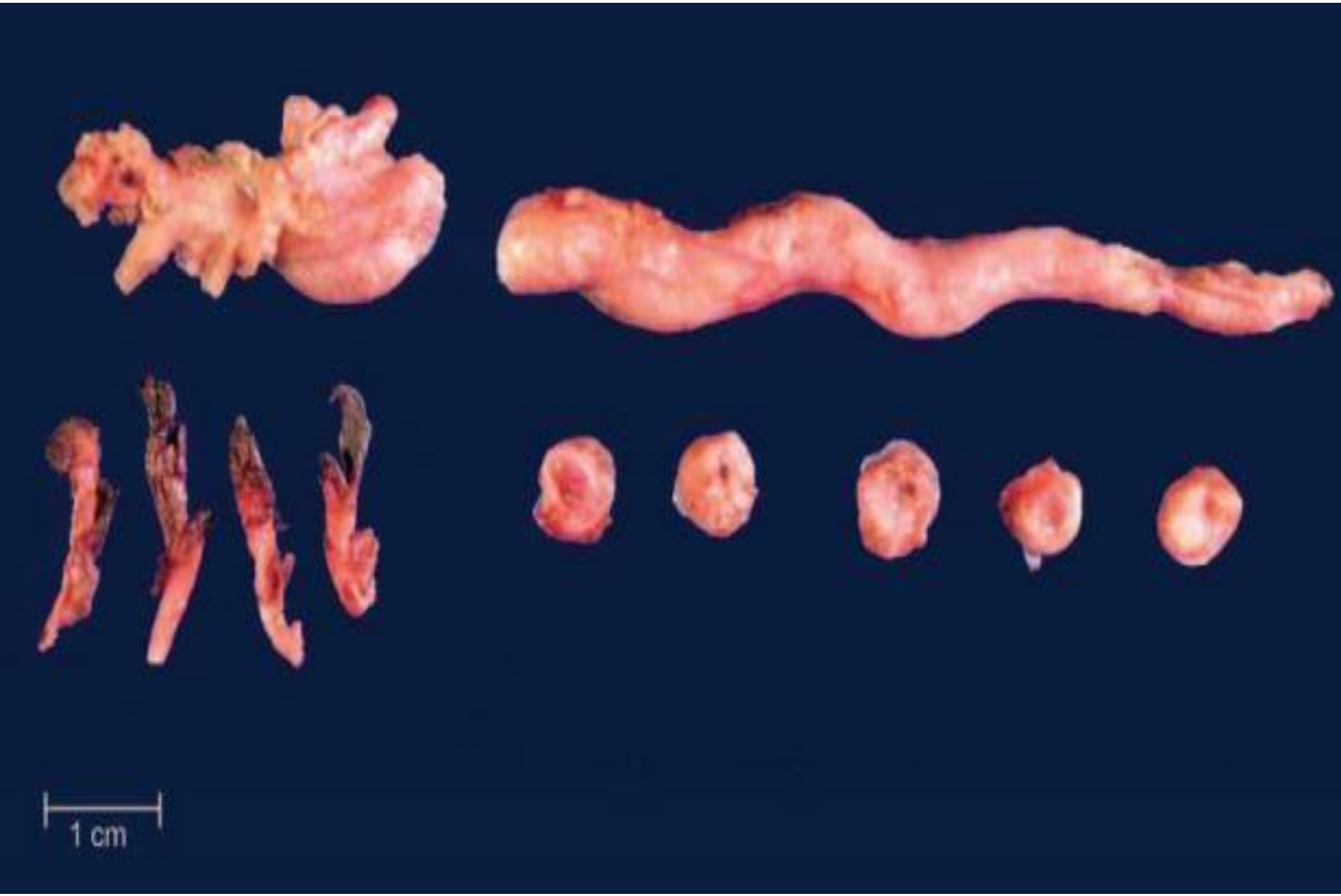


№ 106. Uterine cervical carcinoma.

№ 107. Chronic salpingitis.

The uterine tubes are deformed, serous membrane is opaque, sclerosed, whitish, the surface is uneven.

Chronic salpingitis is in most cases a consequence of acute salpingitis. The chronic inflammatory process results in fibrosis and sclerosis of the wall, deformation of the fallopian tube, the lumen becomes unevenly stenosed, adhesions appear between the villi of the mucosa, which leads to tubal pregnancy, and if the process is bilateral - to infertility. In some cases, hydrosalpinx develops - dilated atrophied fallopian tube with thin wall with aqueous liquid into the lumen. As a result of chronic salpingitis, adhesions between the tube and the ovary, small intestine, and other pelvic organs may occur.



№ 107. Chronic salpingitis.

№ 110. Ovarian cystadenoma.

In the ovary there is a multicameral (multilocular) cystic formation, with thin walls, 1-2 mm in thickness, smooth internal surface, of whitish-grayish color, without content.

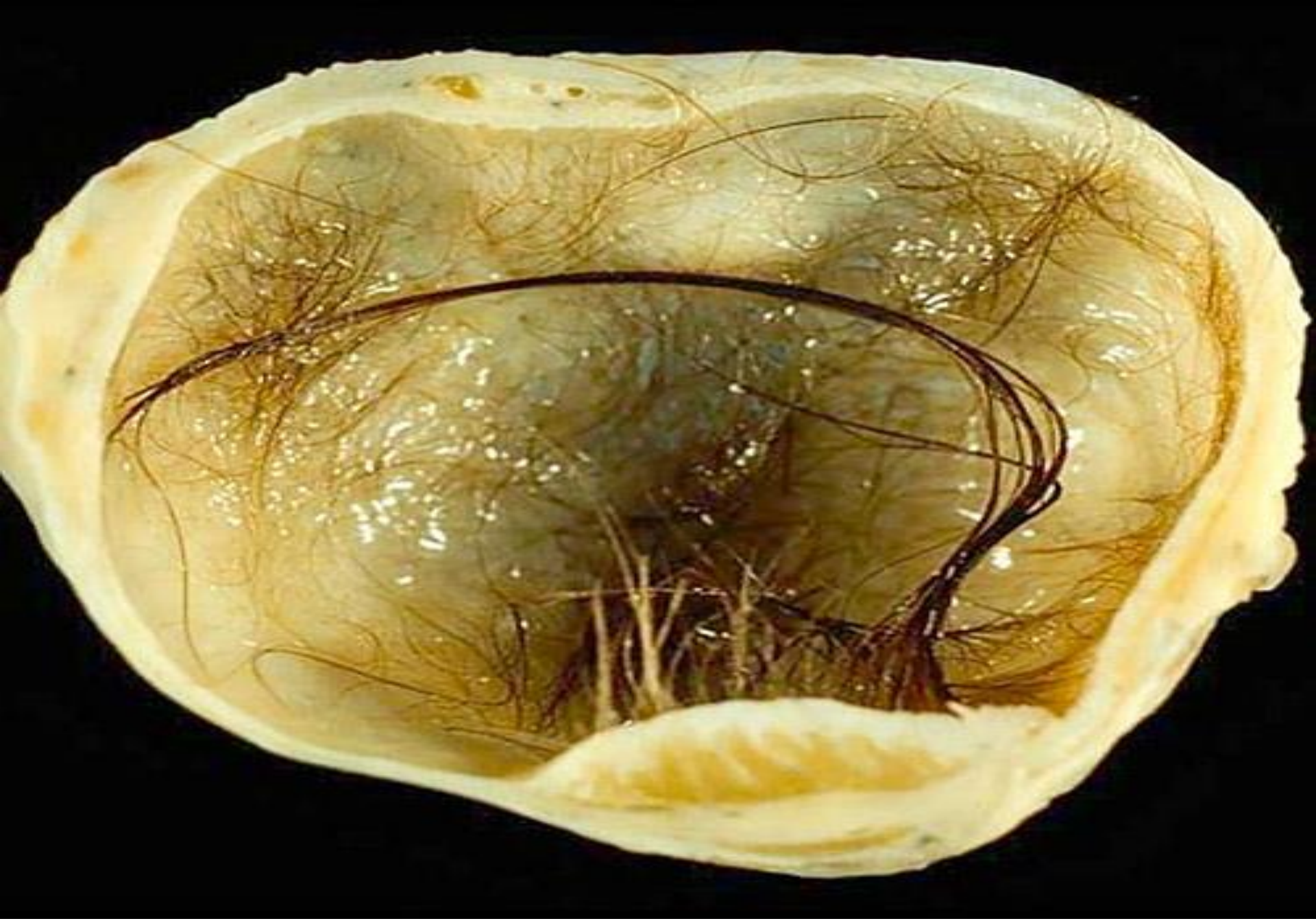
The most common ovarian tumors are tumors from the surface epithelium - about 65% of the total number, serous, mucinous and endometrioid tumors, which usually have a cystic structure, predominate.In serous tumors, the cysts contained serous, clear content, the mucinous ones contain mucin, and the endometrioid cysts have a hemorrhagic, "chocolate" content.
Serous and mucinous cysts in most cases are benign, and in 25% of serous and 10% of mucinous are malignant.

№ 111. Ovarian dermoid cyst.

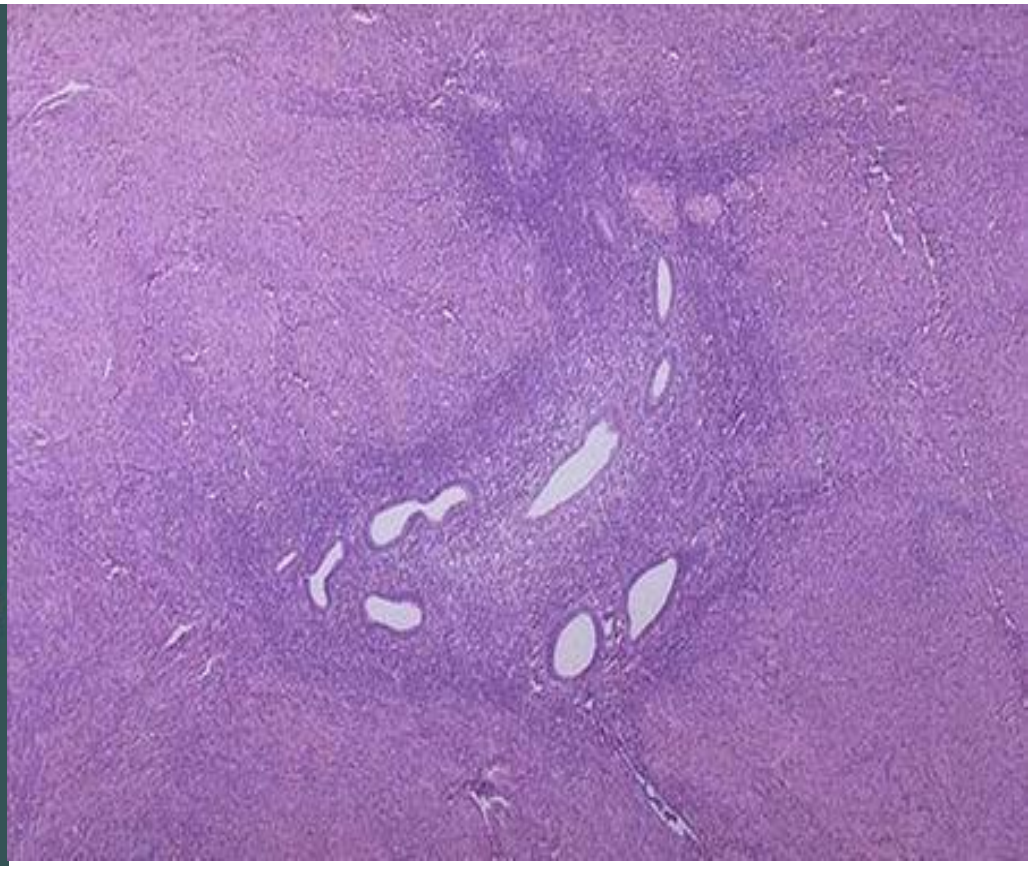
The macrospecimen has a cystic formation filled with sebum, hair, has a spongy appearance, white-yellowish color, occasionally can be foci of bone, cartilage or teeth.

Dermoid cysts are a variant of mature ovarian teratomas, which derive from the germ cells of the 3 embryonic layers: the ectoderm, the entoderm and the mesoderm. It represents 15-20% of ovarian tumors, especially in young women, usually unilateral. In the absolute majority of cases there are benign tumors, and in about 1% they can be malignant, usually squamous cell carcinoma.

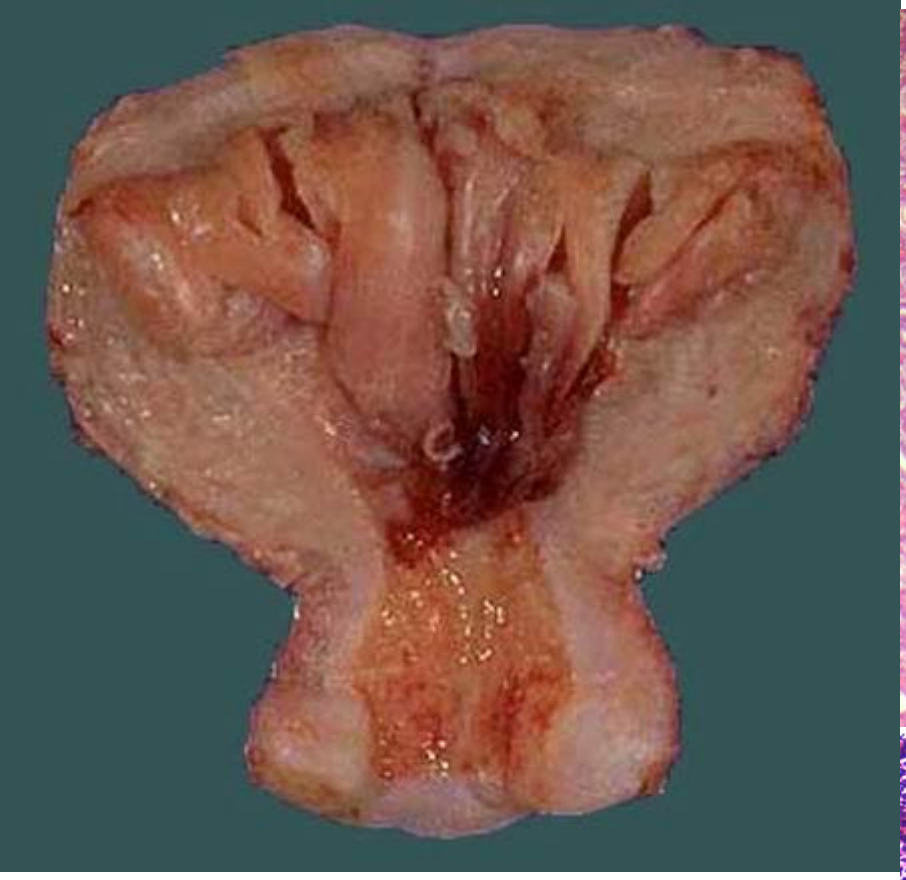
№ 110. Ovarian cystadenoma.

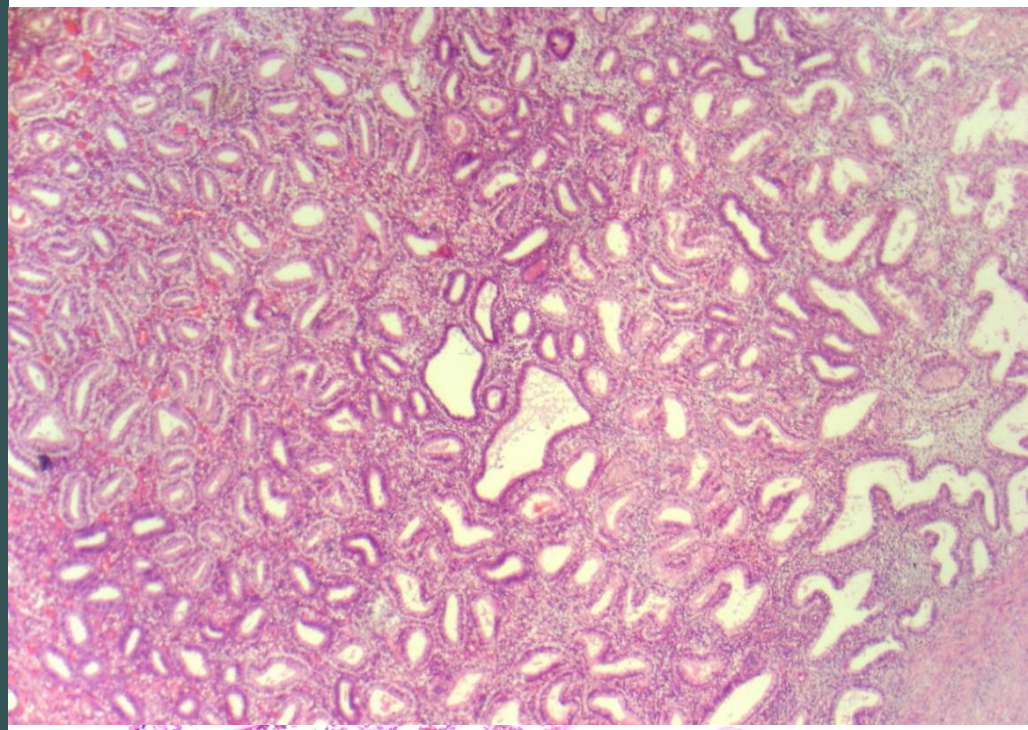


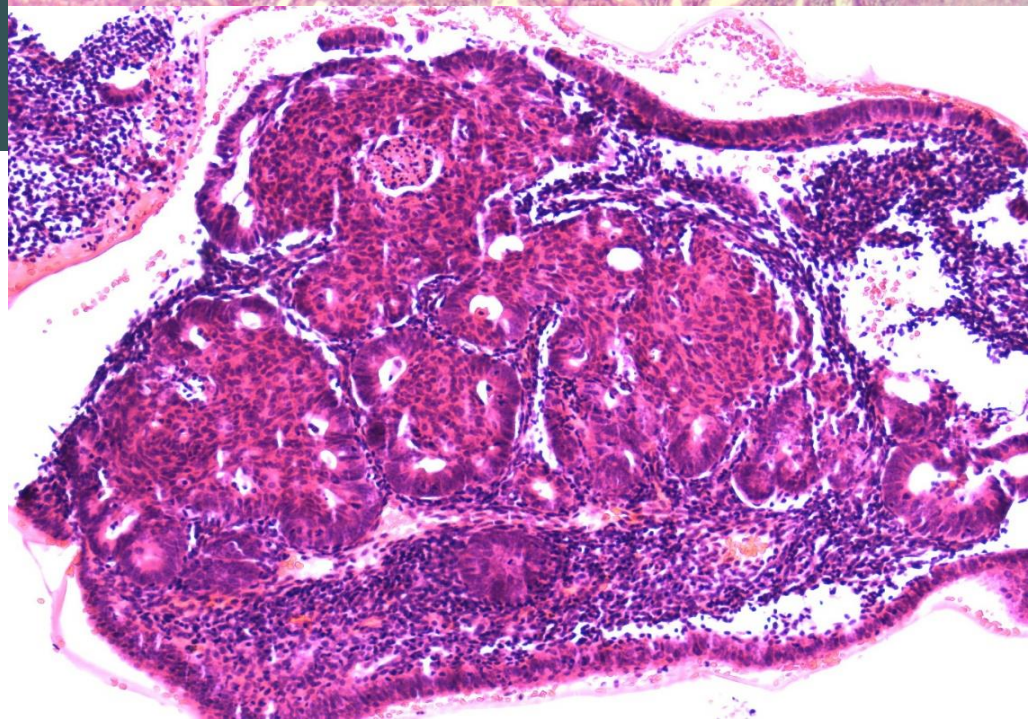
№ 111. Ovarian dermoid cyst.



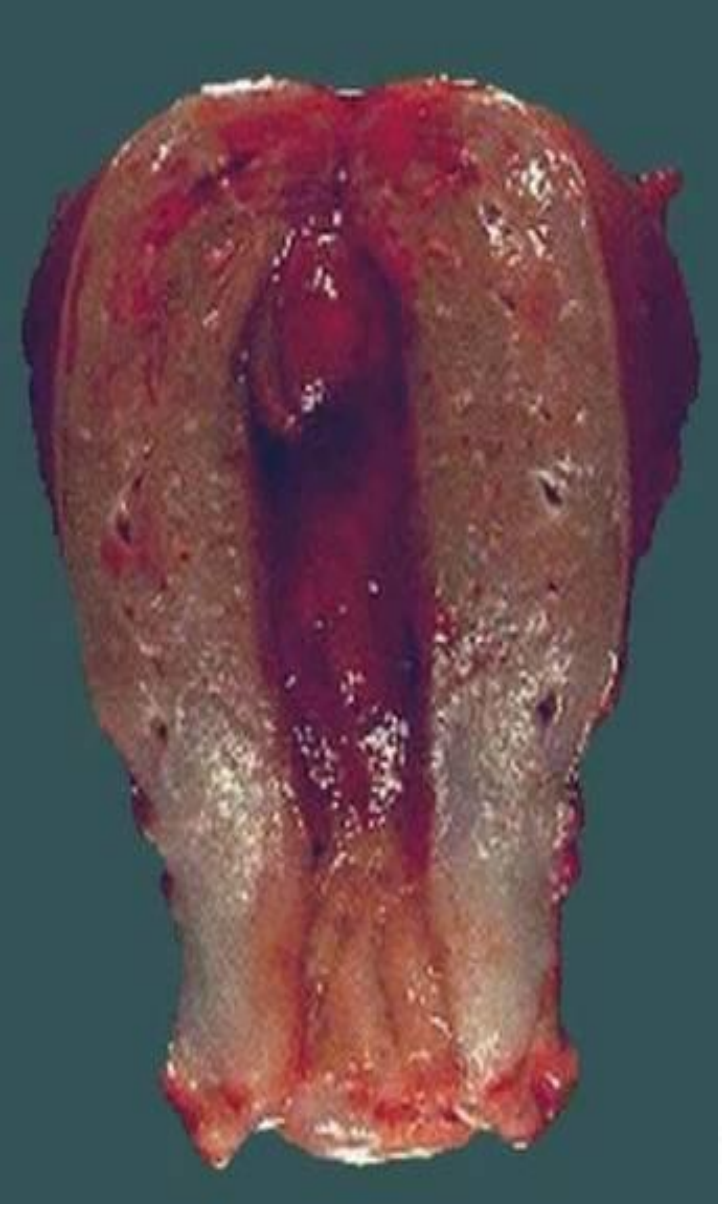
Adenomyosis.

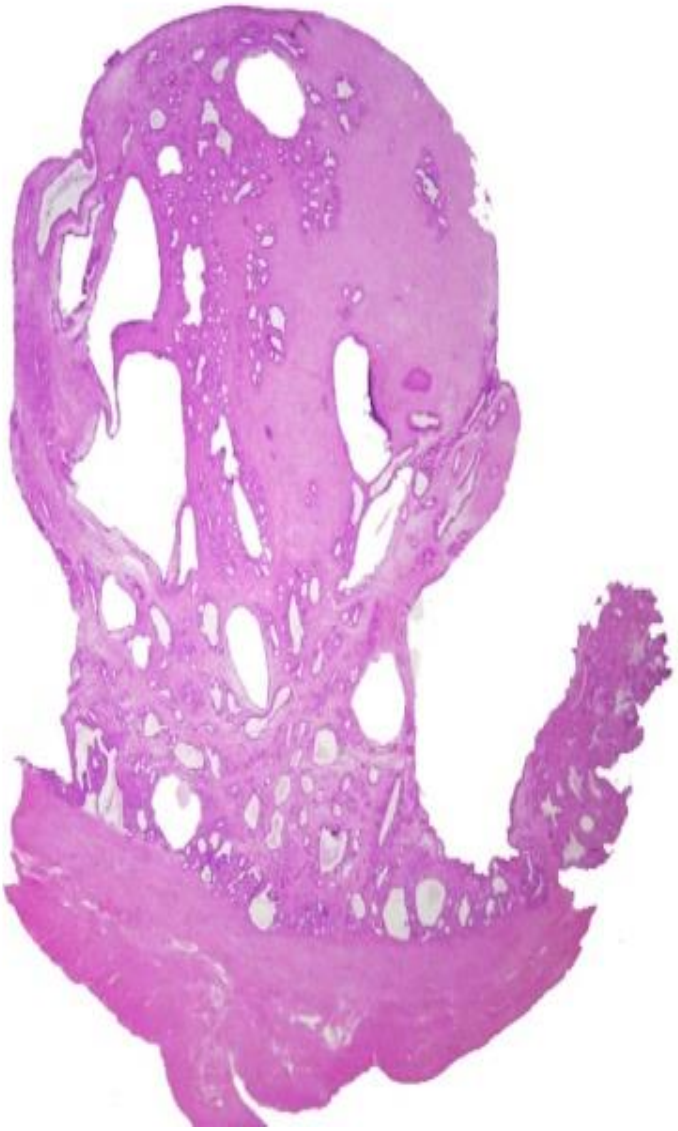




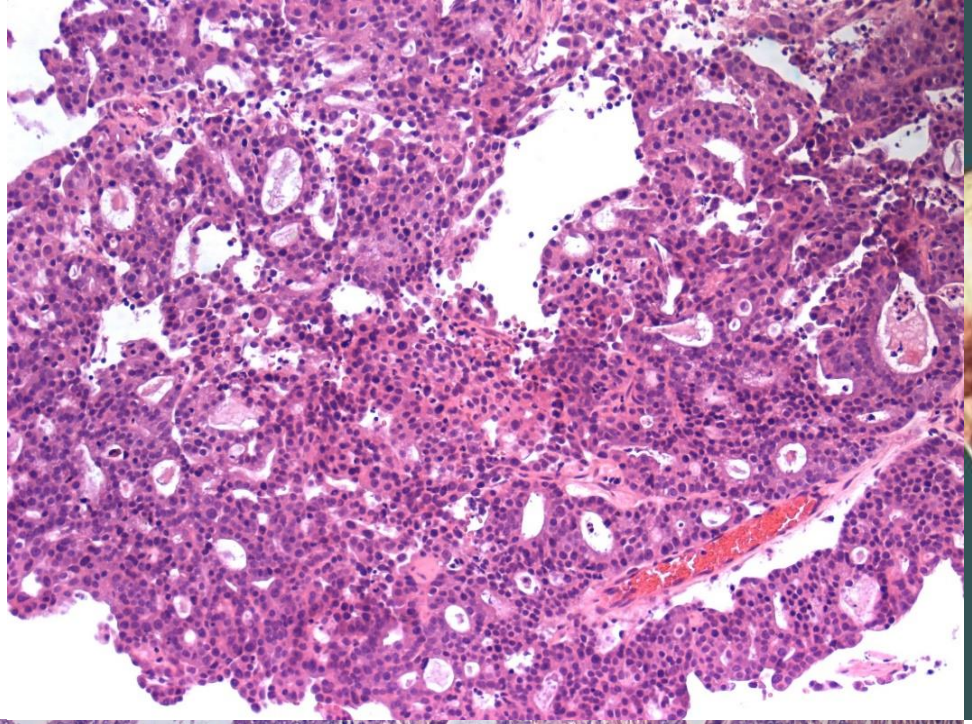


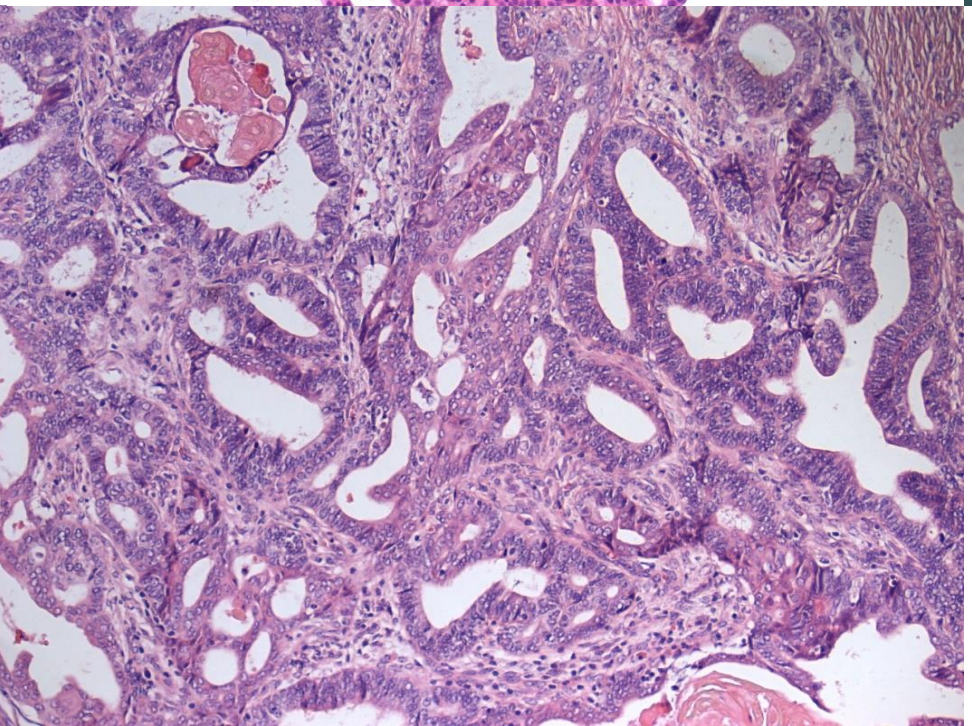
Simple and complex endometrial hyperplasia.



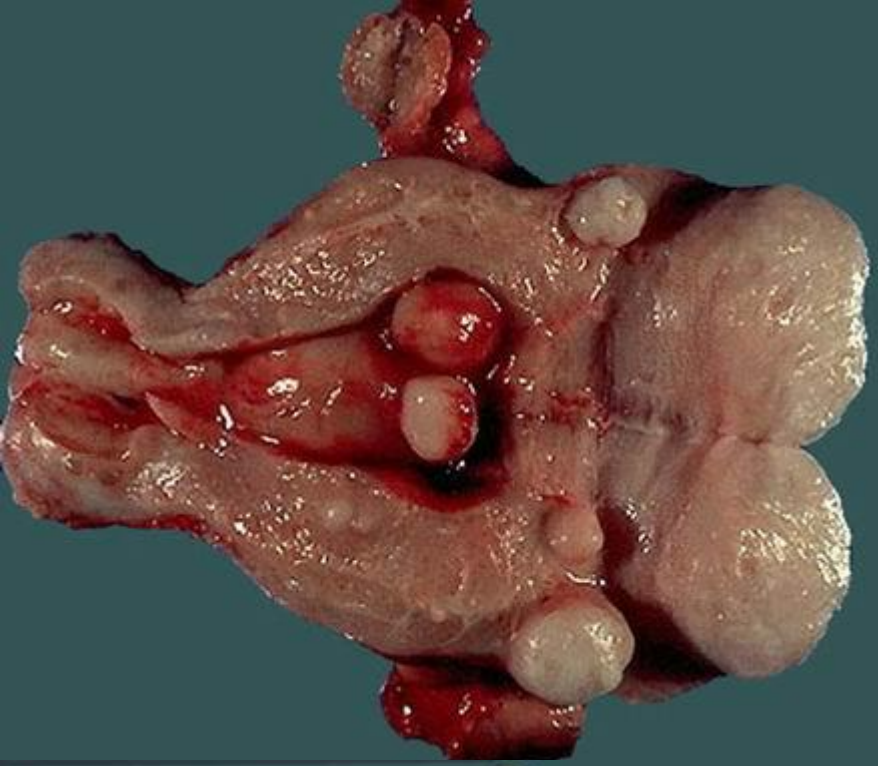


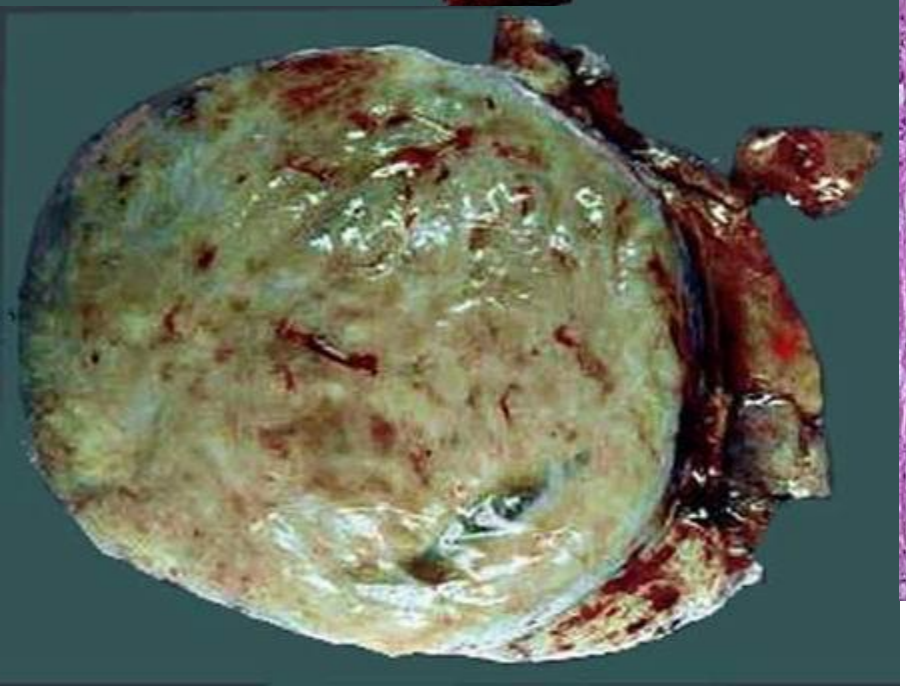
Endometrial polyp.

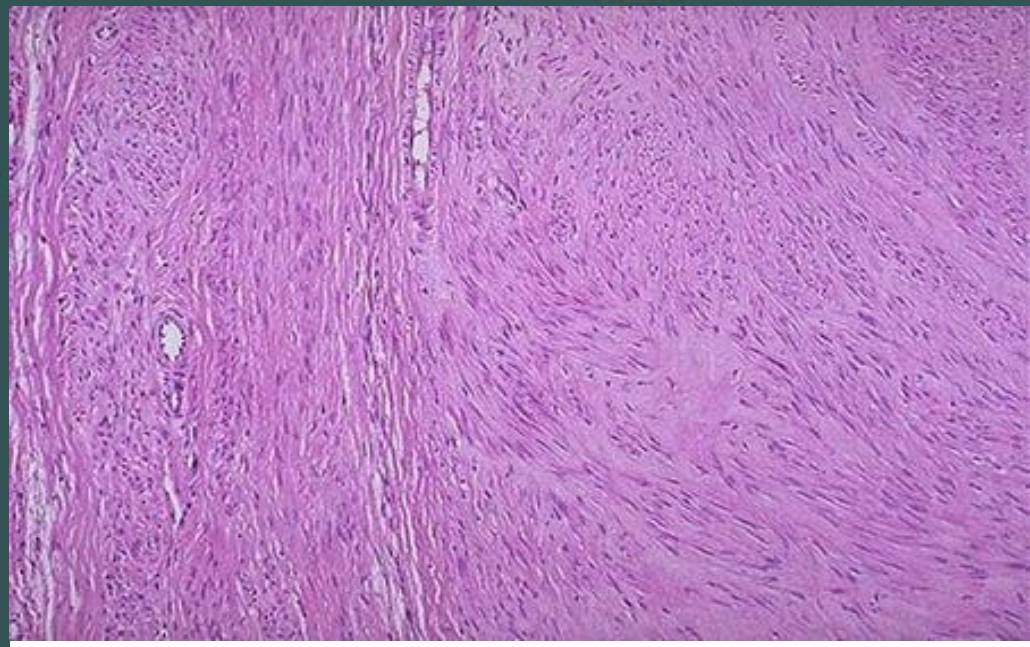




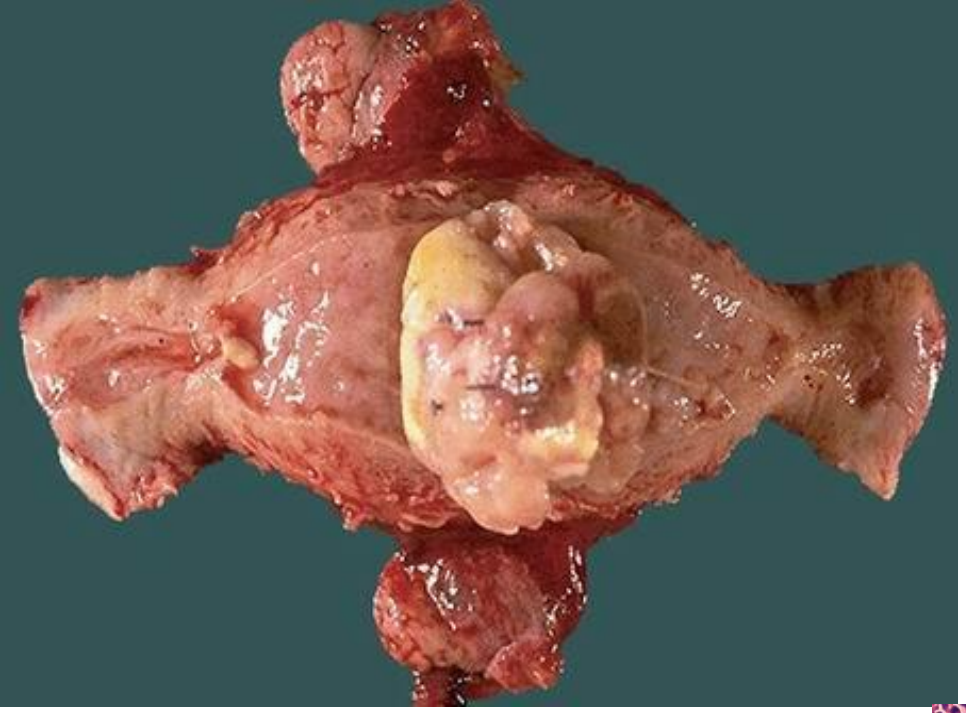
Endometrial carcinoma, endometrioid type.



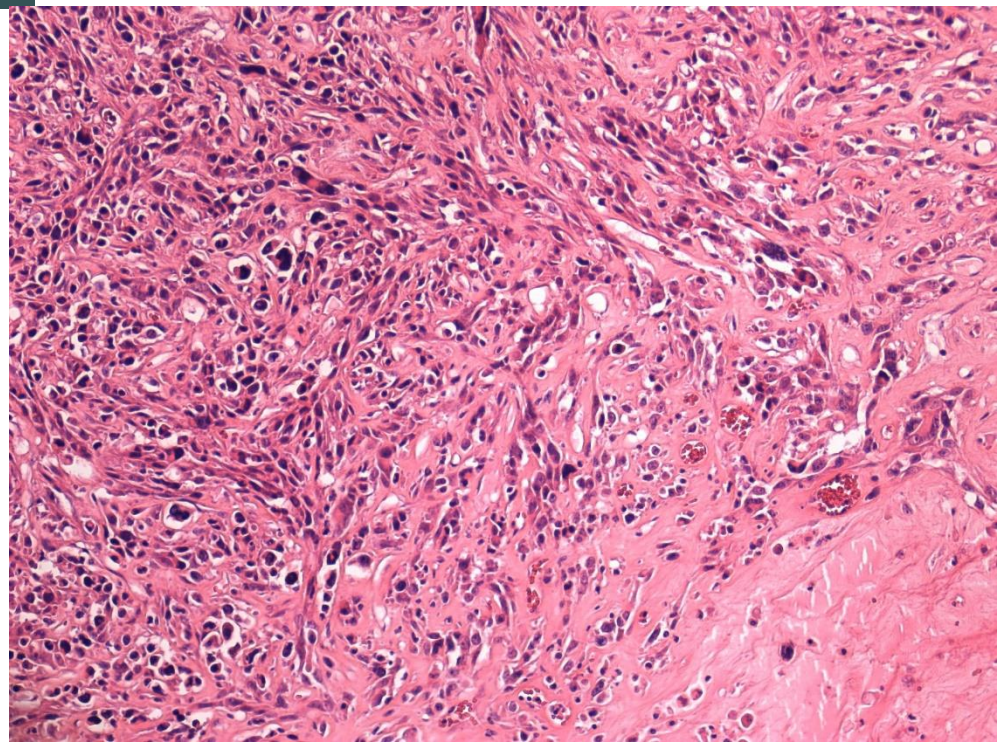


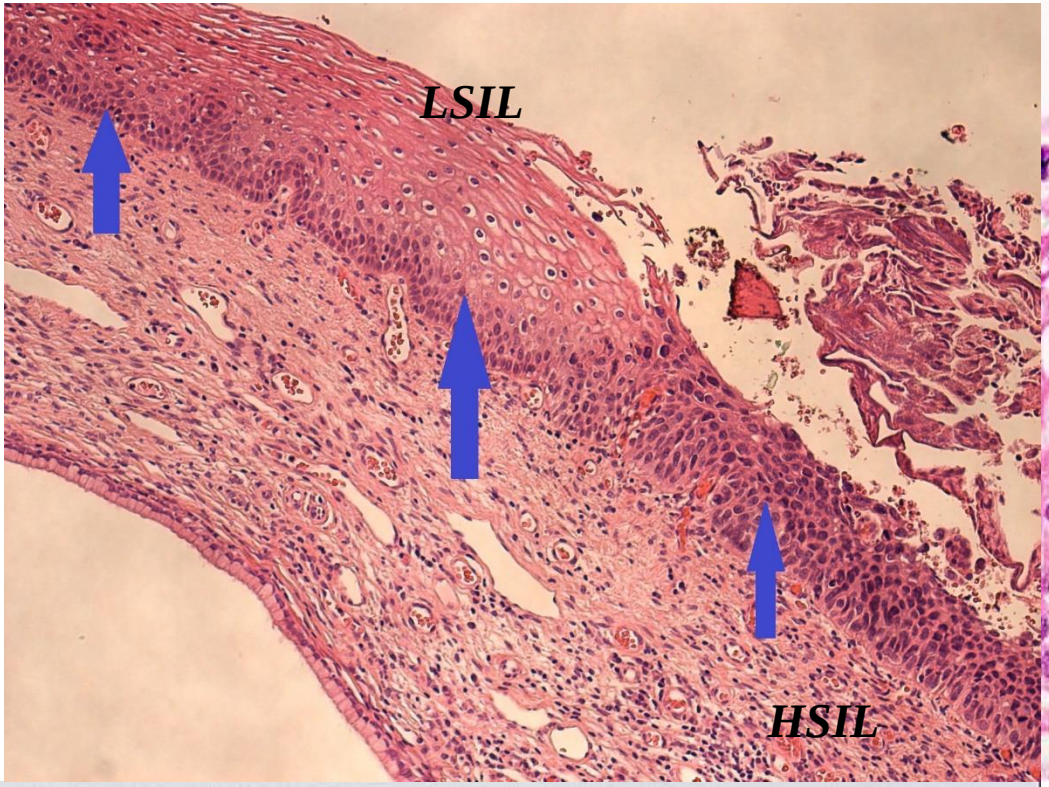


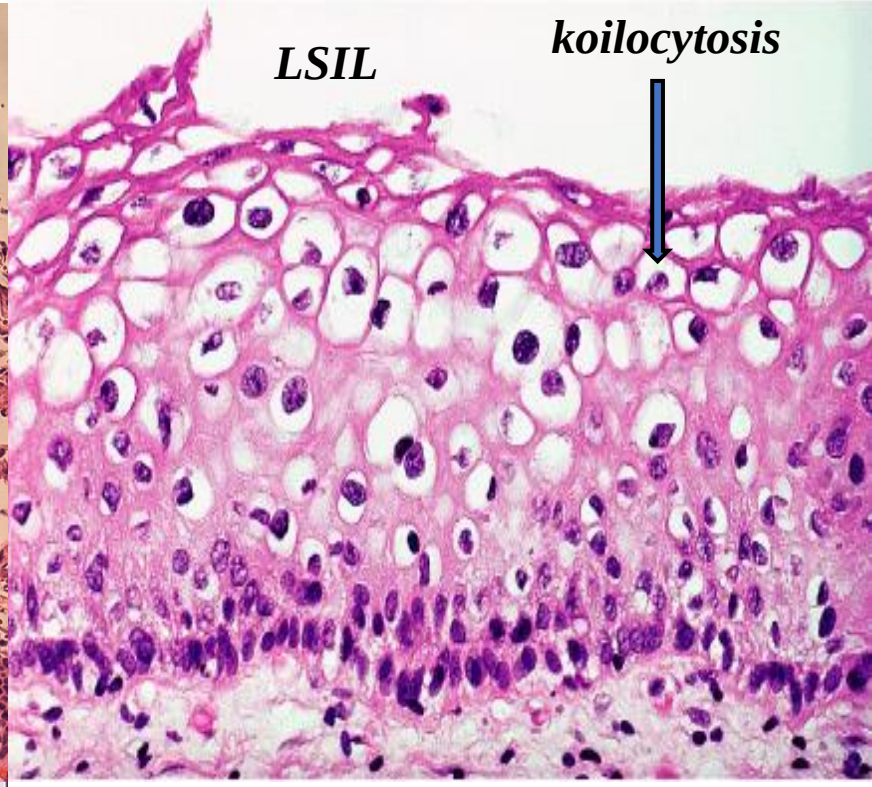
Uterine leiomyoma.

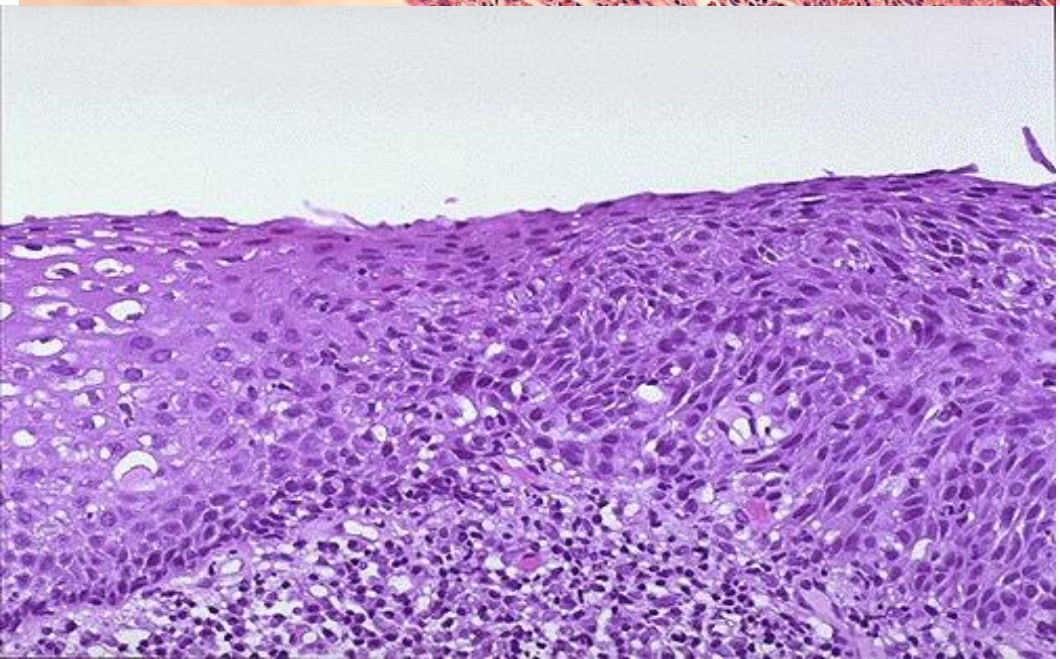


Leiomyosarcoma.

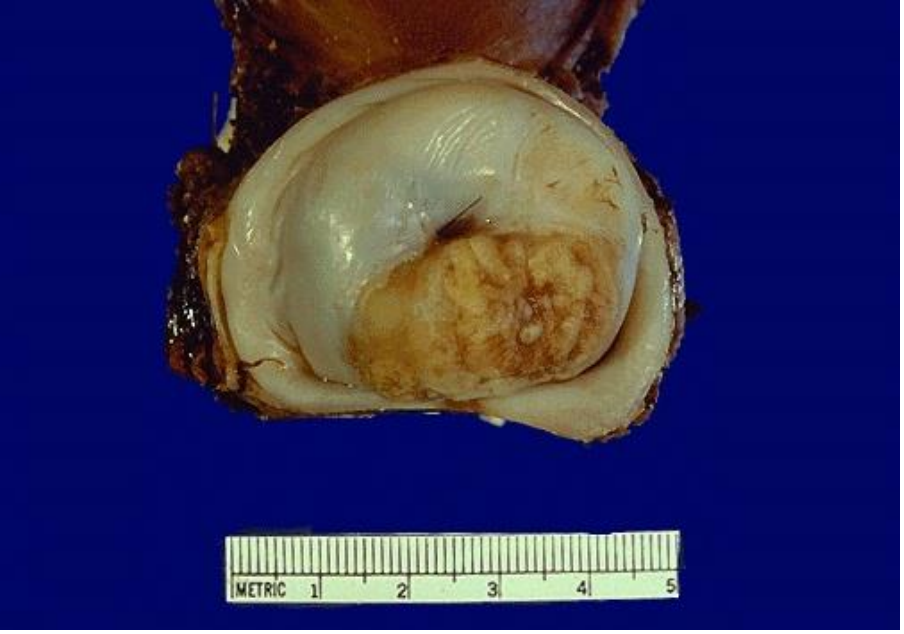


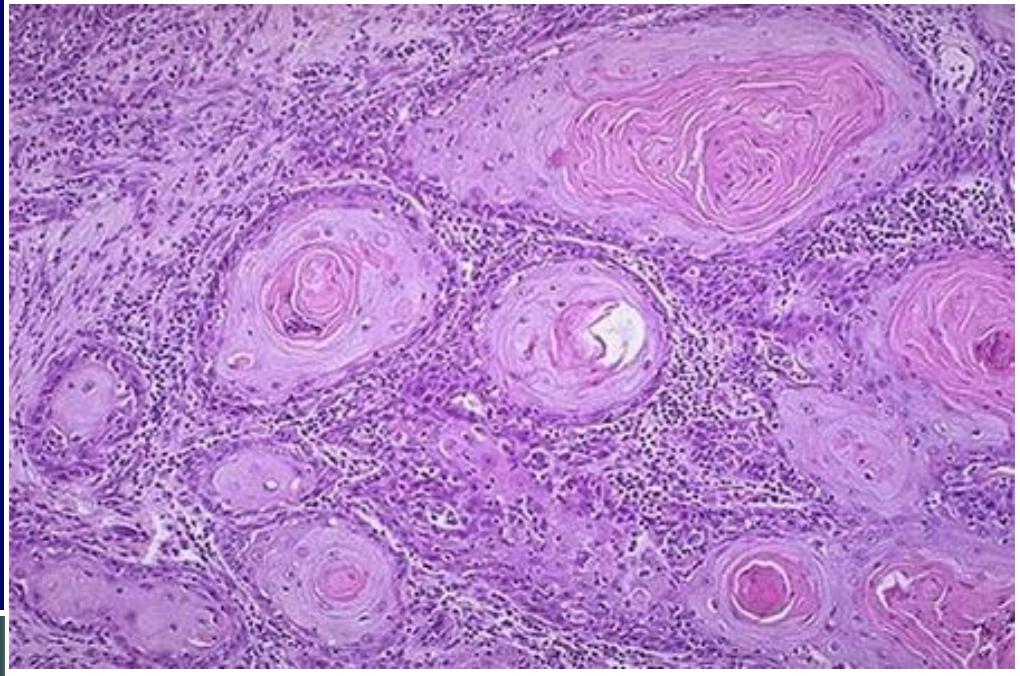


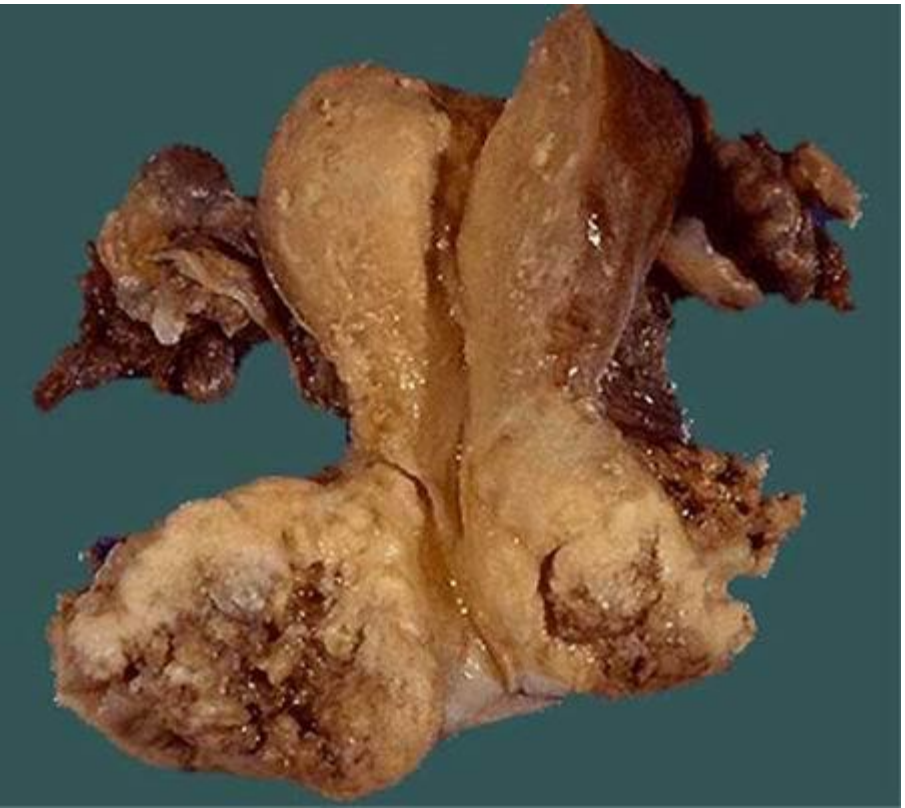




Cervical intraepithelial neoplasia *(koilocytosis). HSIL (CIN 2,3).*

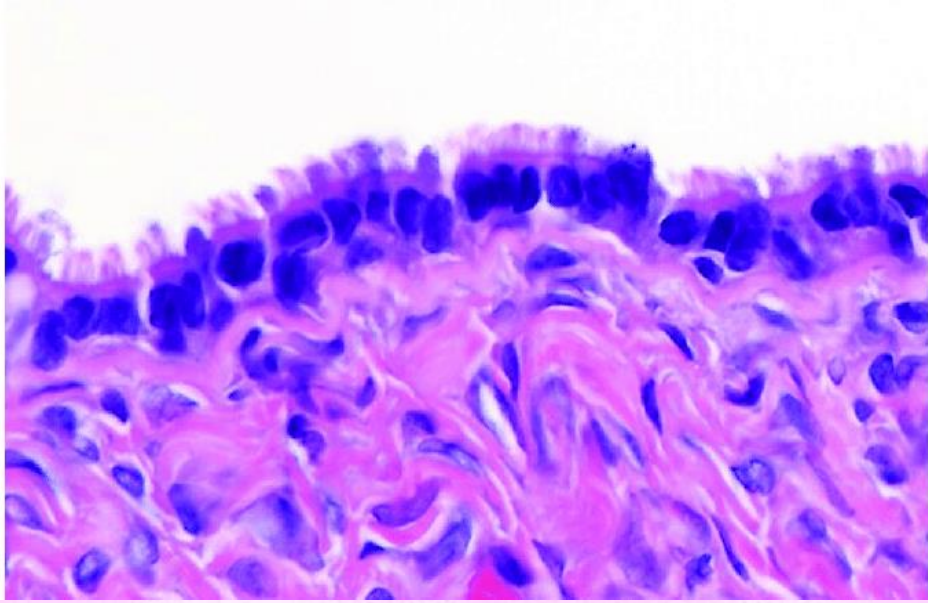


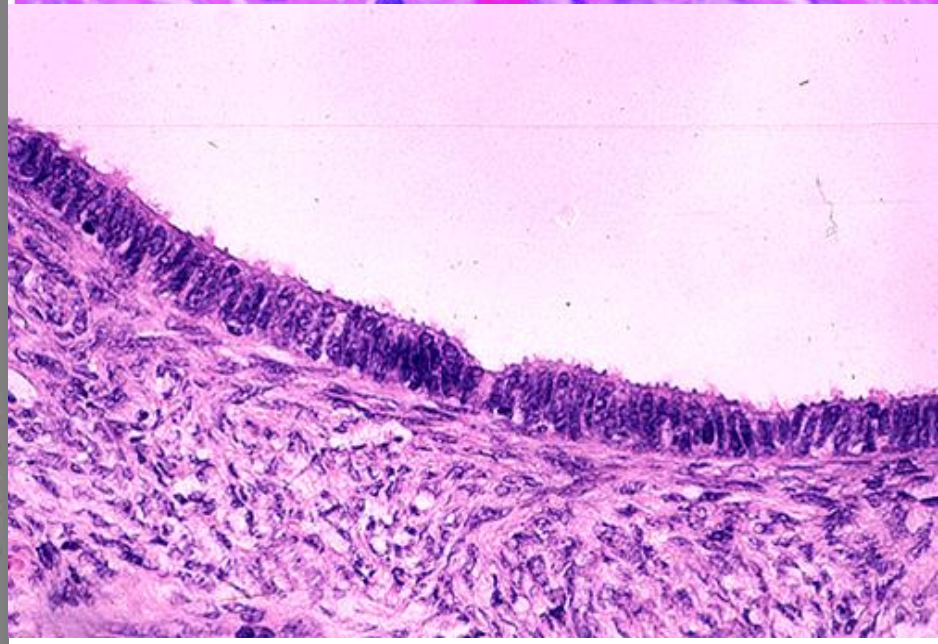




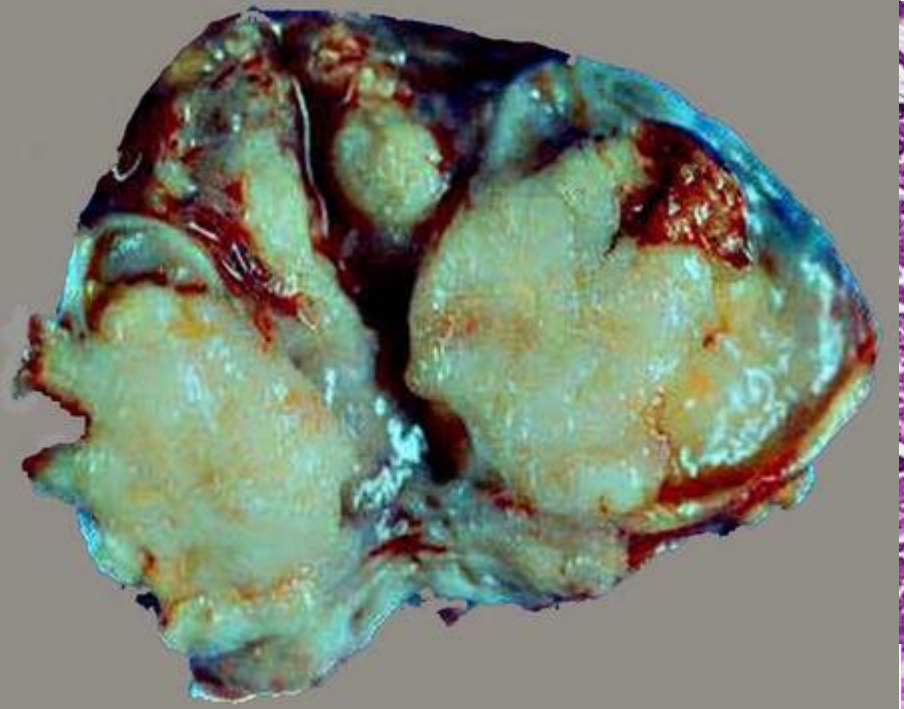
Uterine cervical carcinoma.

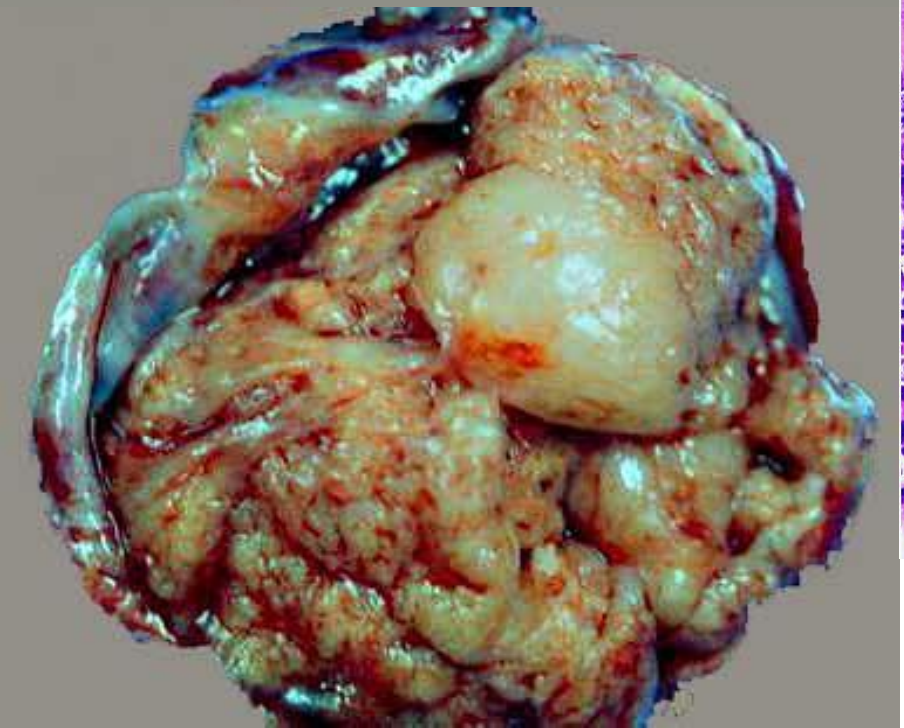
(micro – keratinizing squamous cell carcinoma).

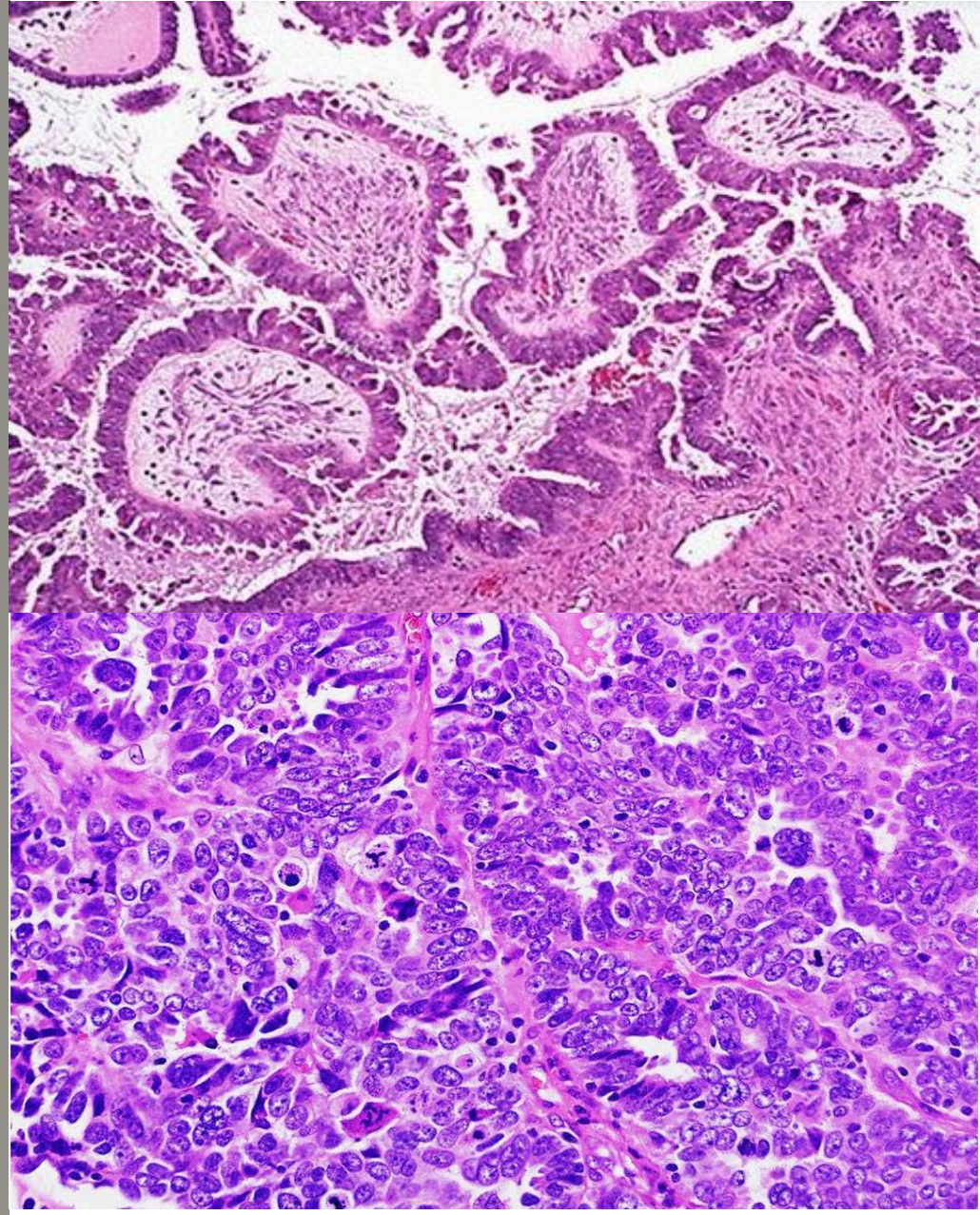




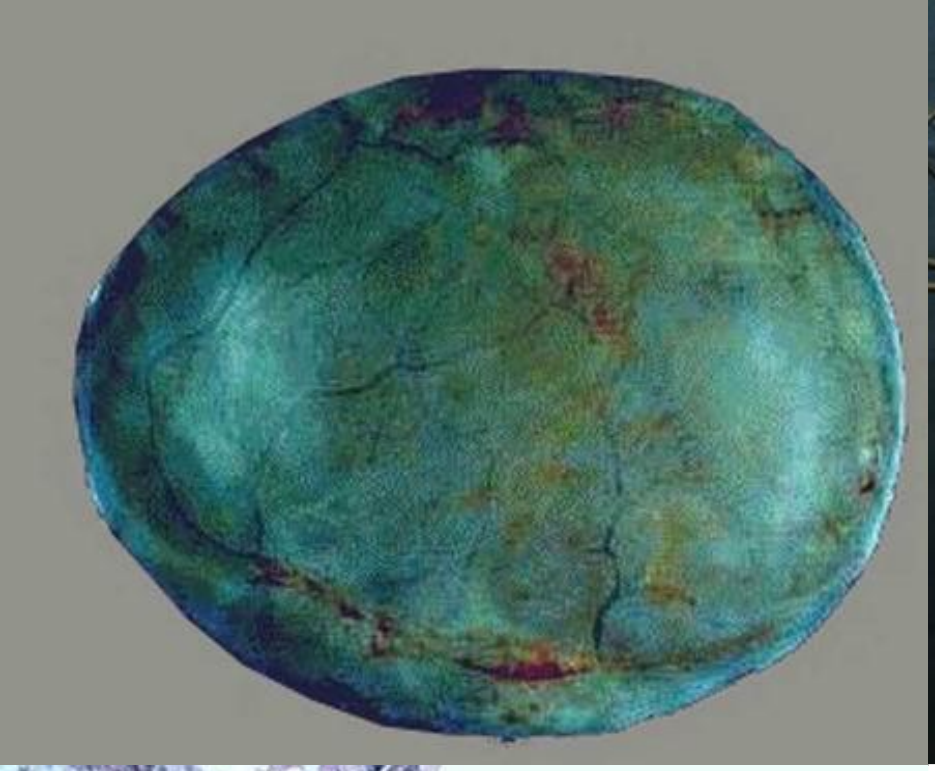
Ovarian serous cystadenoma.

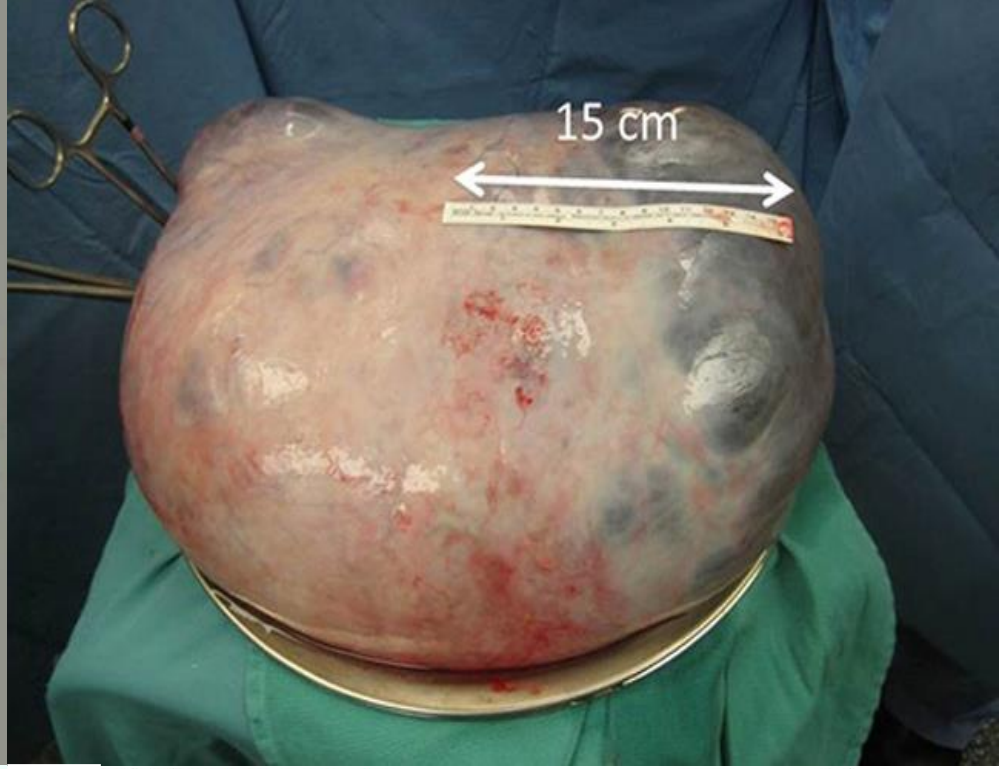




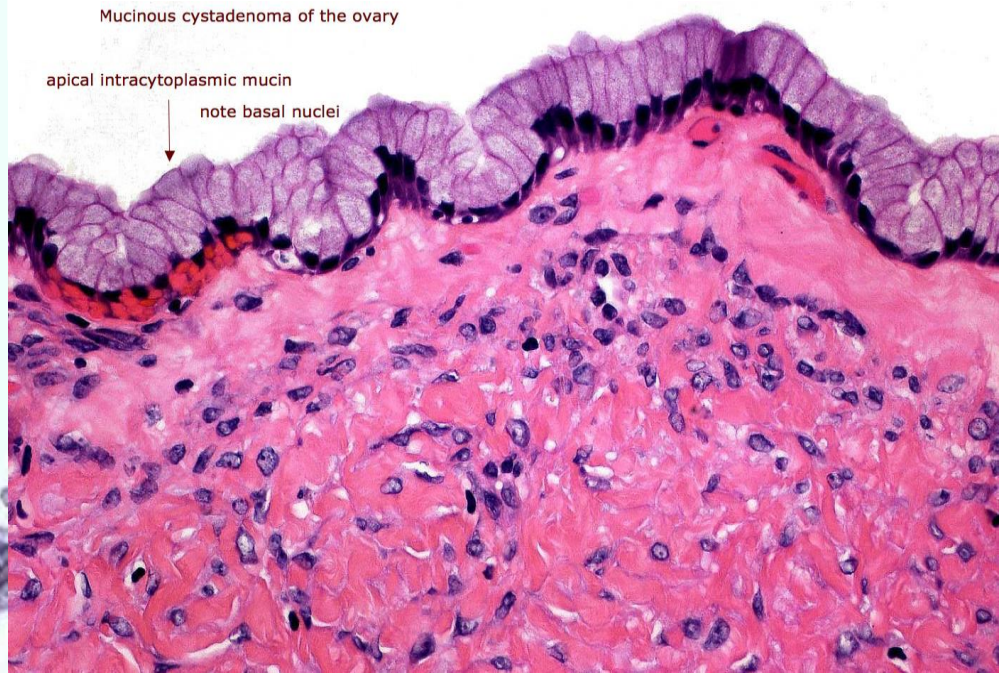


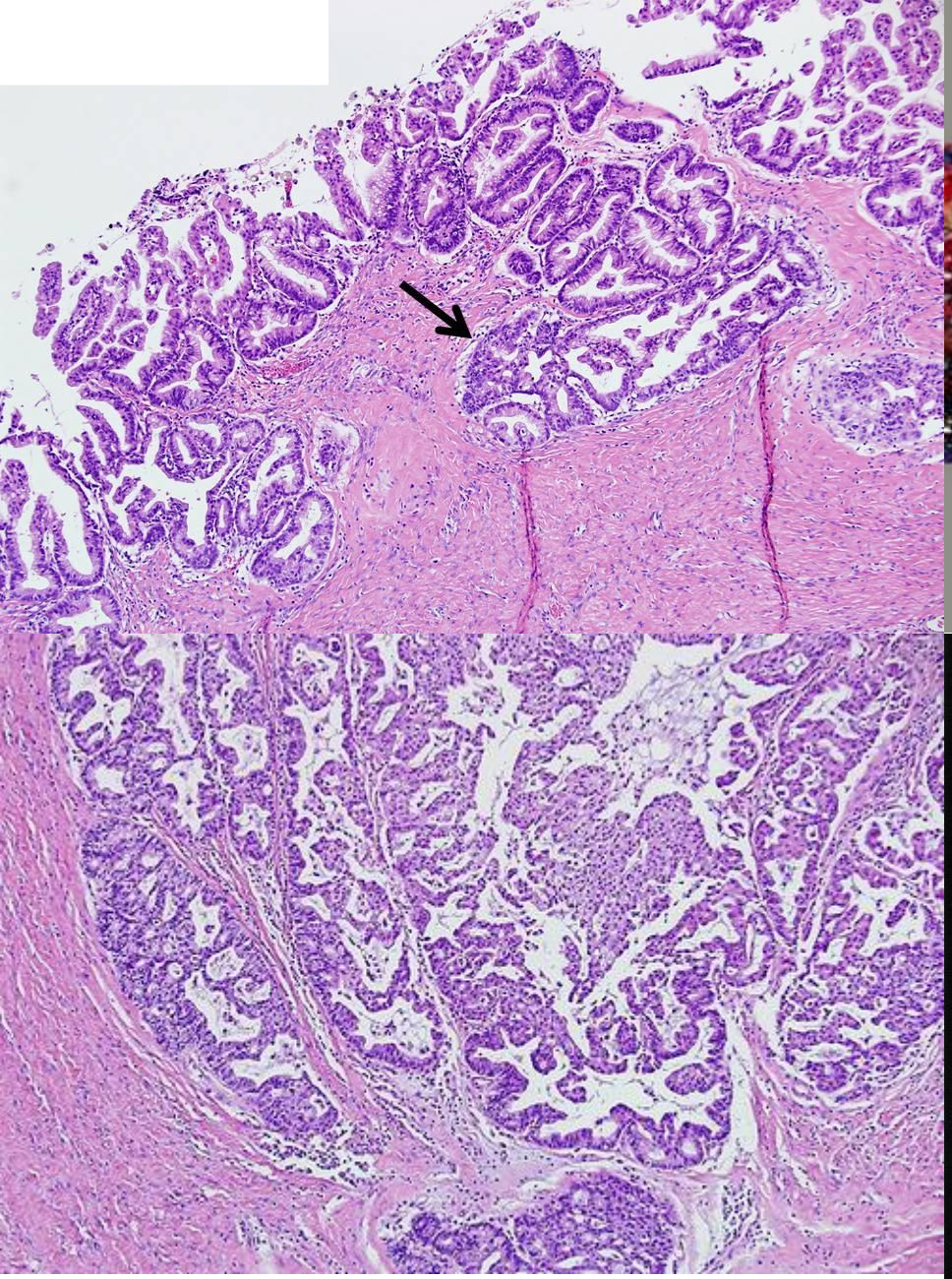
Serous borderline ovarian tumor.
Serous ovarian carcinoma.

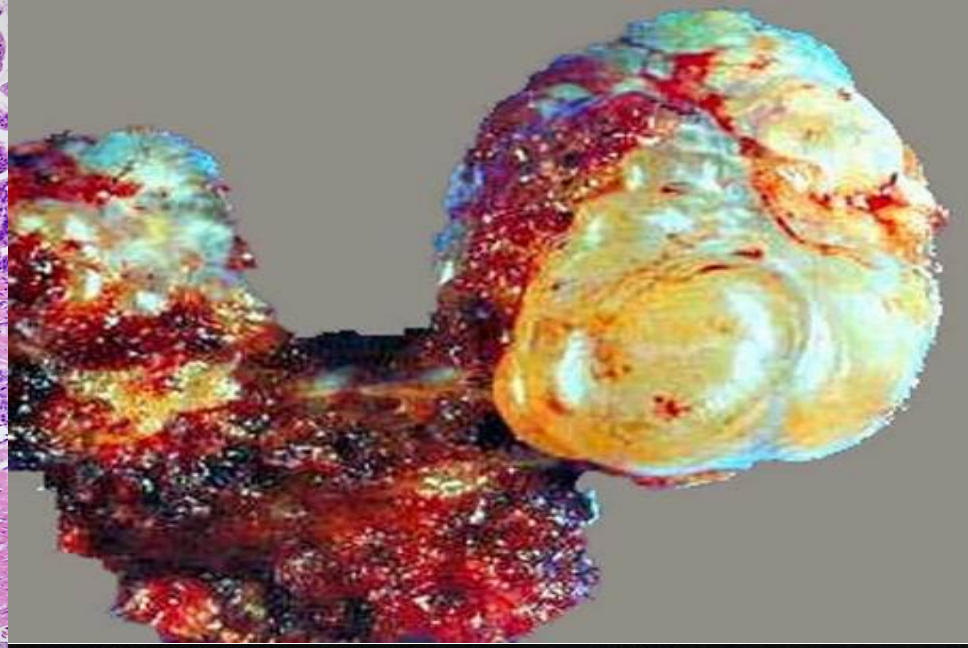


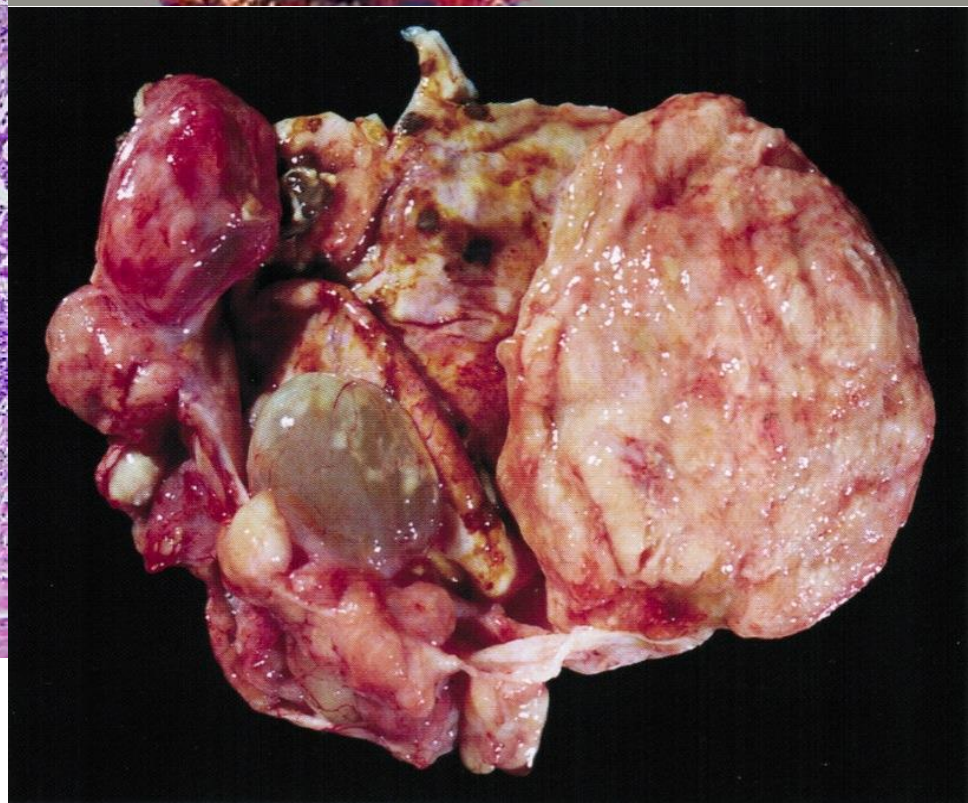


Ovarian mucinous cystadenoma.

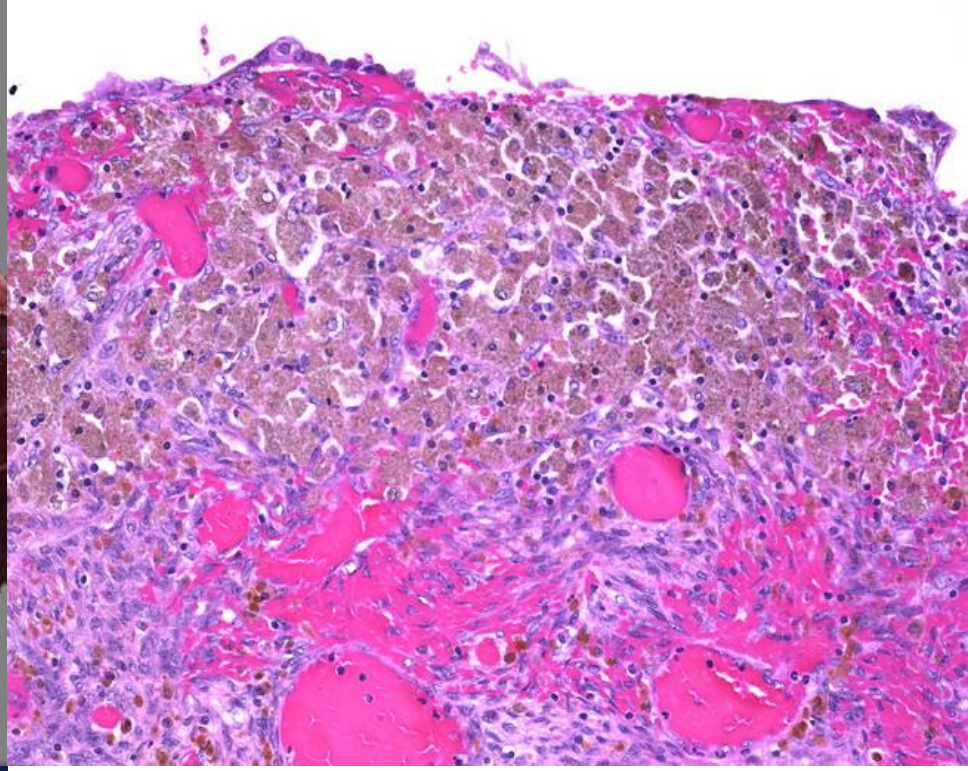


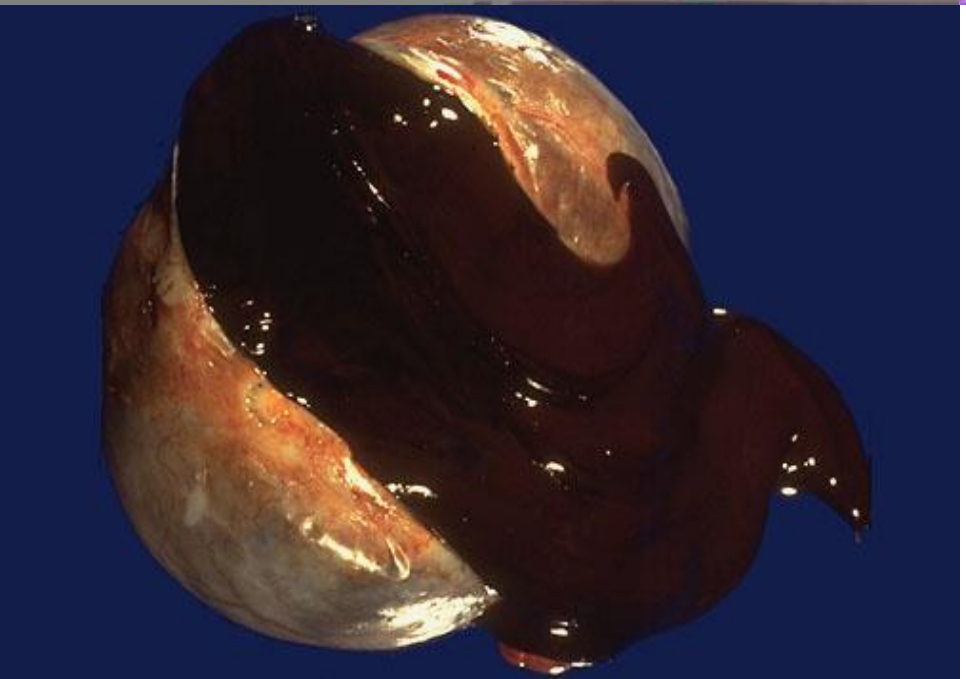






Mucinous ovarian carcinoma.

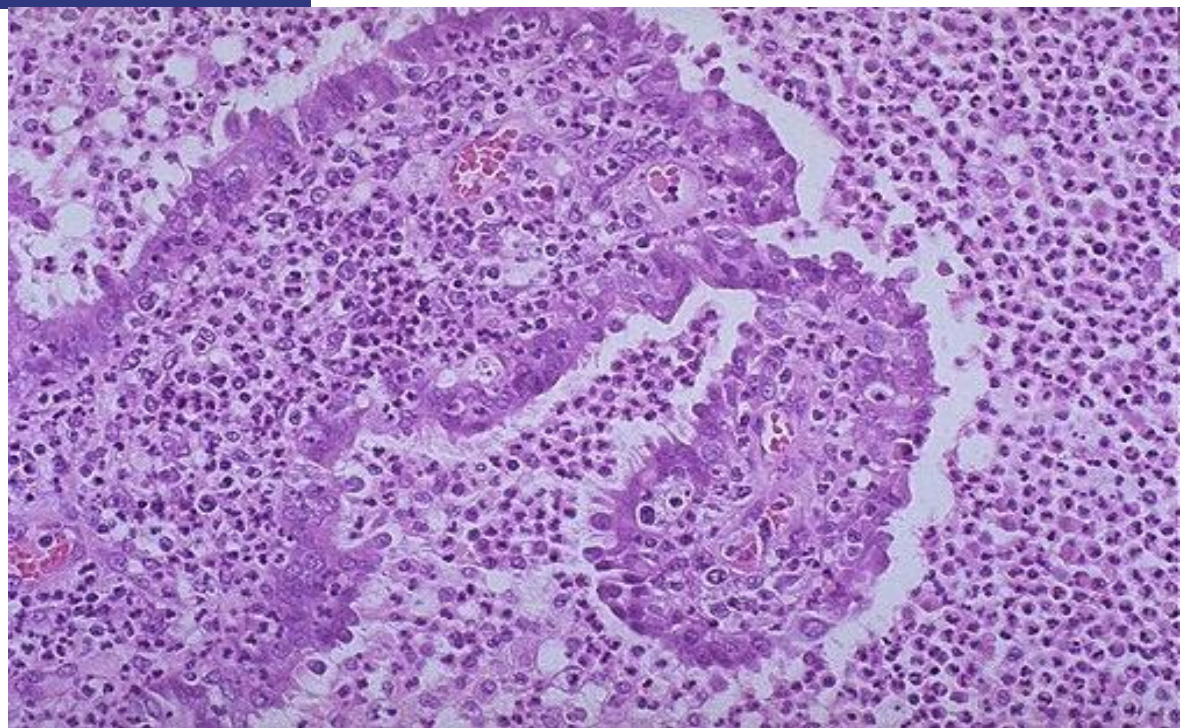


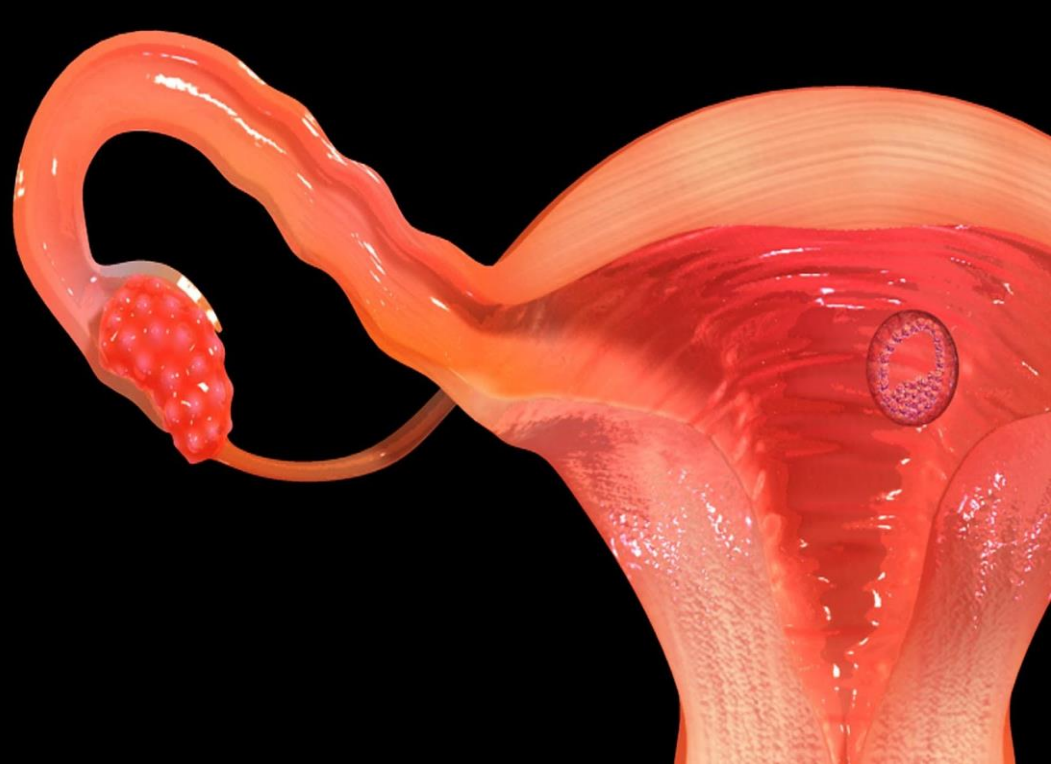


Ovarian endometriotic cyst.

(chocolate cyst)

Tubo-ovarian abscess.
Purulent salpingitis.

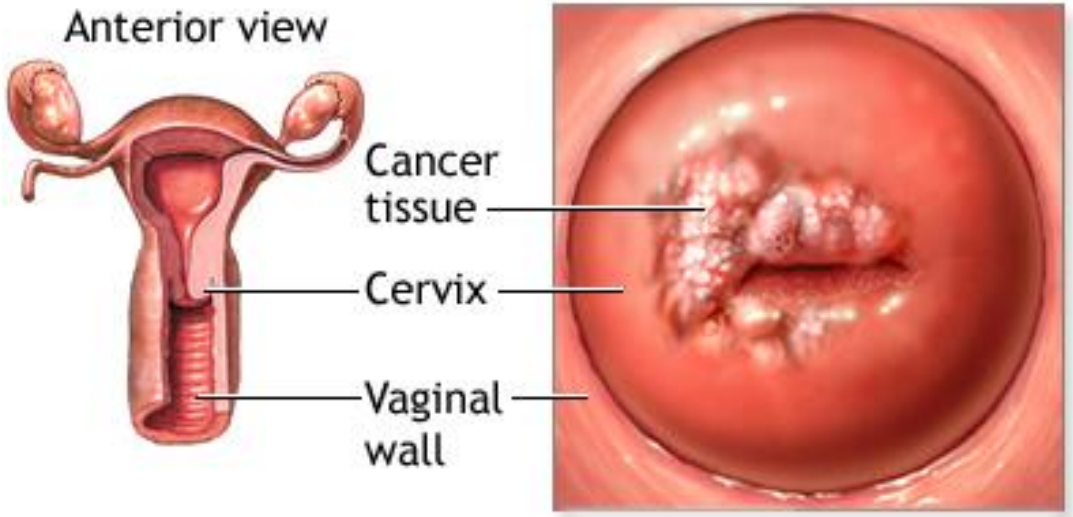




Pathology of female genital system

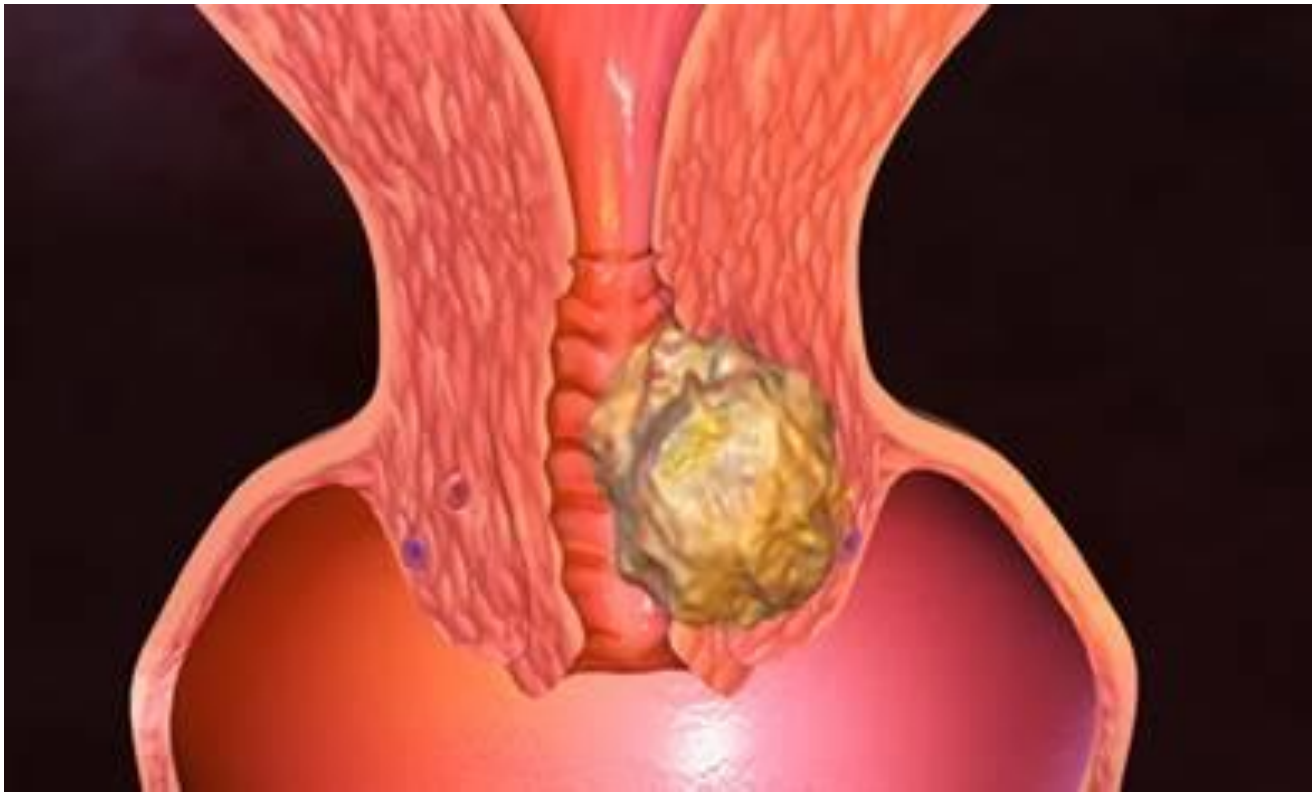
CERVIX OF THE UTERUS

The cervix is a kind of barrier that protects the upper parts of the female genital tract from potentially dangerous infections. At the same time, the cervix itself is a target for various carcinogenic effects that can lead to the development of invasive carcinoma.



CERVIX OF THE UTERUS

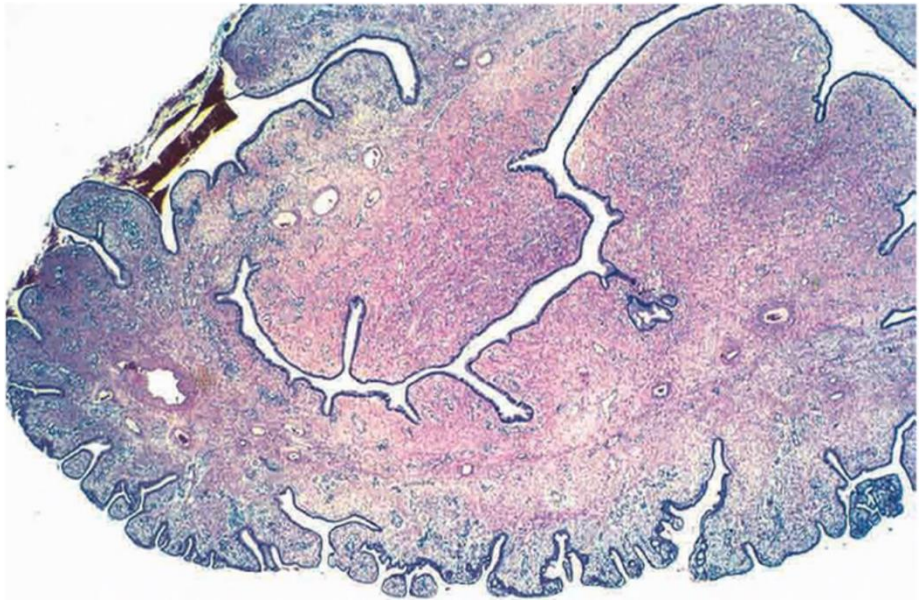
In 50% of cases, cervical carcinoma is fatal. The potential cancer risk has become the main reason for introducing a screening program (microscopic examination of Pap smears and histological examination of cervical biopsy specimens).



Endocervical Polyps

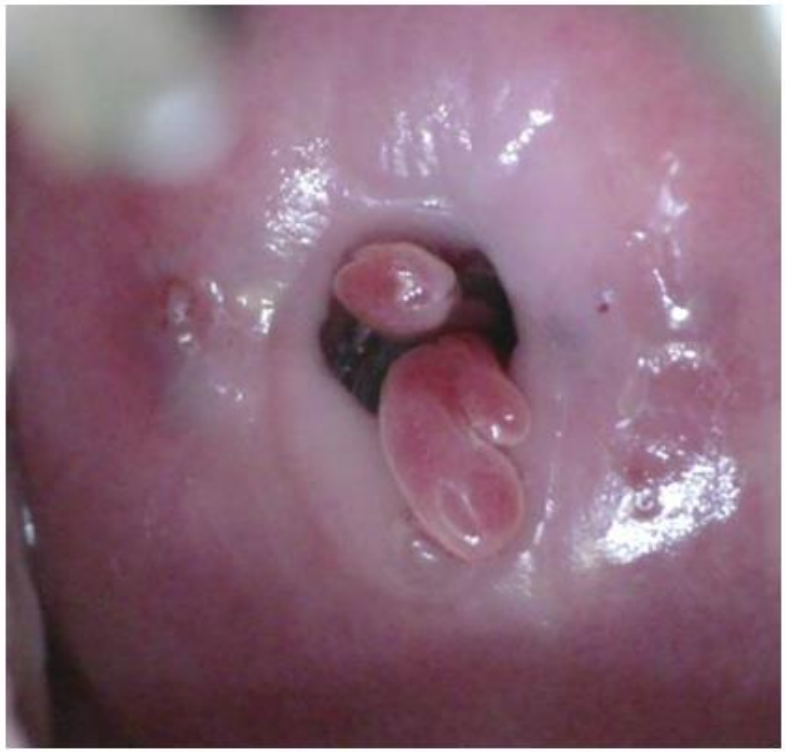
Endocervical polyps are benign polypoid masses seen protruding from the endocervical mucosa (sometimes through the exocervix). They can be as large as a few centimeters, are soft and yielding to palpation, and have a smooth, glistening surface, which are observed in 2-5% of adult women. These lesions may bleed, thereby arousing concern, but they have no malignant potential.

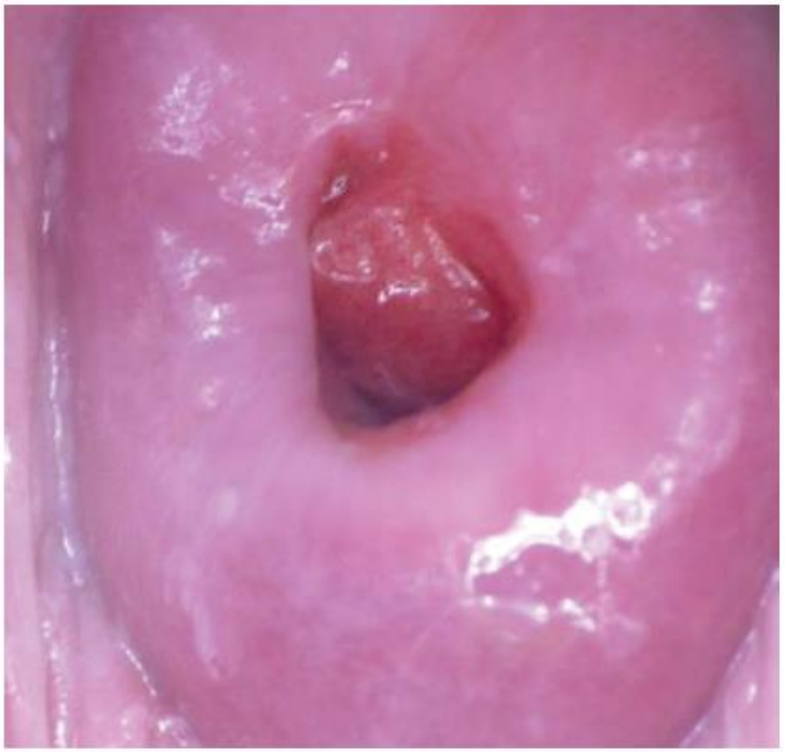
Endocervical polyp with a dense fibromyxomatous stroma covered by endocervical cylindrical epithelium.



Endocervical Polyps

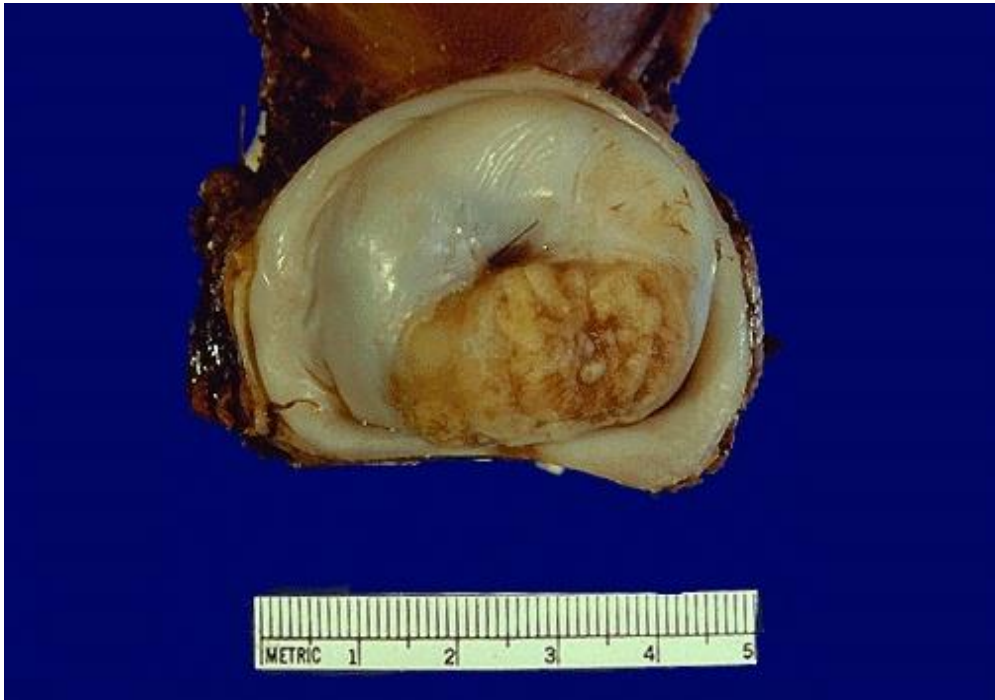
Most polyps are localized in the cervical canal, the size of the polyps varies from very small and flat to large formations that reach 5 cm in diameter and can protrude through the external orifice. An effective treatment is curettage of the cervix or surgical removal of the polyp. Most researchers support the view of their dishormonal nature.





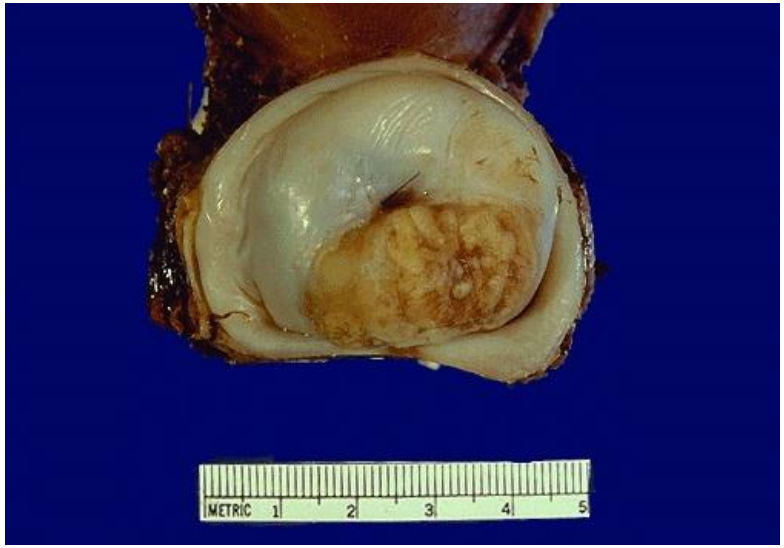
NEOPLASIA OF THE CERVIX.

There is no other malignant tumor other than cervical carcinoma, which would better confirm the enormous positive effect of screening, early diagnosis and treatment of the tumor on mortality. 50 years ago, cervical carcinoma was the leading cause of death for women from oncological diseases in the United States. But at present, the mortality rate has decreased by ~ 70%, and now cervical carcinoma takes 8th place in the structure of causes of death from oncological diseases.



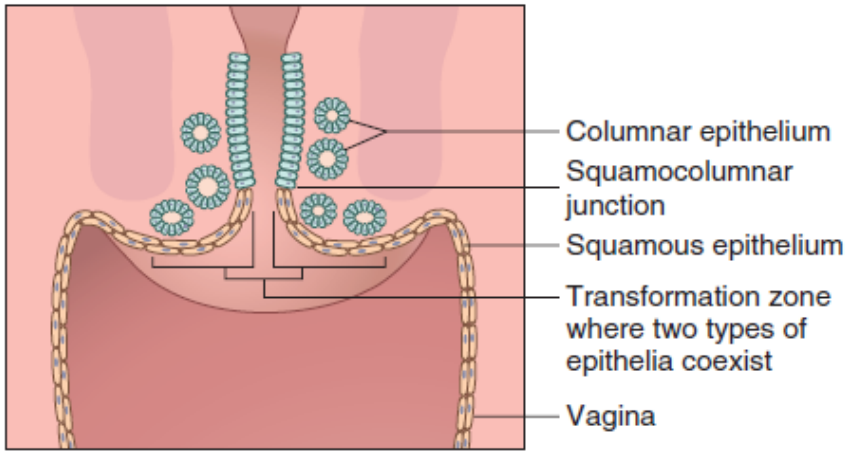
NEOPLASIA OF THE CERVIX.

For the discovery of HPV as the cause of cervical cancer, Harold zur Hausen was awarded the Nobel Prize in 2008. HPVs are DNA-containing viruses that are classified by DNA structure and are divided into high and low oncogenic risk groups. Low oncogenous HPV is the cause of sexually transmitted genital warts of the vulva, penis and perianal region, and highly oncogenous HPV is the only significant cervical carcinogenesis factor. Currently, 15 highly oncogenic HPVs have been identified. In terms of cervical damage, the most important role is played by type 16 HPV (~ 60%) and type 18 HPV (~ 10%). Other types of HPV (each individually) are responsible for the development of less than 5% of cervical carcinoma cases.



NEOPLASIA OF THE CERVIX.

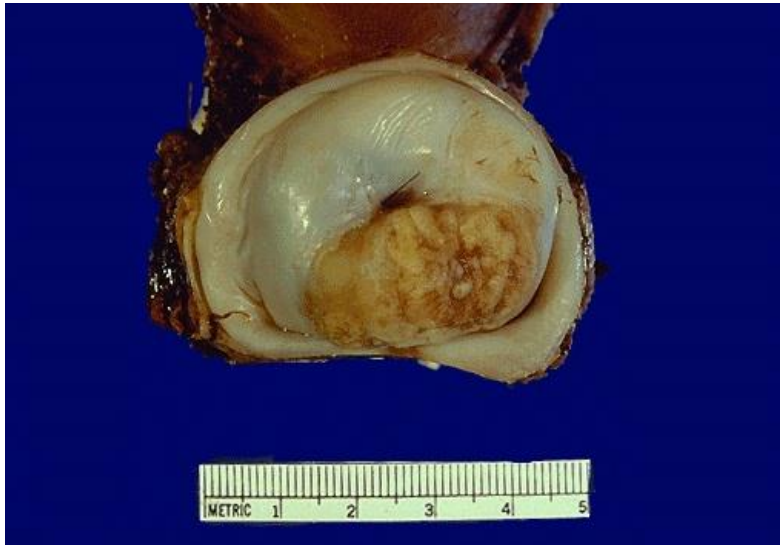
HPV, the causative agent of cervical neoplasia, has a tropism for the immature squamous cells of the transformation zone. Most HPV infections are transient and are eliminated within months by an acute and chronic inflammatory response. A subset of infections persists, however, and some of these progress to cervical intraepithelial neoplasia (CIN), a precursor lesion from which most invasive cervical carcinomas develop.



NEOPLASIA OF THE CERVIX.

Important risk factors for the development of CIN and invasive carcinoma thus are directly related to HPV exposure and include:

- Early age at first intercourse
- Multiple sexual partners
- Male partner with multiple previous sexual partners
- Persistent infection by high-risk strains of papillomavirus (types 16 and 18)



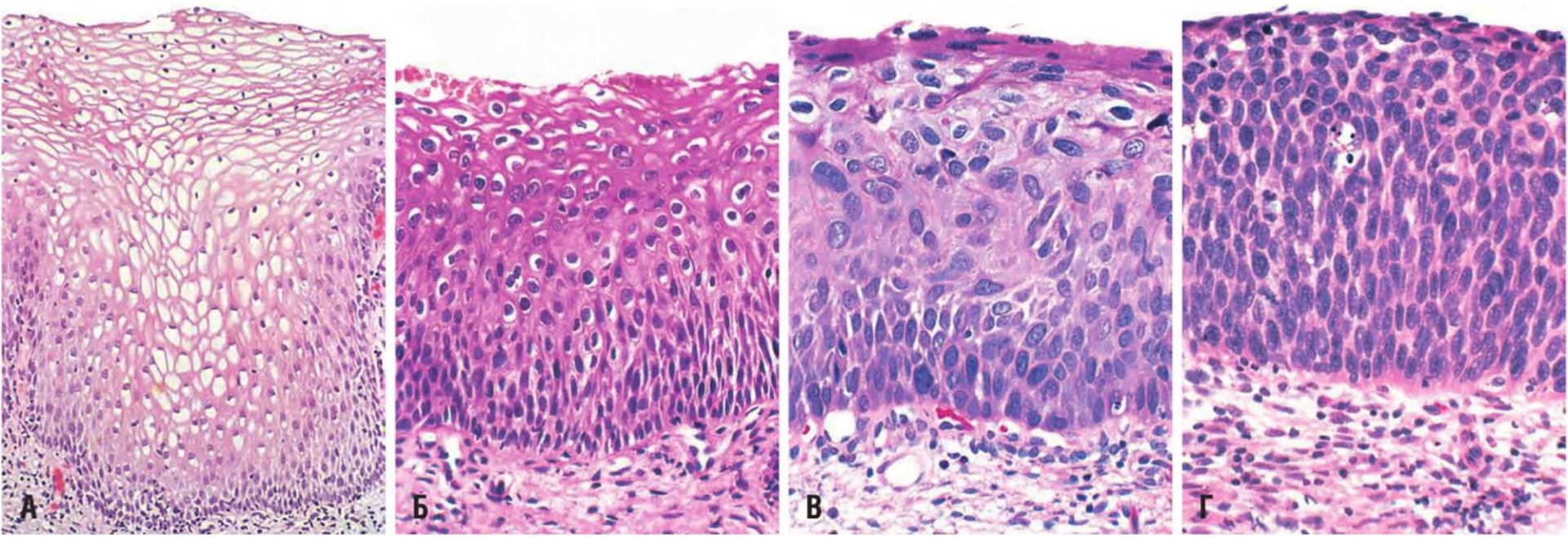
NEOPLASIA OF THE CERVIX.

Table 18–1 Natural History of Squamous Intraepithelial Lesions (SILs)

Lesion	Regress	Persist	Progress
LSIL (CIN I)	60%	30%	10% (to HSIL)
HSIL (CIN II, III)	30%	60%	10% (to carcinoma)*

LSIL, low-grade SIL; HSIL, high-grade SIL.
*Progression within 10 years.

Cervical Intraepithelial Neoplasia (CIN)



(A) Normal stratified squamous epithelium is given for comparison.

(B) Low-grade squamous intraepithelial lesion (LSIL) (CIN I) with koilocytosis.

(C) High-grade squamous intraepithelial lesion (HSIL) (CIN II) with progressive atypia and the spread of immature cells of the basal layer above the lower third of the epithelium.

(D) High-grade squamous intraepithelial lesion (HSIL) (CIN III) with diffuse atypia, lack of maturation of the cells of the basal layer and the spread of immature cells of the basal layer to the surface of the epithelium.

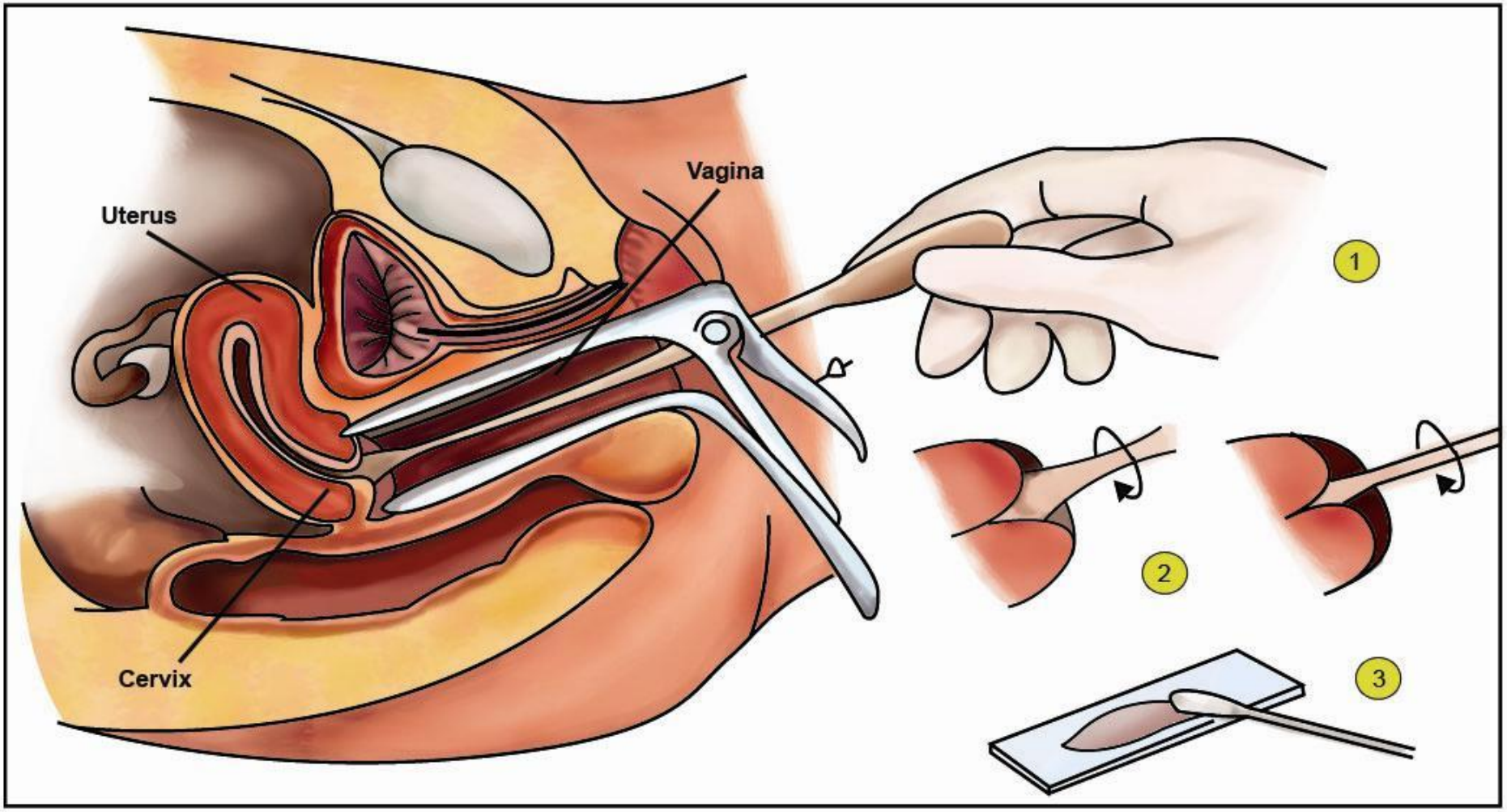
Cytology screening for precancerous lesions

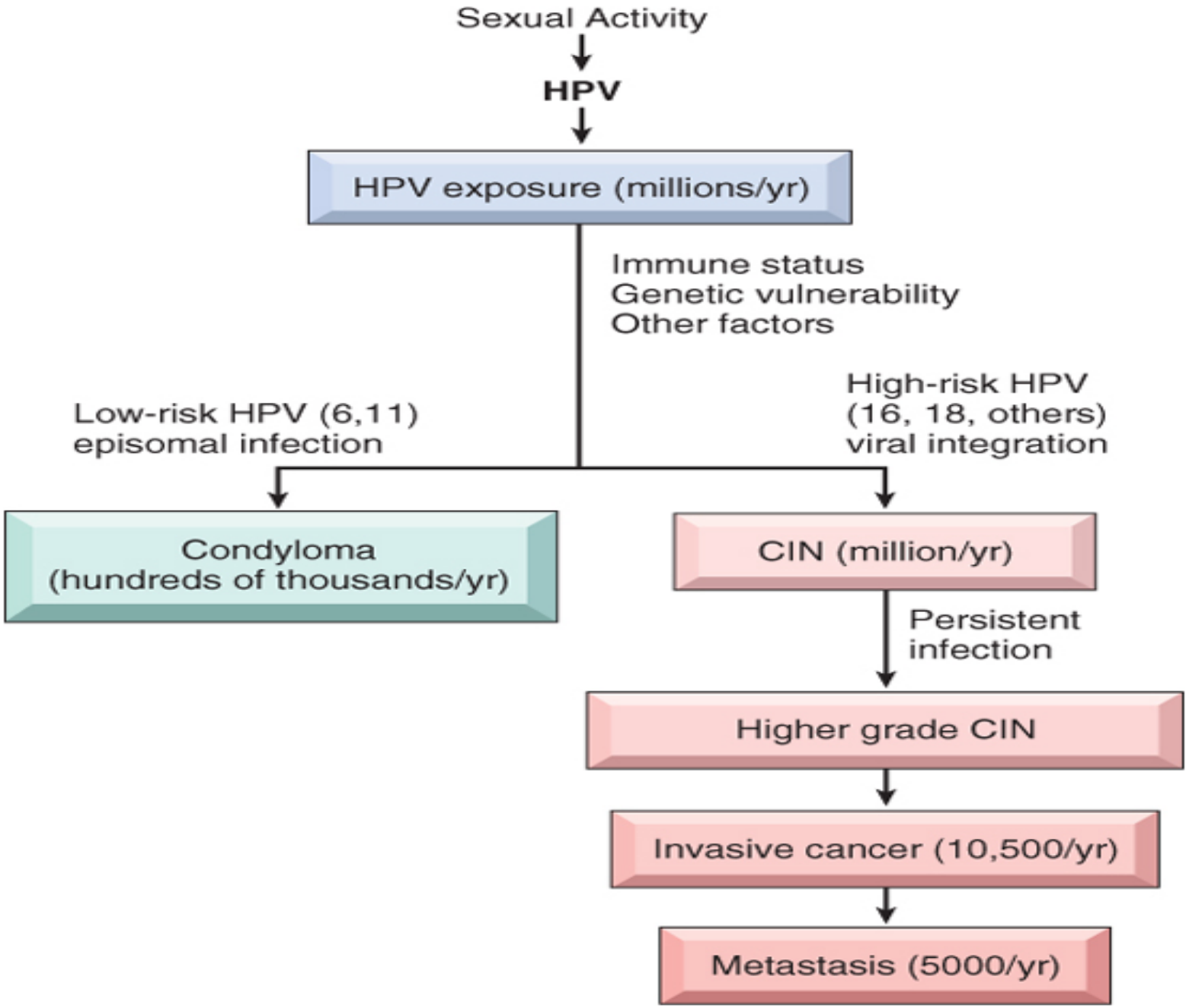
- Cytologic examination can detect precancerous lesions long before any abnormality can be seen grossly

- For cytologic examination the cervix is examined and the cells lining the cervical wall at the transformation zone are scrapped/ sampled with a spatula and then spread on a slide. They are then fixed, stained (Papanicolaou stain) and examined under a light microscope.

- This screening for precancer should be done on all young and old women (usually from age of 21 onwards).

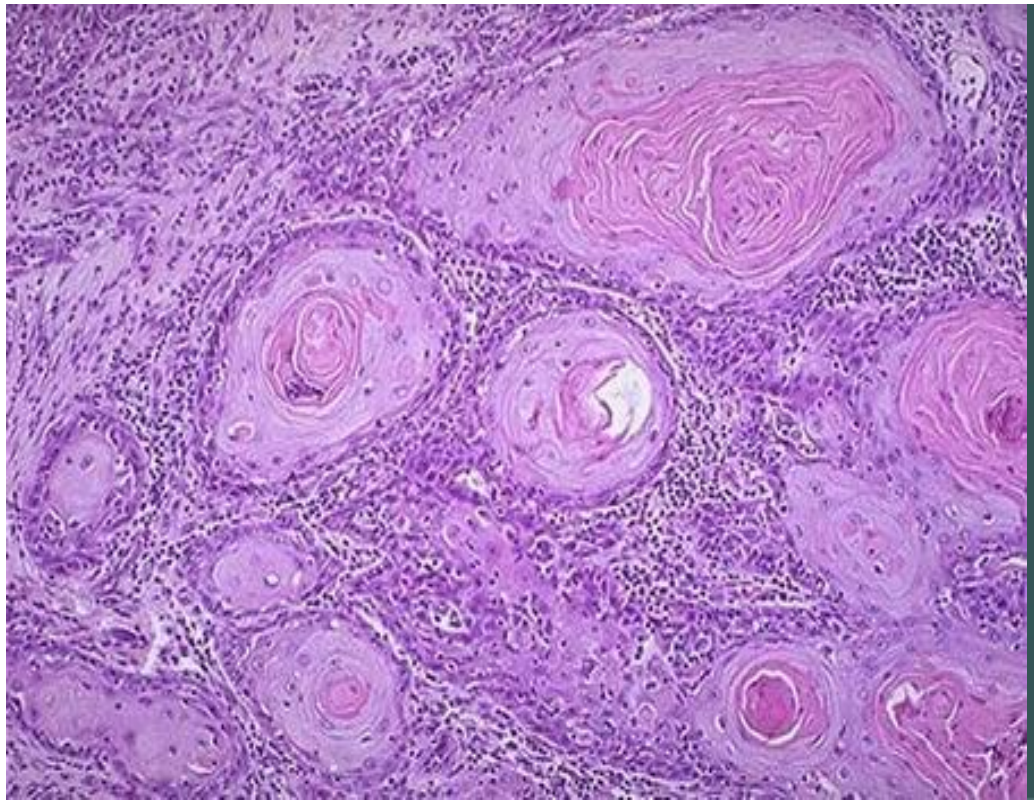
PAP TEST

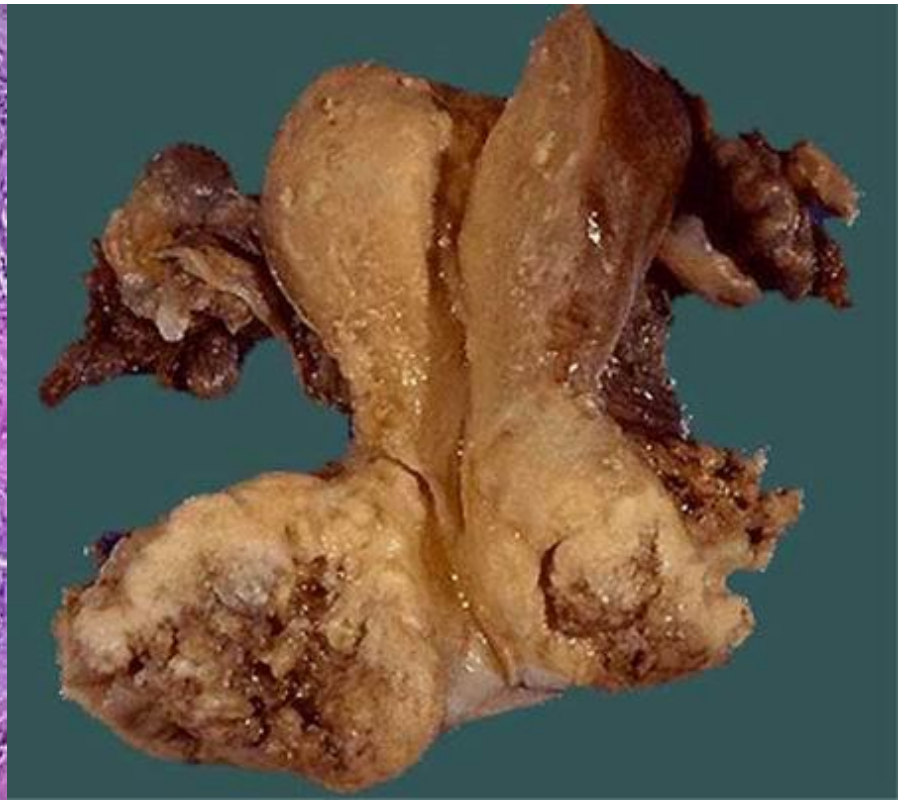



Sexual Activity
HPV
HPV exposure (millions/yr)
Immune status
Genetic vulnerability
Other factors
Low-risk HPV (6,11)
episomal infection
High-risk HPV
(16, 18, others)
viral integration
Condyloma
(hundreds of thousands/yr)
CIN (million/yr)
Persistent
infection
Higher grade CIN
Invasive cancer (10,500/yr)
Metastasis (5000/yr)

Invasive Carcinoma of the Cervix

The most common cervical carcinomas are squamous cell carcinomas (75%), followed by adenocarcinomas and mixed adenosquamous carcinomas (20%) and small cell neuroendocrine carcinomas (less than 5%). All of these types of carcinomas are caused by HPV.





Cervical Carcinoma, staging

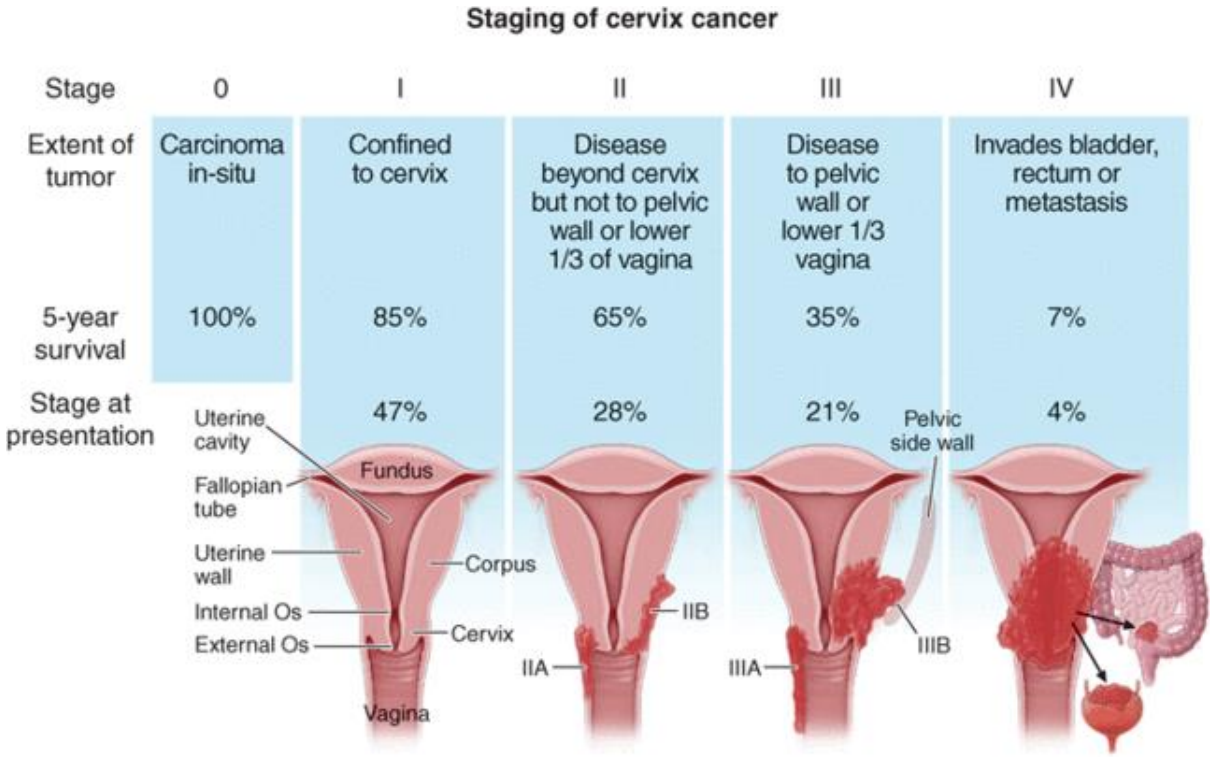
0- Carcinoma in Situ

1- Confined to the cervix

2- Extension beyond the cervix without extension to the lower third of Vagina or Pelvic Wall

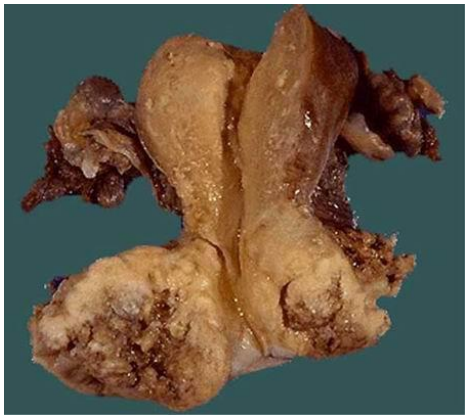
3- Extension to the pelvic wall and / or lower third of the vagina

4- Extends to adjacent organs



Cervical Carcinoma, Clinical Course

- Many of cervical cancers are diagnosed in early stages, and the vast majority are diagnosed in the pre-invasive phase.
- More advanced cases are seen in women who either have never had a Pap smear or have waited many years since the prior smear.
- The early stages of cervical cancer may be completely asymptomatic.
- Vaginal bleeding, contact bleeding, or (rarely) a vaginal mass may indicate the presence of malignancy. Also, moderate pain during sexual intercourse and vaginal discharge are symptoms of cervical cancer. In advanced disease, metastases may be present in the abdomen, lungs or elsewhere.
- Most patients with stage IV die due to the local spread of the tumor (for example, tumor growth into the bladder and ureters, which leads to ureteral obstruction, pyelonephritis and uremia), and not from distant metastases.



BODY OF UTERUS.

ABNORMAL UTERINE BLEEDING

Common causes include endometrial polyps, leiomyomas, endometrial hyperplasia, endometrial carcinoma, and endometritis. The probable cause of uterine bleeding in any given case depends somewhat on the age of the patient. Abnormal bleeding from the uterus in the absence of an organic uterine lesion is called dysfunctional uterine bleeding.

Table 18–2 Causes of Abnormal Uterine Bleeding by Age Group

Age Group	Cause(s)
Prepuberty	Precocious puberty (hypothalamic, pituitary, or ovarian origin)
Adolescence	Anovulatory cycle
Reproductive age	Complications of pregnancy (abortion, trophoblastic disease, ectopic pregnancy) Proliferations (leiomyoma, adenomyosis, polyps, endometrial hyperplasia, carcinoma) Anovulatory cycle Ovulatory dysfunctional bleeding (e.g., inadequate luteal phase)
Perimenopause	Anovulatory cycle Irregular shedding Proliferations (carcinoma, hyperplasia, polyps)
Postmenopause	Proliferations (carcinoma, hyperplasia, polyps) Endometrial atrophy

BODY OF UTERUS.

ABNORMAL UTERINE BLEEDING

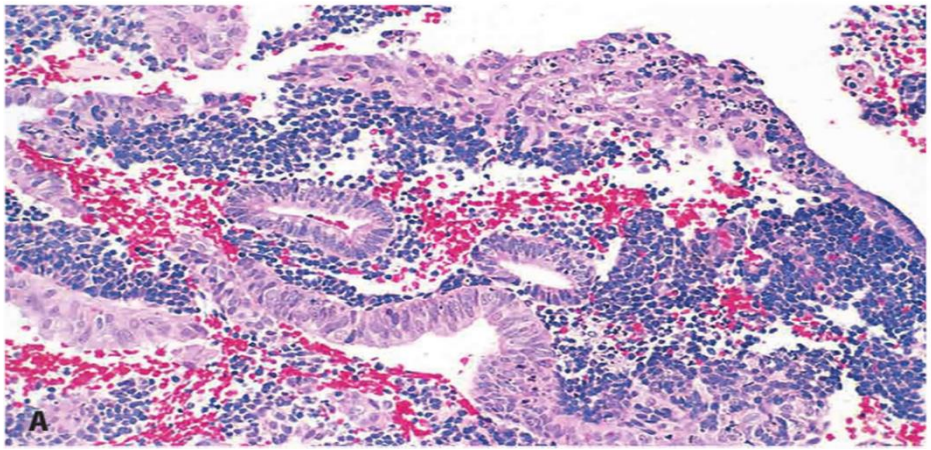
Failure of ovulation. Anovulatory cycles are very common at both ends of reproductive life, due to

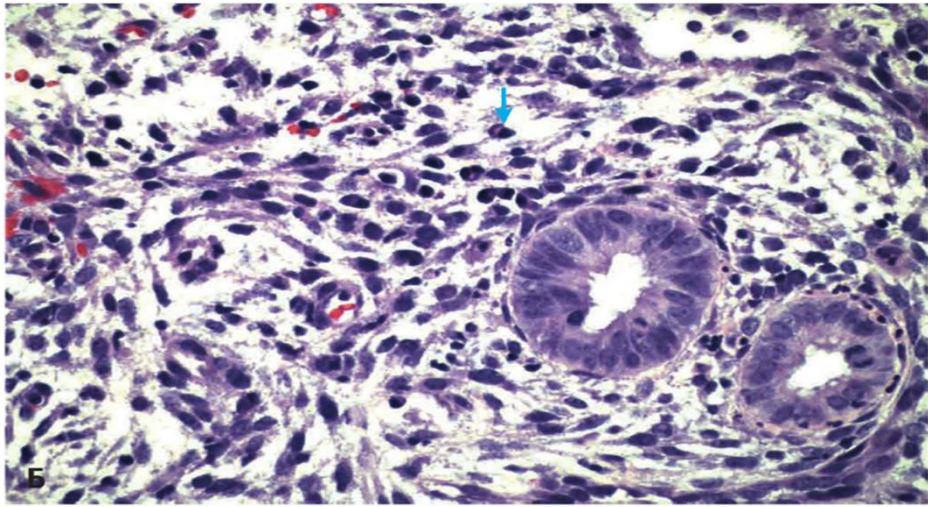
(1) Hypothalamicpituitary axis, adrenal, or thyroid dysfunction;

(2) Functional ovarian lesions producing excess estrogen;

(3) Malnutrition, obesity, or debilitating disease;

(4) Severe physical or emotional stress.





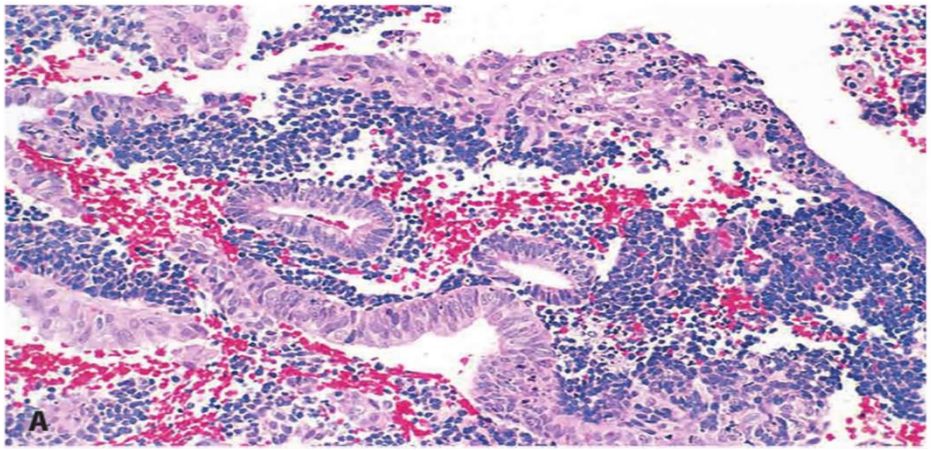
BODY OF UTERUS.

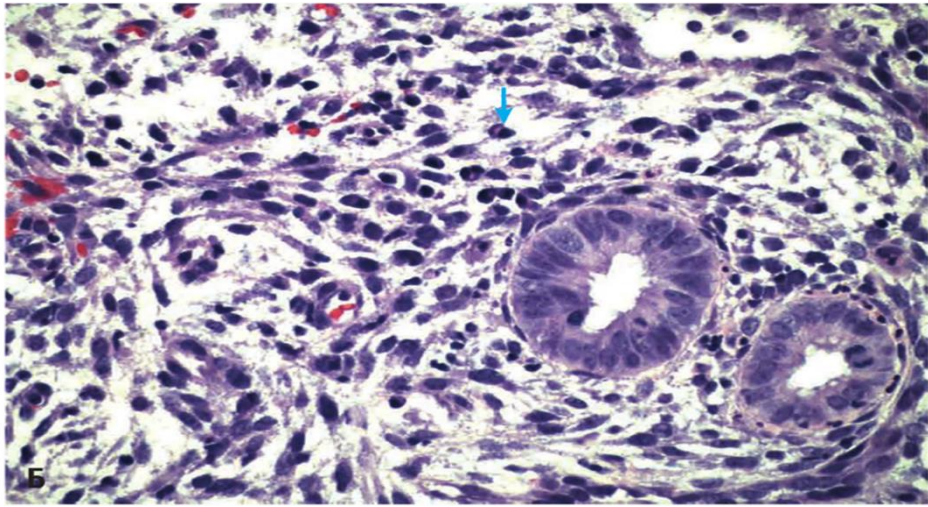
ABNORMAL UTERINE BLEEDING

Inadequate luteal phase. The corpus luteum may fail to mature normally or may regress prematurely leading to a relative lack of progesterone. The endometrium under these circumstances fails to show the expected secretory changes.

Contraceptive-induced bleeding. Older oral contraceptives containing synthetic estrogens and progestin induced a variety of endometrial responses, including decidua-like stroma and inactive, nonsecretory glands. The pills in current use no longer cause these abnormalities.

Endomyometrial disorders. Including chronic endometritis, endometrial polyps, and submucosal leiomyomas

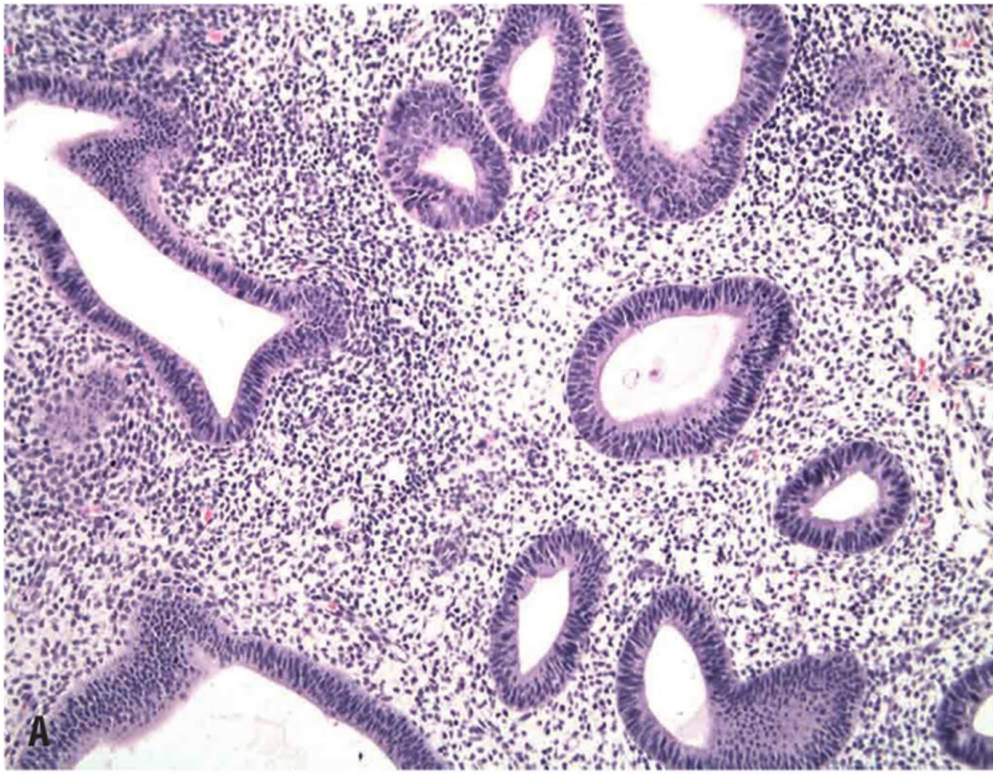




BODY OF UTERUS.

Endometrial Hyperplasia

An excess of estrogen relative to progestin, if sufficiently prolonged or marked, can induce exaggerated endometrial proliferation (hyperplasia), which is an important precursor of endometrial carcinoma.



BODY OF UTERUS.

Endometrial Hyperplasia

Potential causes of estrogen excess include:

- Failure of ovulation (such as is seen in perimenopause)

- Prolonged administration of estrogenic steroids without counterbalancing progestin

- Estrogen producing ovarian lesions (such as polycystic ovary disease and granulosa-theca cell tumors of the ovary)

- Obesity (as adipose tissue converts steroid precursors into estrogens)

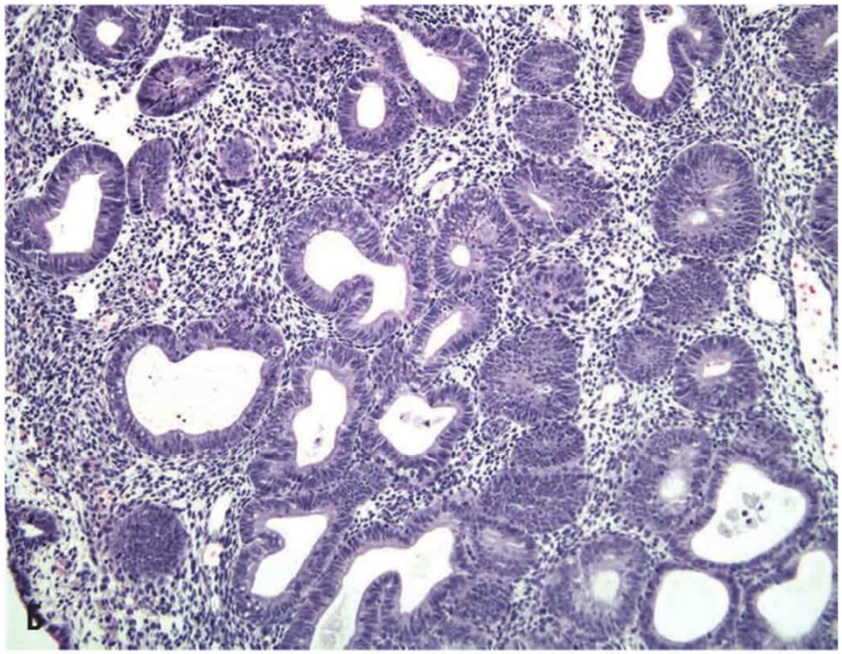
BODY OF UTERUS.

Endometrial Hyperplasia

The risk of developing carcinoma is related to the presence of cellular atypia.

- Complex hyperplasia without cellular atypia carries a low risk (less than 5%) for progression to endometrial carcinoma.

It is characterized by an increase in the number and size of the endometrial glands, their close location and branching.

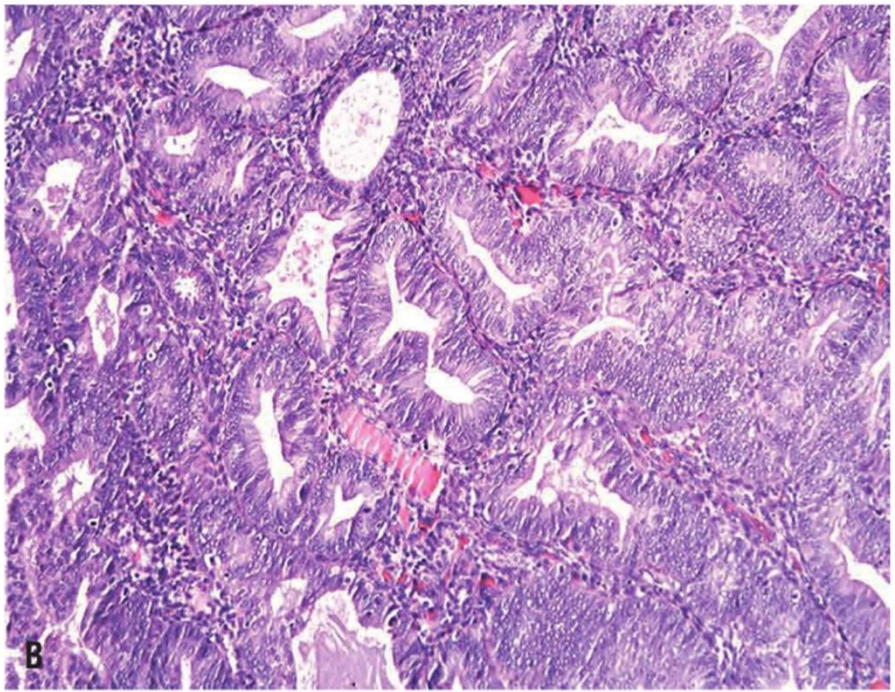


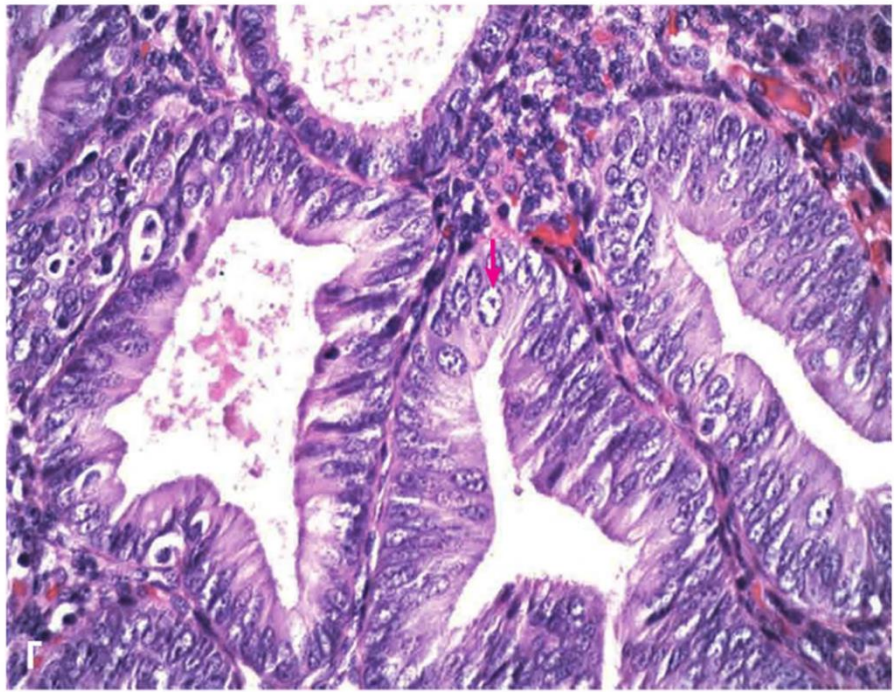
BODY OF UTERUS.

Endometrial Hyperplasia

- Complex hyperplasia with cellular atypia is associated with a much higher risk (20% to 50%).

Has a great morphological similarity with a highly differentiated endometrioid adenocarcinoma. **Currently, with complex endometrial hyperplasia with atypia, a hysterectomy is performed, only young women undergo trial therapy with gestagens, followed by observation. In the absence of regression, the uterus is usually removed.**

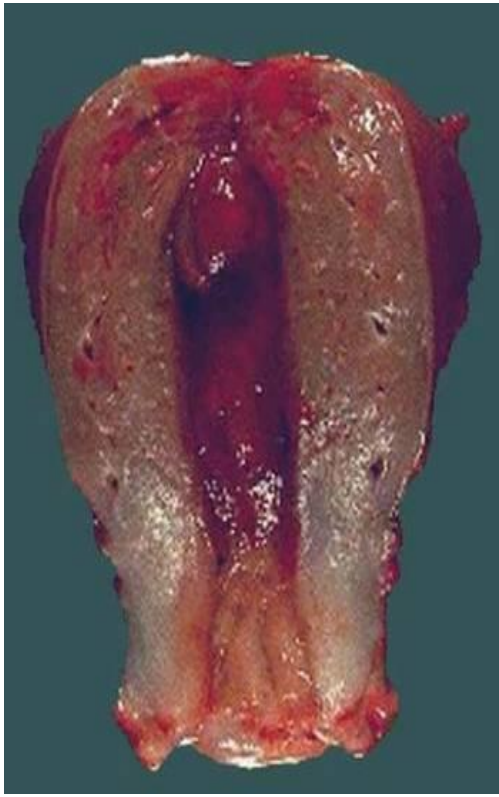




BODY OF UTERUS.

Endometrial polyps

Endometrial polyps are formations of various sizes protruding into the uterine cavity. They can be single or multiple, usually have a wide base (with a diameter of 0.5-3.0 cm), but sometimes they can be large and have a stalk. Polyps can be asymptomatic or cause abnormal uterine bleeding (menstrual, menometrorrhagic, or postmenstrual)



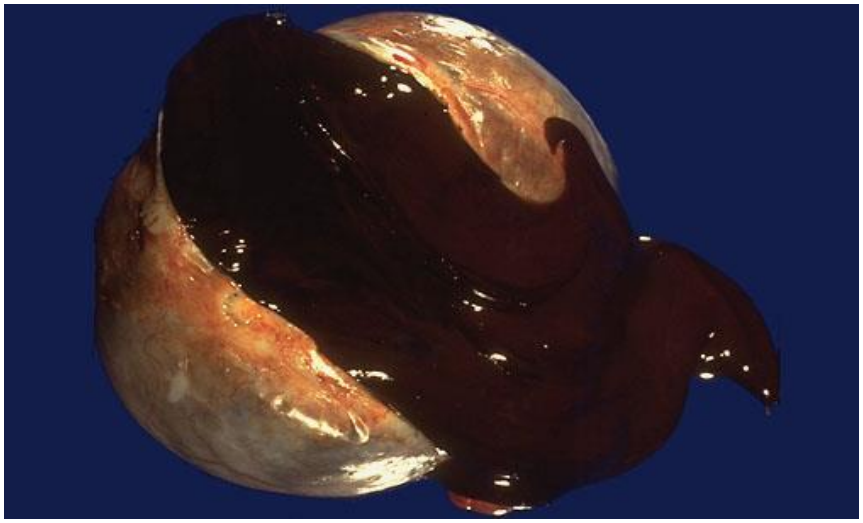
BODY OF UTERUS.

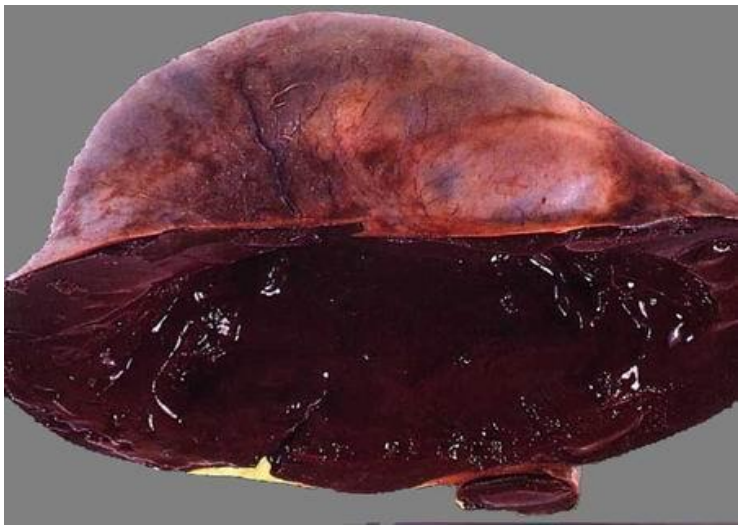
ENDOMETRIOSIS

Endometriosis is defined by the presence of endometrial glands and stroma in a location outside the endomyometrium.
It frequently is multifocal and often involves pelvic structures

- Ovaries
- Pouch of Douglas
- Uterine ligaments
- Fallopian tubes
- Rectovaginal septum.

Less frequently, distant areas of the peritoneal cavity or periumbilical tissues are involved. Uncommonly, distant sites such as lymph nodes, lungs, and even heart, skeletal muscle, or bone are affected.



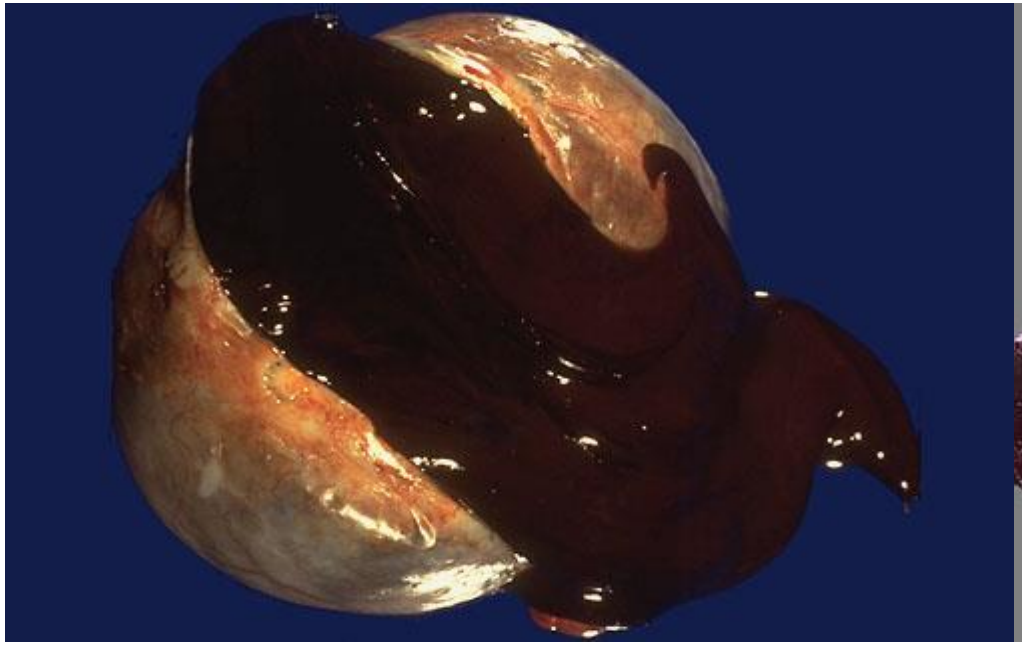


BODY OF UTERUS.

ENDOMETRIOSIS

Endometriosis is of great clinical importance. It is often the cause of infertility, dysmenorrhea, and pelvic pain syndrome.

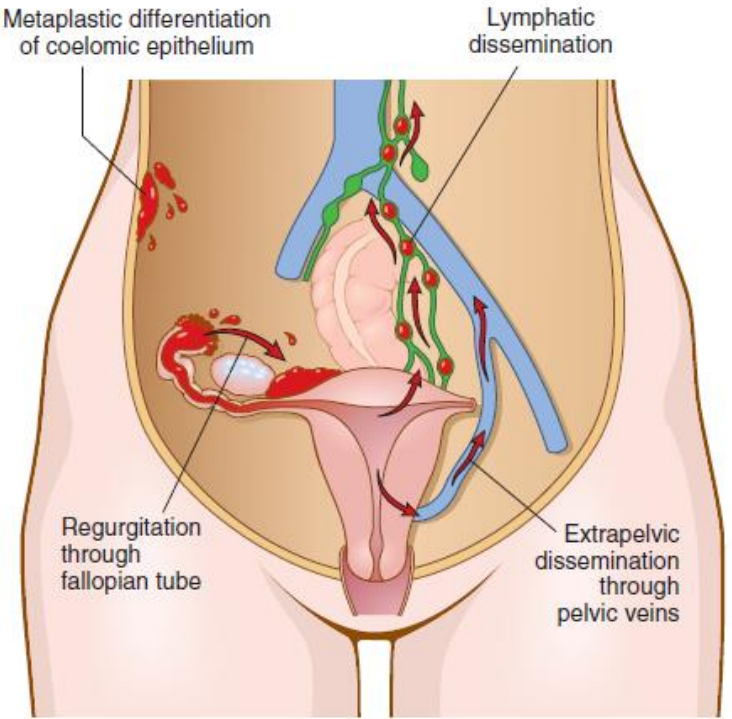
Endometriosis usually affects: women of reproductive age, especially 20-40 years. The incidence of endometriosis is ~ 10%.



BODY OF UTERUS.

ENDOMETRIOSIS

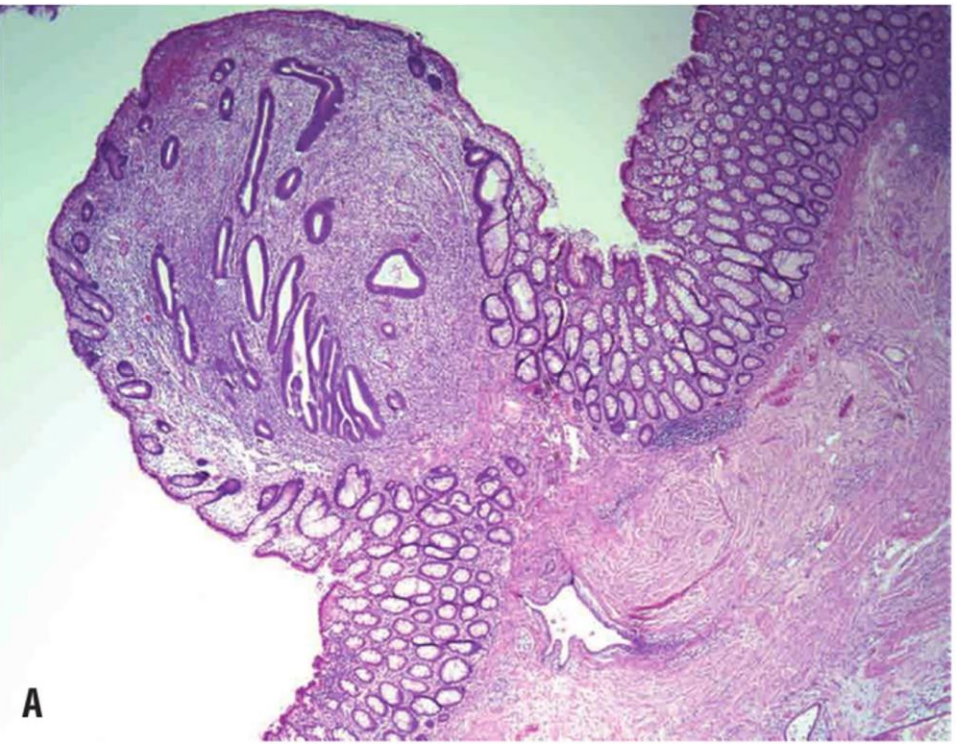
Three hypotheses have been put forth to explain the origin of these lesions.
The regurgitation theory - proposes that menstrual backflow through the fallopian tubes leads to implantation.
The metaplastic theory - posits endometrial differentiation of coelomic epithelium (from which endometrium originates) as the source.
These two theories cannot, however, explain lesions in the lymph nodes, skeletal muscle, or lungs.
Hence, the vascular or lymphatic dissemination theory has been invoked to explain - extrapelvic or intranodal implants.

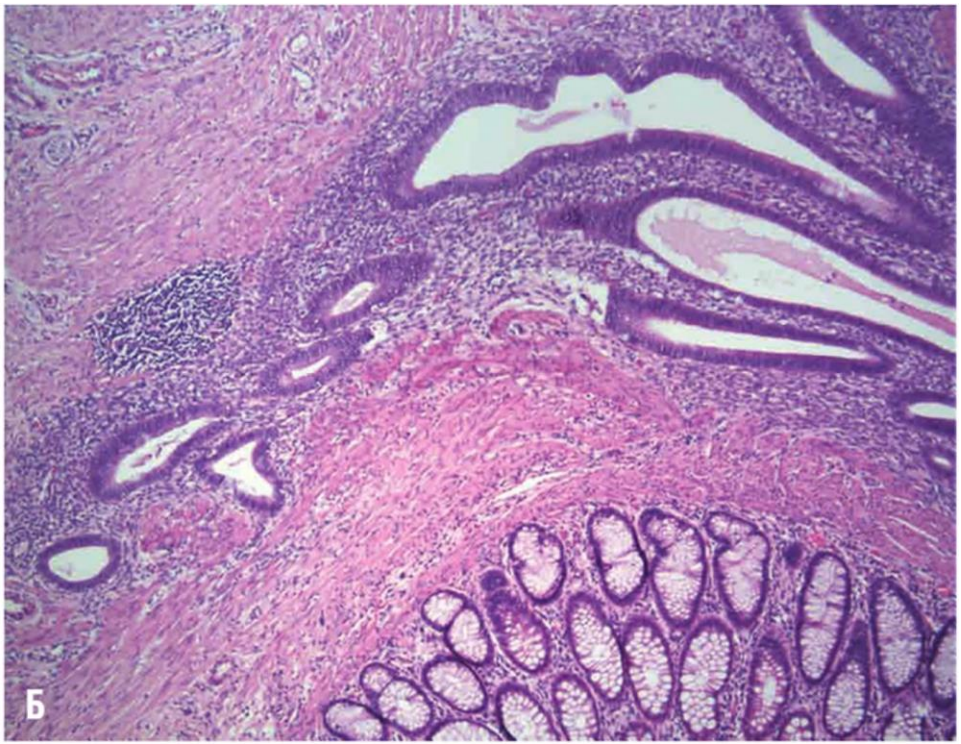


BODY OF UTERUS.

ENDOMETRIOSIS

Clinical signs. Symptoms are usually represented by severe dysmenorrhea, dyspareunia, and pelvic pain due to bleeding in the pelvis and the formation of peritoneal adhesions. Pain during bowel movements indicates involvement of the rectal wall, and dysuria is the result of damage to the serous membrane of the bladder. Intestinal symptoms can occur with lesions of the small intestine. Menstrual irregularities are often noted, and 30-40% of women with endometriosis suffer from infertility.

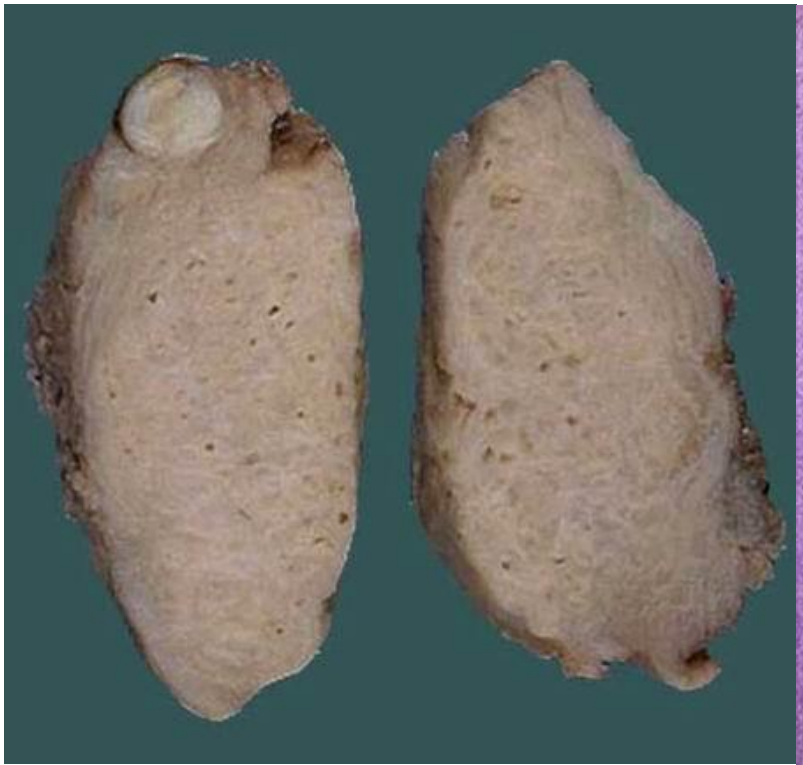


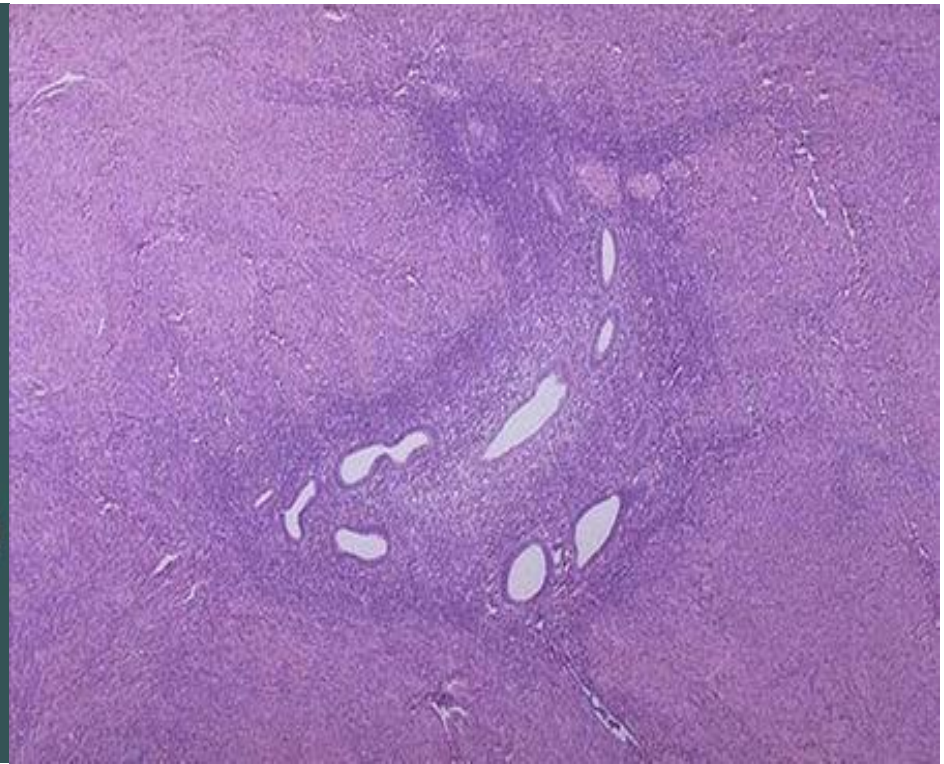


BODY OF UTERUS.

ADENOMYOSIS

Adenomyosis refers to the growth of the basal layer of the endometrium down into the myometrium. Nests of endometrial stroma, glands, or both, are found deep in the myometrium interposed between the muscle bundles. Marked adenomyosis may produce menorrhagia, dysmenorrhea, and pelvic pain before the onset of menstruation.





BODY OF UTERUS.

Endometrial Carcinoma

Endometrial Carcinoma — In the United States and many other Western countries, endometrial carcinoma is the most frequent cancer occurring in the female genital tract. It generally appears between the ages of 55 and 65 years and is uncommon before age 40.

BODY OF UTERUS.

Endometrial Carcinoma

Endometrial carcinomas - comprise two distinct kinds of cancer: **endometrioid and serous carcinoma** of the endometrium. These two types are histologically and pathogenetically distinct. **Endometrioid cancers** arise in association with estrogen excess and endometrial hyperplasia in perimenopausal women, whereas **serous cancers** arise in the setting of endometrial atrophy in older postmenopausal women.

BODY OF UTERUS.

Endometrial Carcinoma

The endometrioid type accounts for 80% of cases of endometrial carcinomas. These tumors are designated endometrioidbecause of their histologic similarity to normal endometrial glands. Risk factors for this type of carcinoma include:

(1) obesity

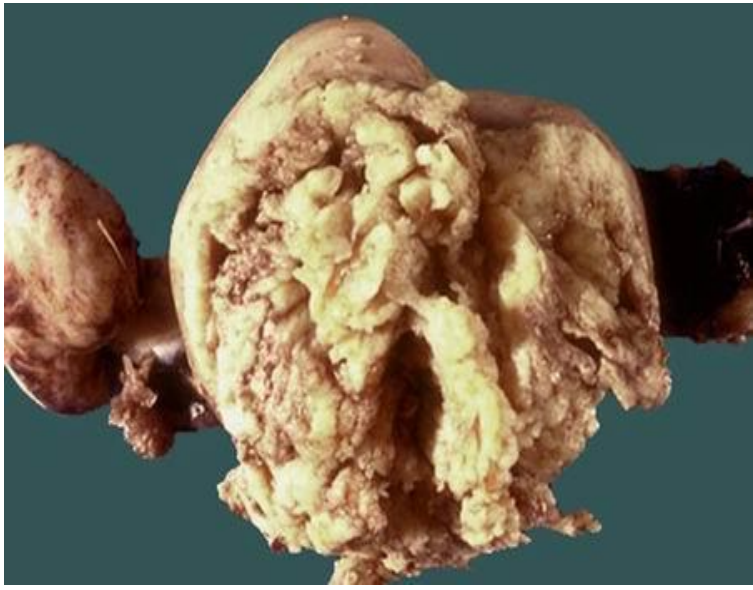
(2) diabetes

(3) hypertension

(4) infertility

(5) exposure to unopposed estrogen.

Many of these risk factors result in increased estrogenic stimulation of the endometrium and are associated with endometrial hyperplasia.



BODY OF UTERUS.

Endometrial Carcinoma

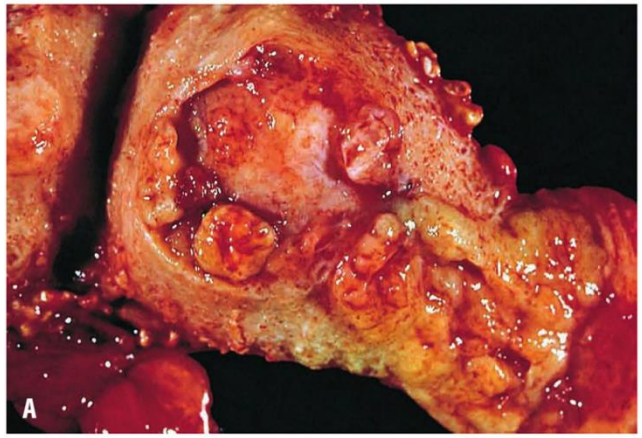
In fact, it is well recognized that prolonged estrogen replacement therapy and estrogen-secreting ovarian tumors increase the risk of endometrioid type of endometrial carcinoma.

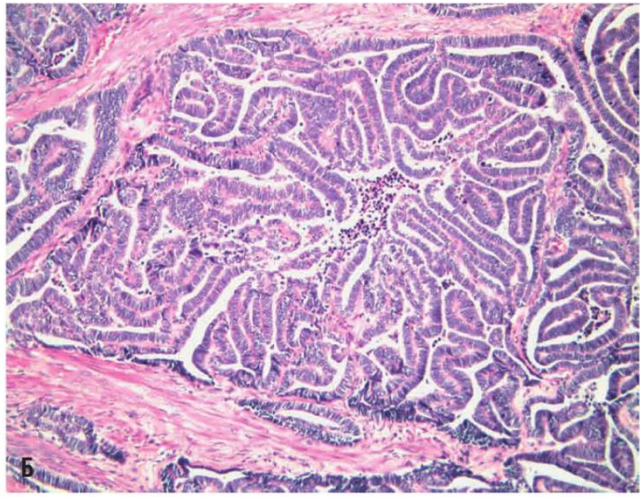
Additionally, breast carcinoma (which also is estrogendependent) occurs in women with endometrial cancer (and vice versa) more frequently than by chance alone.

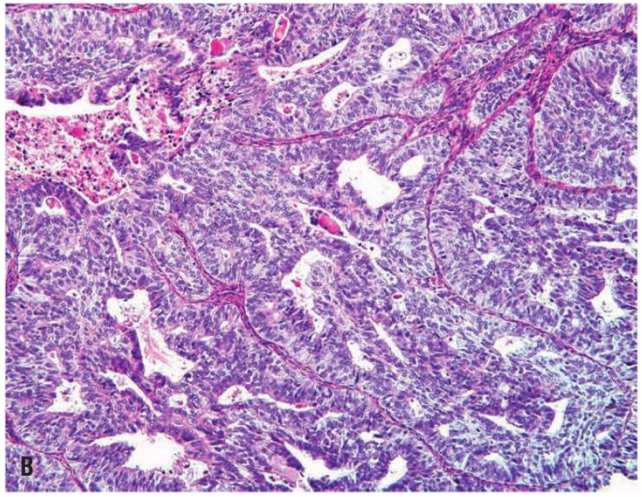
BODY OF UTERUS.

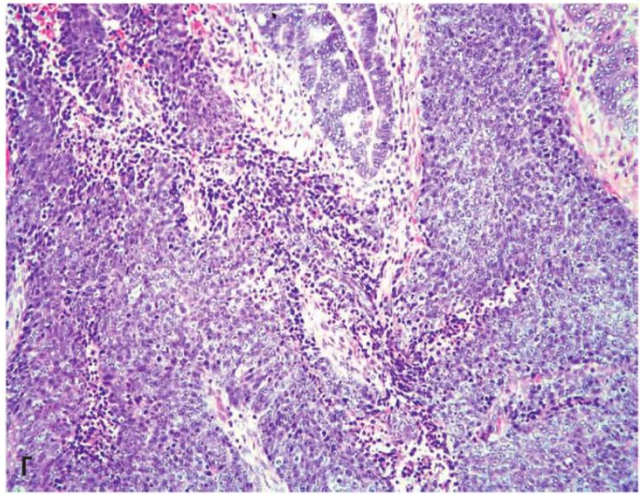
Endometrial Carcinoma

Macroscopically, endometrial carcinoma may have the form of limited formation or polypoid diffuse tumor, affecting the entire surface of the endometrium.





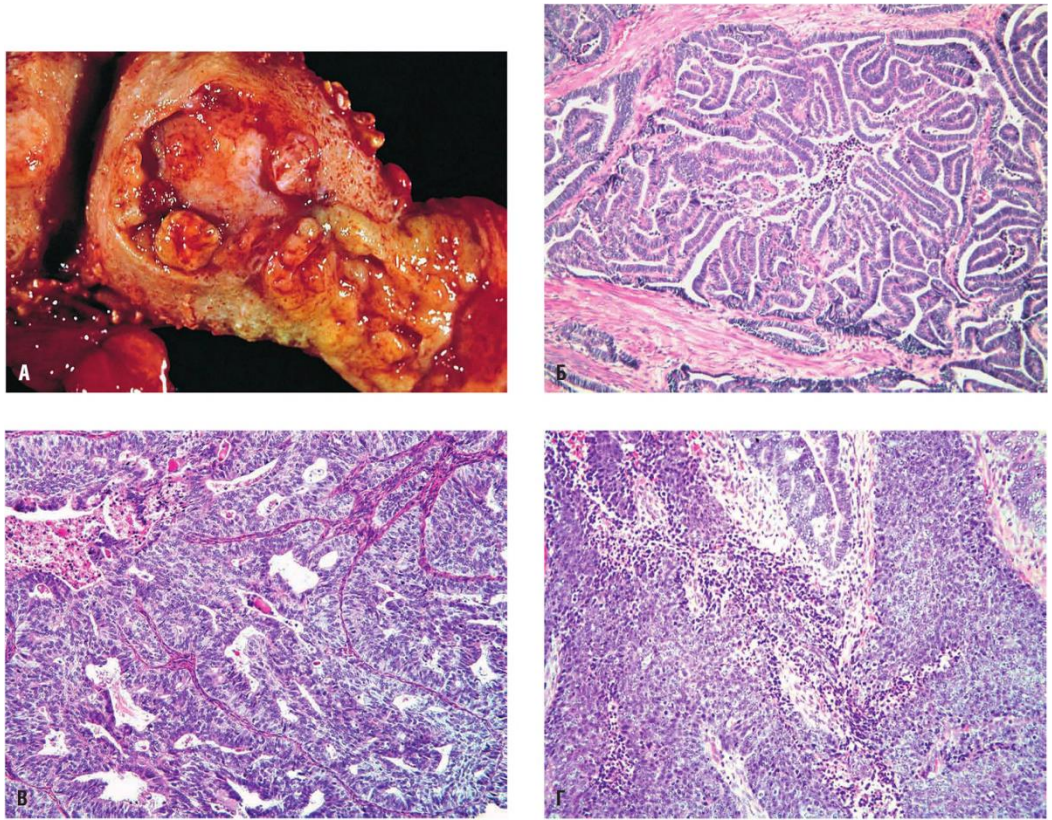




BODY OF UTERUS.

Endometrial Carcinoma

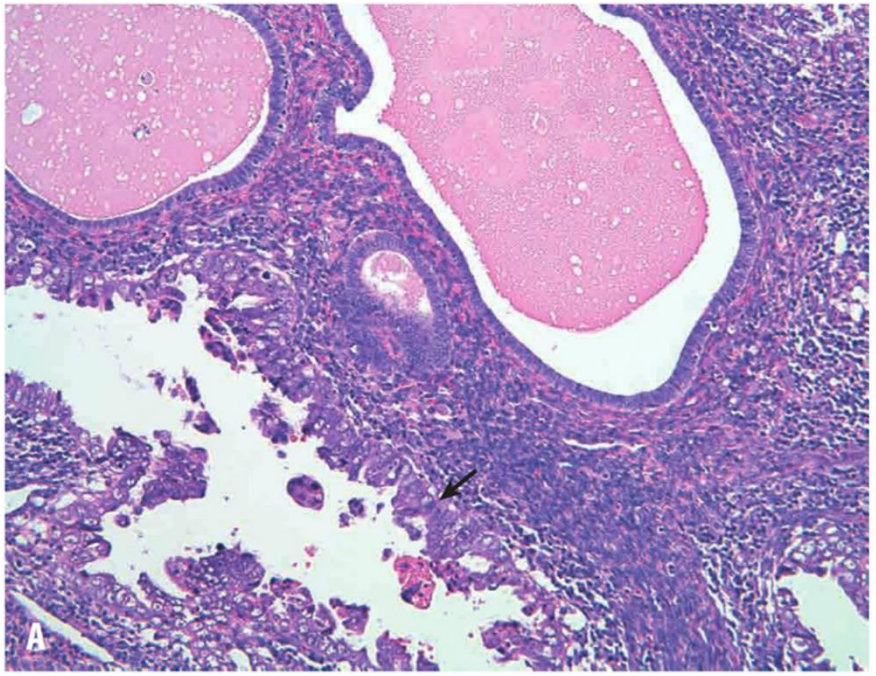
Endometrioid carcinomas closely resemble normal endometrium and may be exophytic or infiltrative. They include a range of histologic types, including those showing mucinous, tubal (ciliated), and squamous (occasionally adenosquamous) differentiation. Tumors originate in the mucosa and may infiltrate the myometrium and enter vascular spaces. They may also metastasize to regional lymph nodes. Endometrioid carcinomas are graded I to III, based on the degree of differentiation



BODY OF UTERUS.

Endometrial Carcinoma

The serous type of endometrial carcinoma is much less common, accounting for roughly 15% of tumors. Nearly all cases have mutations in the TP53 tumor suppressor gene.
Serous carcinomas form small tufts and papillae, rather than the glands seen in endometrioid carcinoma, and exhibit much greater cytologic atypia. They behave aggressively and thus are by definition high-grade.



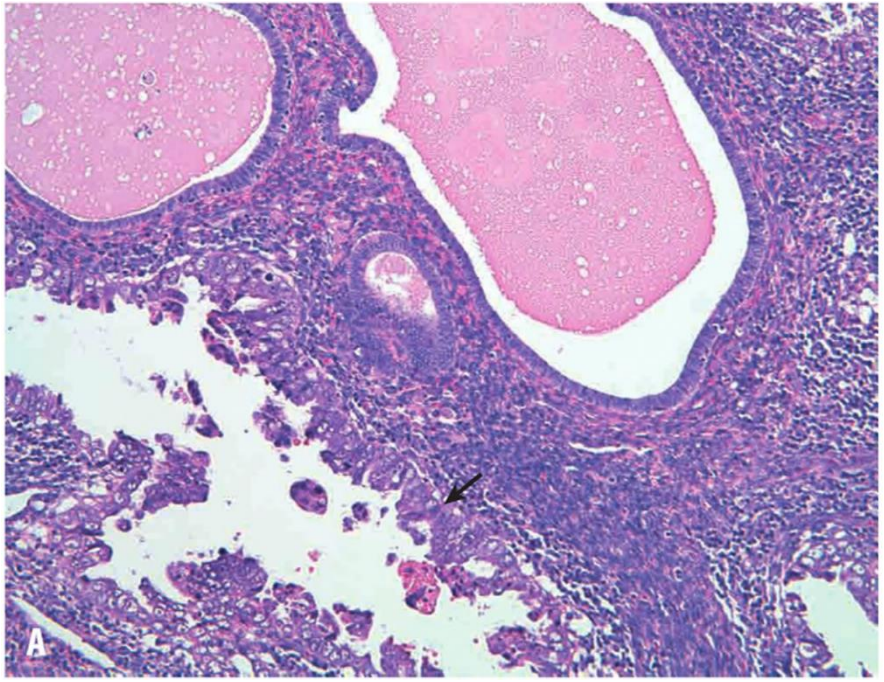
BODY OF UTERUS.

Endometrial Carcinoma

Endometrial carcinomas usually manifest with leukorrhea and irregular bleeding, often in postmenopausal women. With progression, the uterus enlarges and may become affixed to surrounding structures as the cancer infiltrates surrounding tissues.

These tumors usually are slow to metastasize, but if left untreated, eventually disseminate to regional nodes and more distant sites.

With therapy, the 5-year survival rate for early-stage carcinoma is 90%, but survival drops precipitously in **higher-stage** tumors.



BODY OF UTERUS.

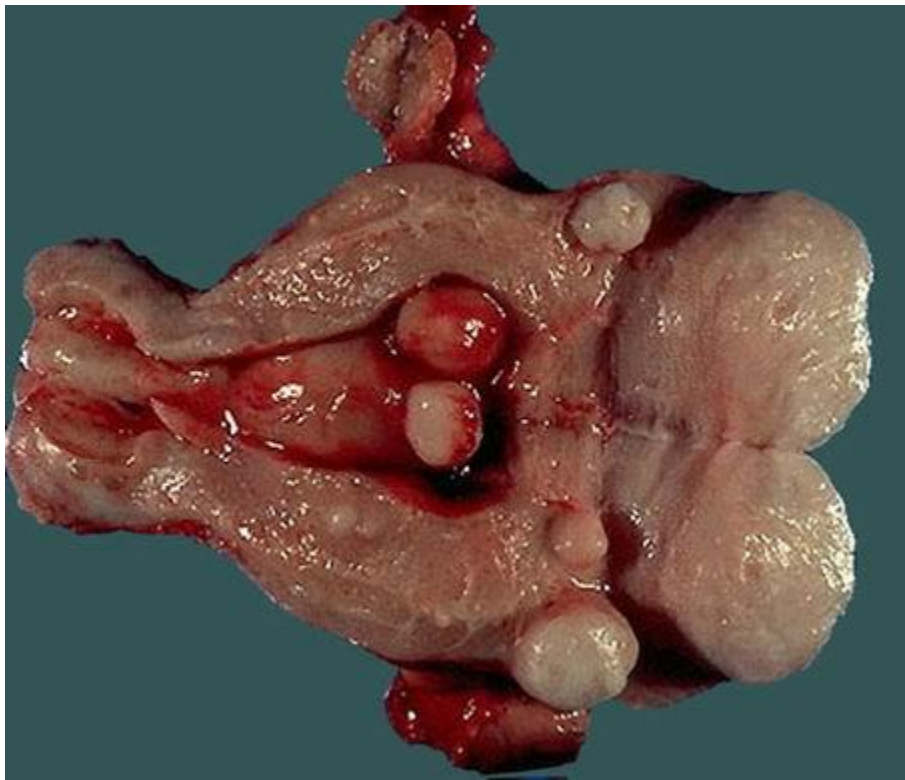
Leiomyoma

They are probably the most common type of neoplasm in women. These are benign tumors from smooth muscle tissue, which can be either single or multiple (more often).

Tumors can be localized in the thickness of the myometrium (intramural),

directly below the endometrium (submucosal, or submucous) or

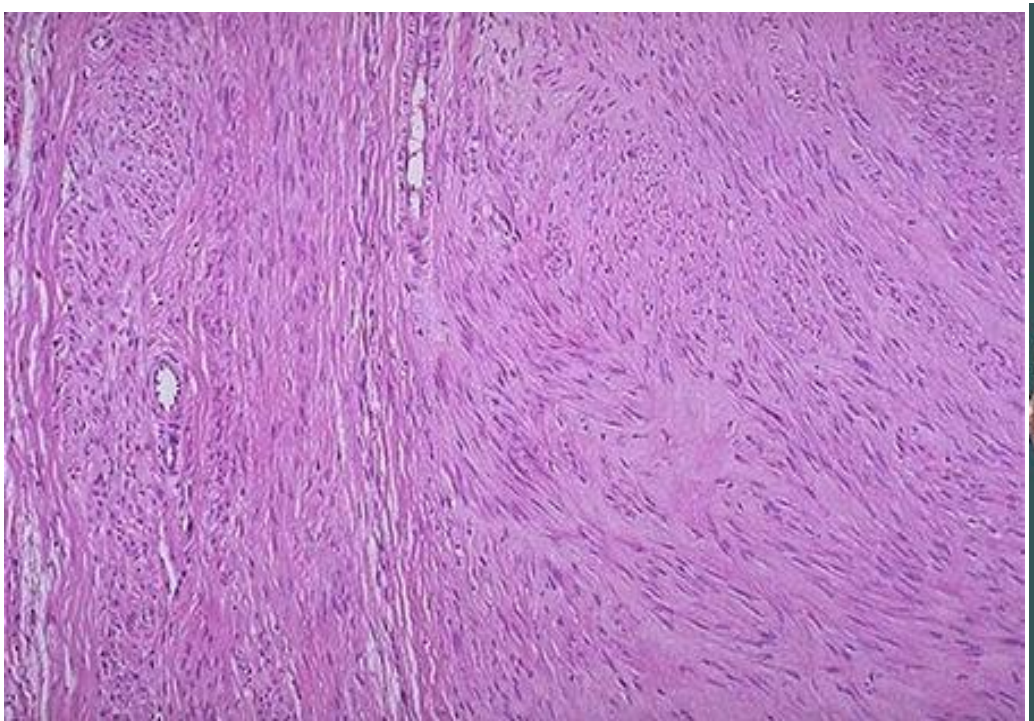
under the serous membrane of the uterus (subserous).

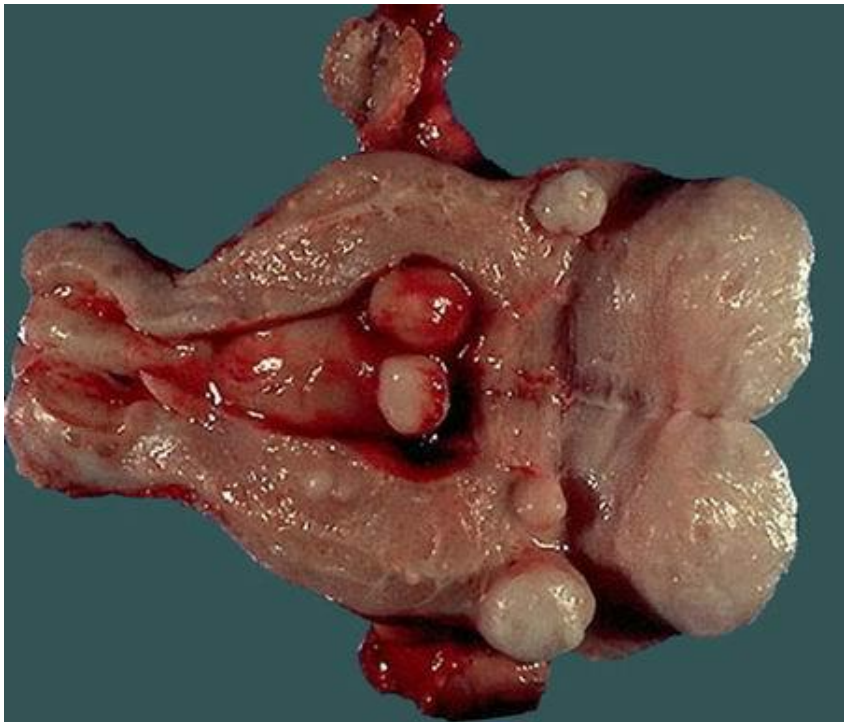


BODY OF UTERUS.

Leiomyoma

On histologic examination, the tumors are characterized by bundles of smooth muscle cells mimicking the appearance of normal myometrium. Foci of fibrosis, calcification, and degenerative softening may be present.
Leiomyomas of the uterus often are asymptomatic, being discovered incidentally on routine pelvic examination. The most frequent presenting sign is menorrhagia, with or without metrorrhagia. Leiomyomas almost never transform into sarcomas, and the presence of multiple lesions does not increase the risk of malignancy.

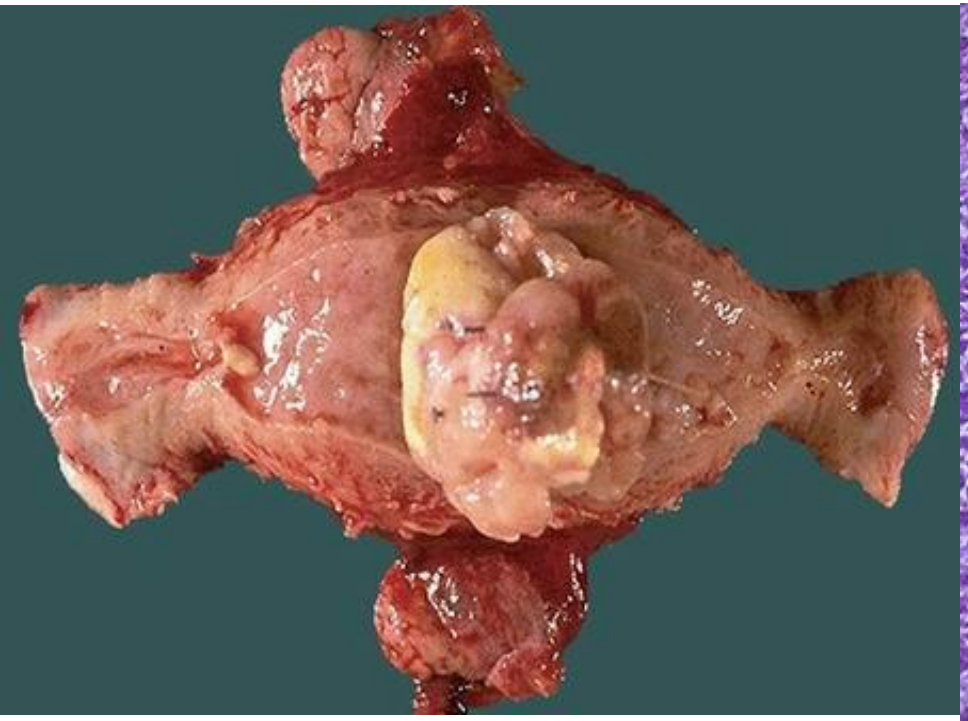


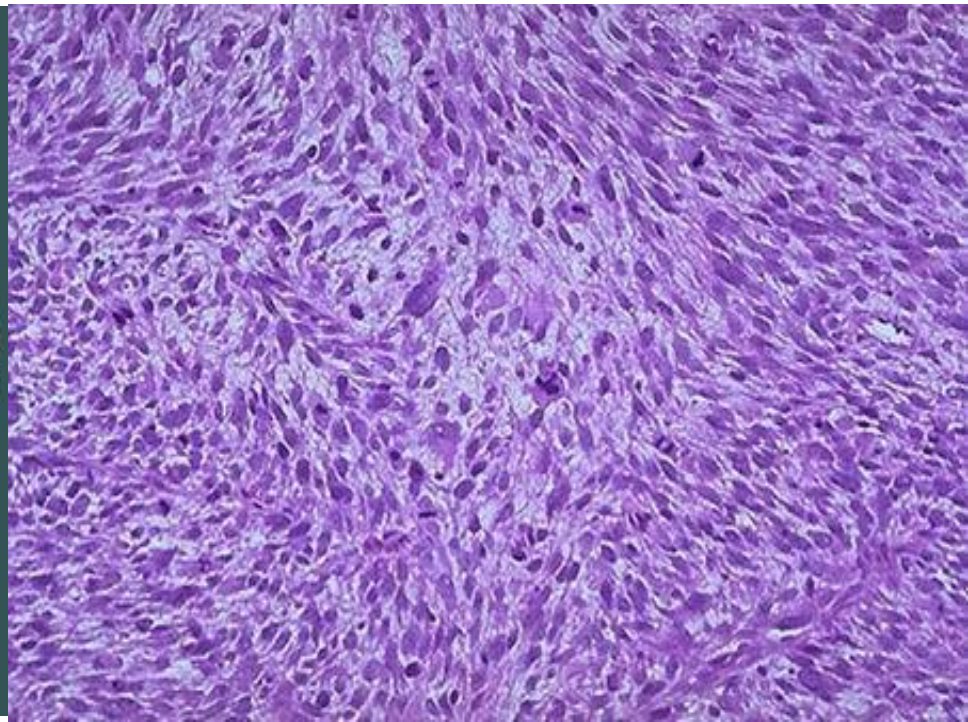


BODY OF UTERUS.

Leiomyosarcoma

Leiomyosarcomas arise de novo from the mesenchymal cells of the myometrium, not from preexisting leiomyomas. They are almost always solitary and most often occur in postmenopausal women, in contradistinction to leiomyomas, which frequently are multiple and usually arise premenopausally.

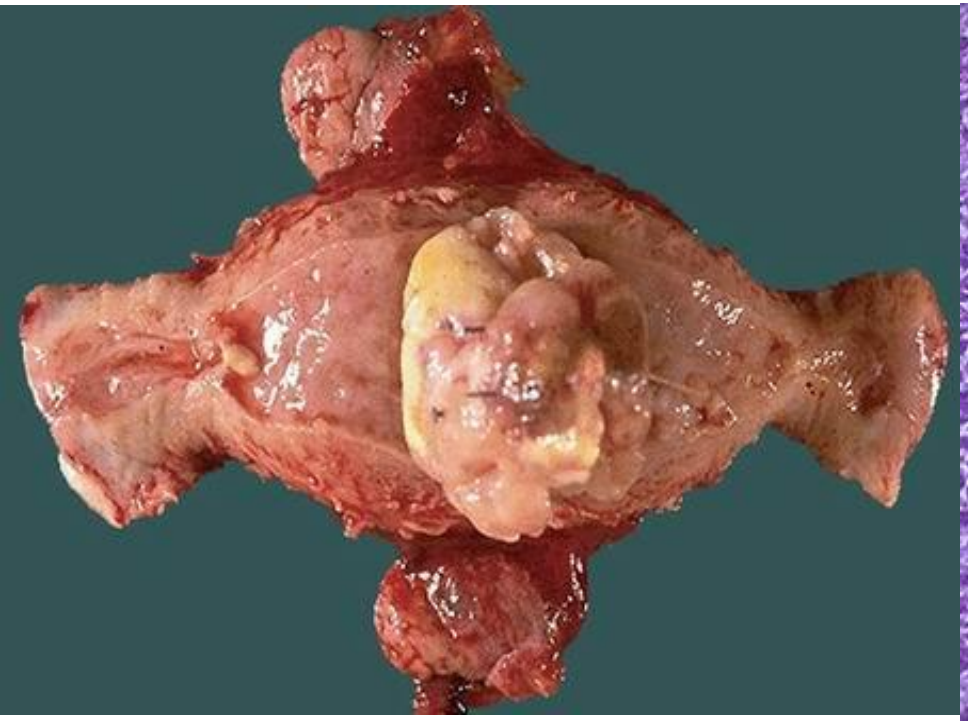


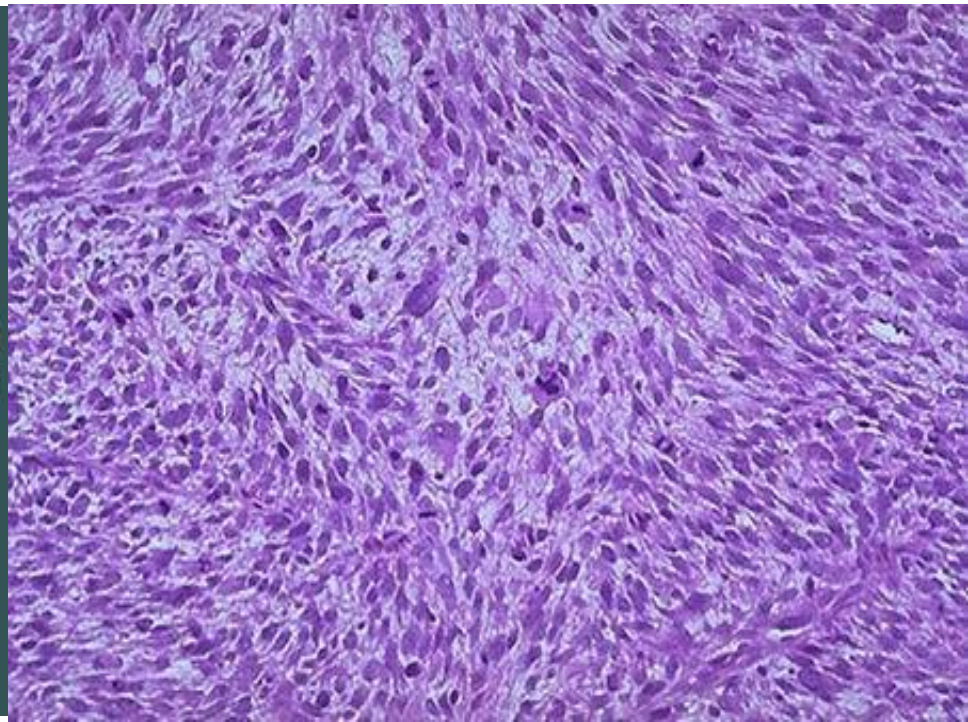


BODY OF UTERUS.

Leiomyosarcoma

Leiomyosarcomas typically take the form of soft, hemorrhagic, necrotic masses. The histologic appearance varies widely, from tumors that closely resemble leiomyoma to wildly anaplastic neoplasms. Those well-differentiated tumors that lie at the interface between leiomyoma and leiomyosarcoma are sometimes designated smooth muscle tumors of uncertain malignant potential; in such cases, only time will tell if the tumor's behavior is benign or malignant.





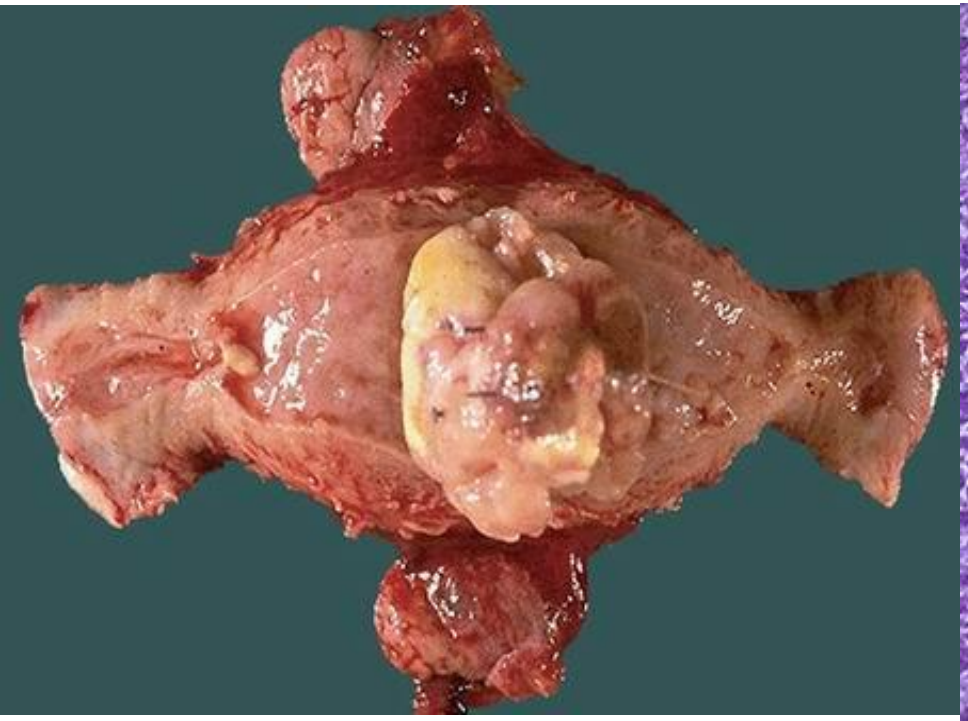
BODY OF UTERUS.

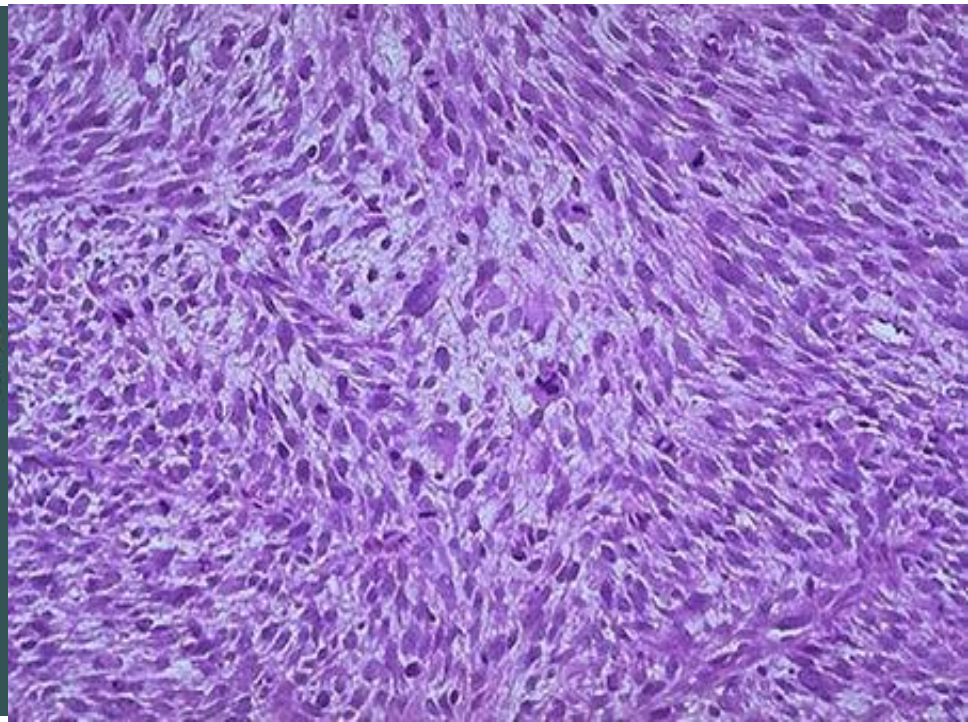
Leiomyosarcoma

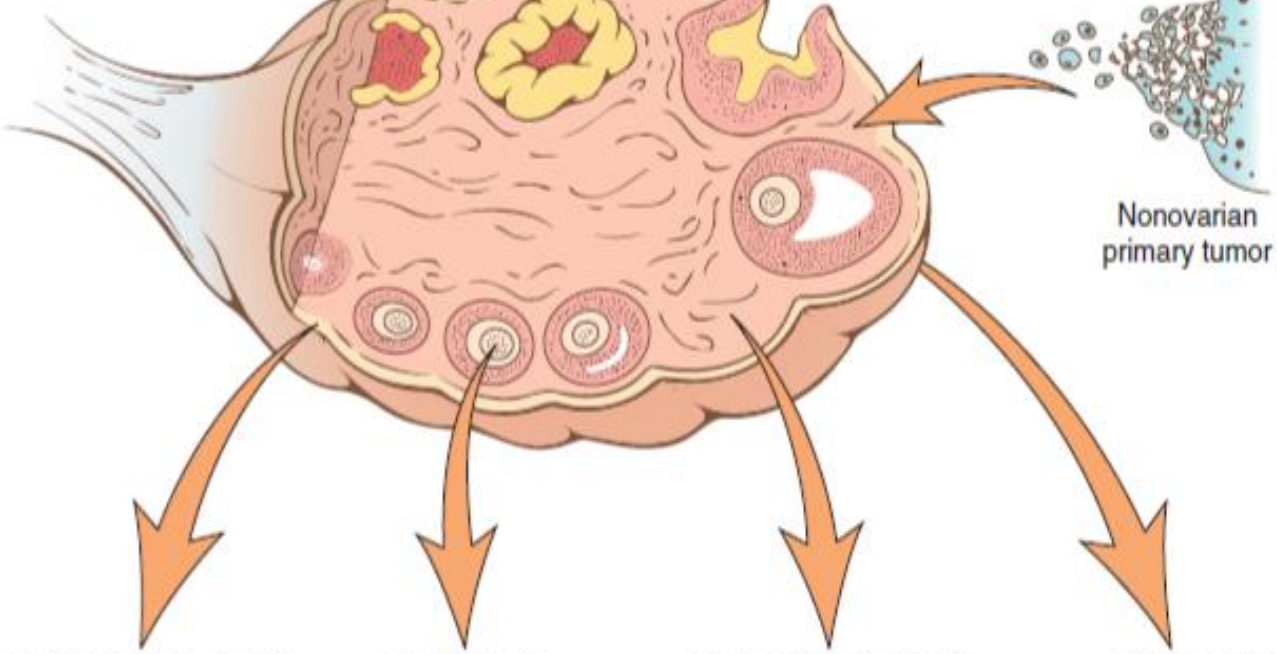
The diagnostic features of overt leiomyosarcoma include tumor necrosis, cytologic atypia, and mitotic activity. Since increased mitotic activity is sometimes seen in benign smooth muscle tumors, particularly in young women, an assessment of all three features is necessary to make a diagnosis of malignancy.

Recurrence after removal is common with these cancers, and many metastasize, typically to the lungs, yielding a 5-year survival rate of about 40%.

The outlook with anaplastic tumors is less favorable than with well-differentiated tumors.







ORIGIN	SURFACE EPITHELIAL CELLS (Surface epithelial–stromal cell tumors)	GERM CELL	SEX CORD–STROMA	METASTASIS TO OVARIES
Overall frequency	65%–70%	15%–20%	5%–10%	5%
Proportion of malignant ovarian tumors	90%	3%–5%	2%–3%	5%
Age group affected	20+ years	0–25+ years	All ages	Variable
Types	• Serous tumor • Mucinous tumor • Endometrioid tumor • Clear cell tumor • Brenner tumor • Cystadenofibroma	• Teratoma • Dysgerminoma • Endodermal sinus tumor • Choriocarcinoma	• Fibroma • Granulosa-theca cell tumor • Sertoli-Leydig cell tumor	

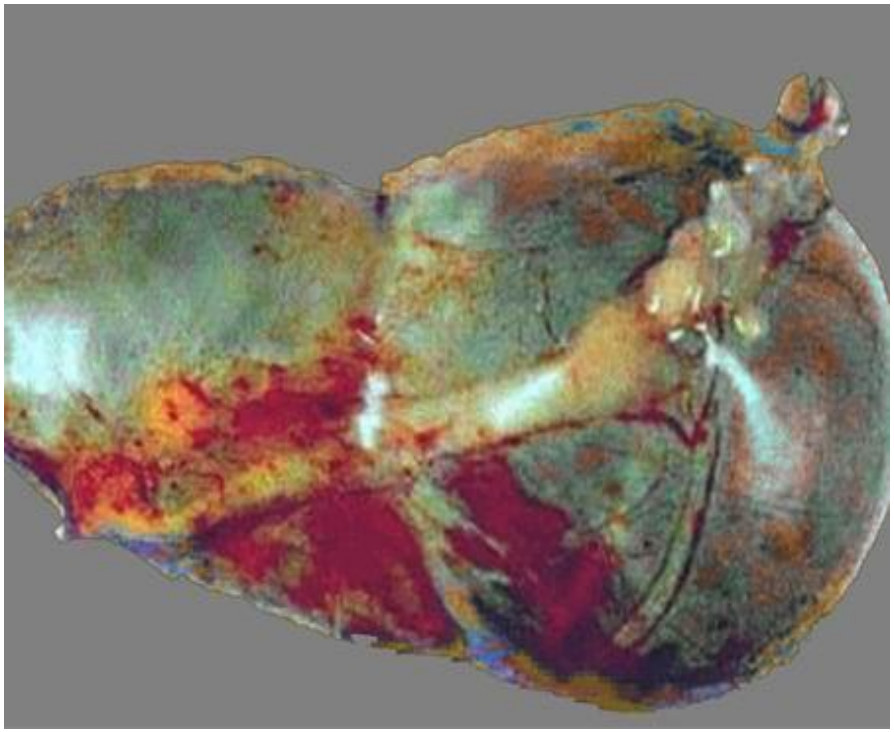
Figure 18–15 Derivation, frequency, and age distribution for various ovarian neoplasms.

TUMORS OF THE OVARY.

Serous Tumors

Serous tumors are the most common of the ovarian epithelial tumors. About 60% are benign, 15% are of low malignant potential, and 25% are malignant.

Benign lesions are usually encountered in patients between 30 and 40 years of age, and malignant serous tumors are more commonly seen between 45 and 65 years of age. Taken together, borderline and malignant serous tumors are the most common ovarian malignancies, accounting for about 60% of all ovarian cancers

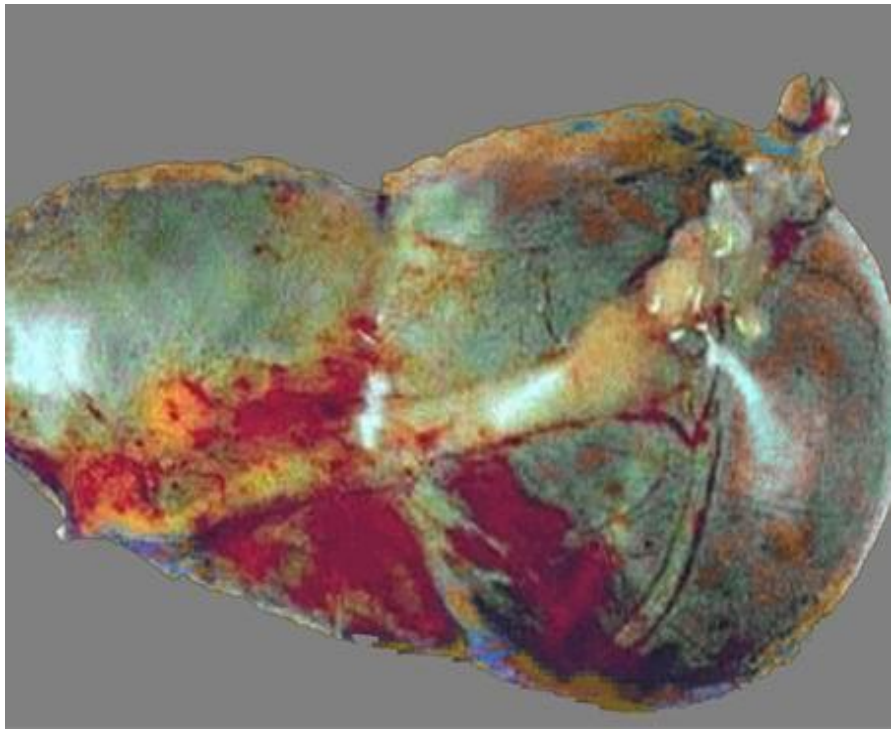


TUMORS OF THE OVARY.

Serous Tumors

Most serous tumors are large, spherical to ovoid, cystic structures up to 30 to 40 cm in diameter. About 25% of the benign tumors are bilateral. In the benign tumors,

the serosal covering is smooth and glistening. By contrast, the surface of the cystadenocarcinoma has nodular irregularities representing areas in which the tumor has penetrated into the serosa. On cut section, small cystic tumors may have a single cavity, but larger ones frequently are divided by multiple septa into multiloculated masses. The cystic spaces usually are filled with a clear serous fluid.



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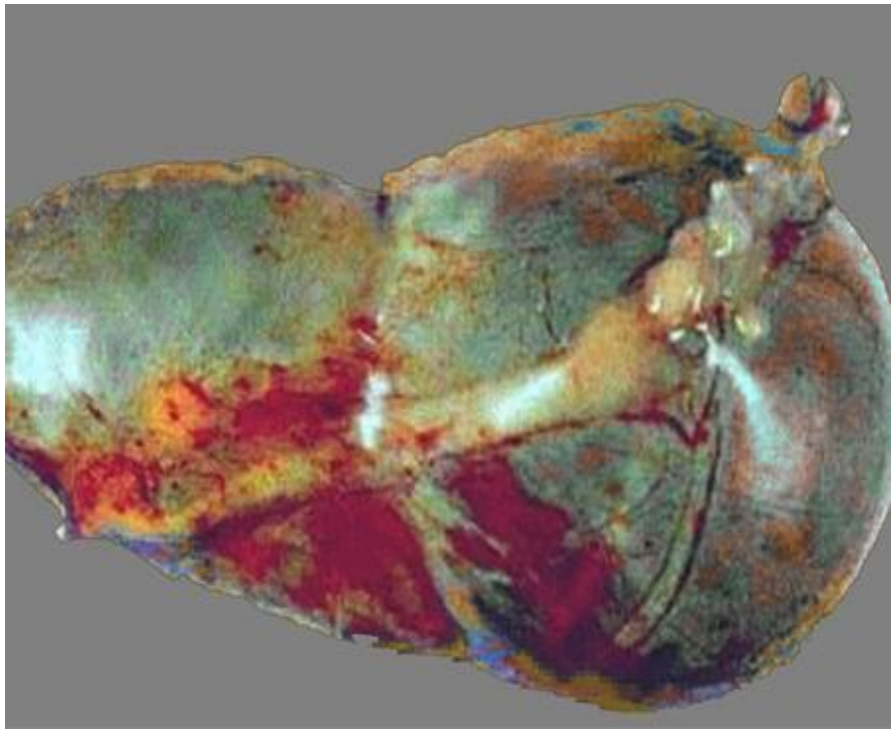
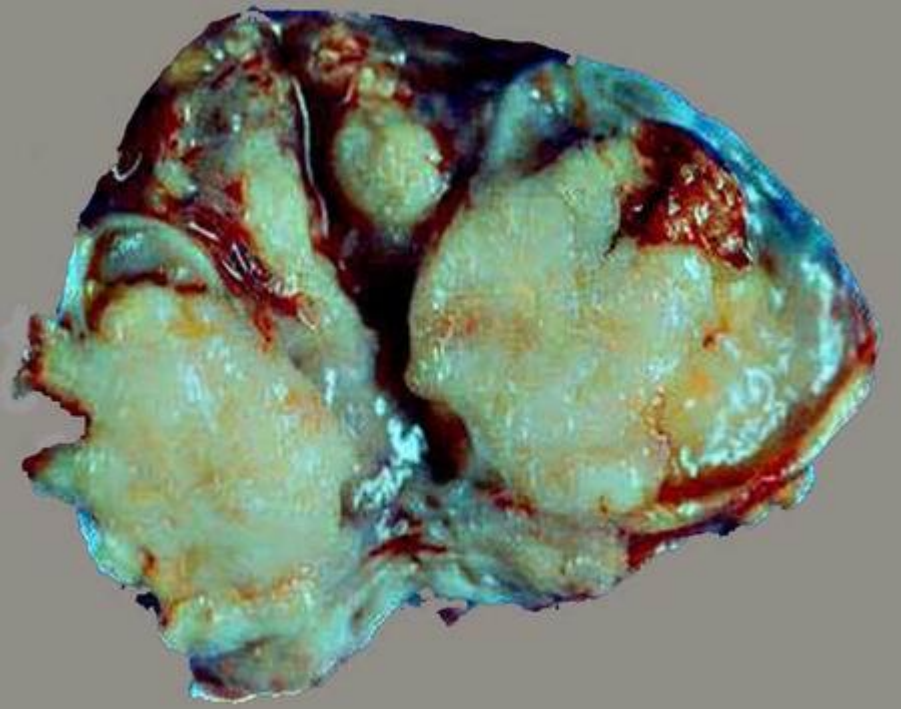
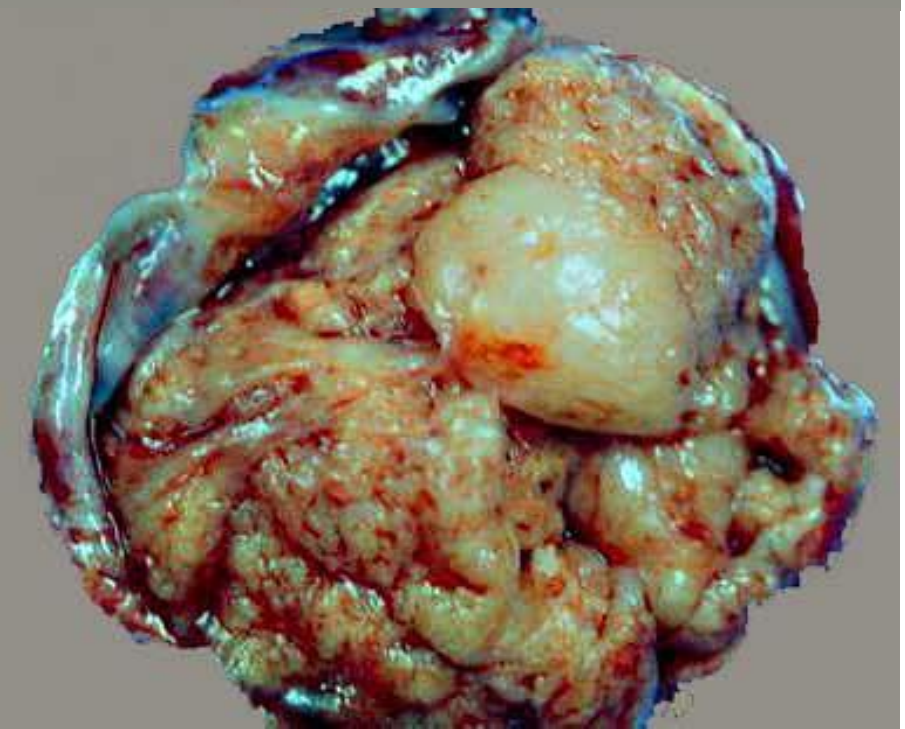
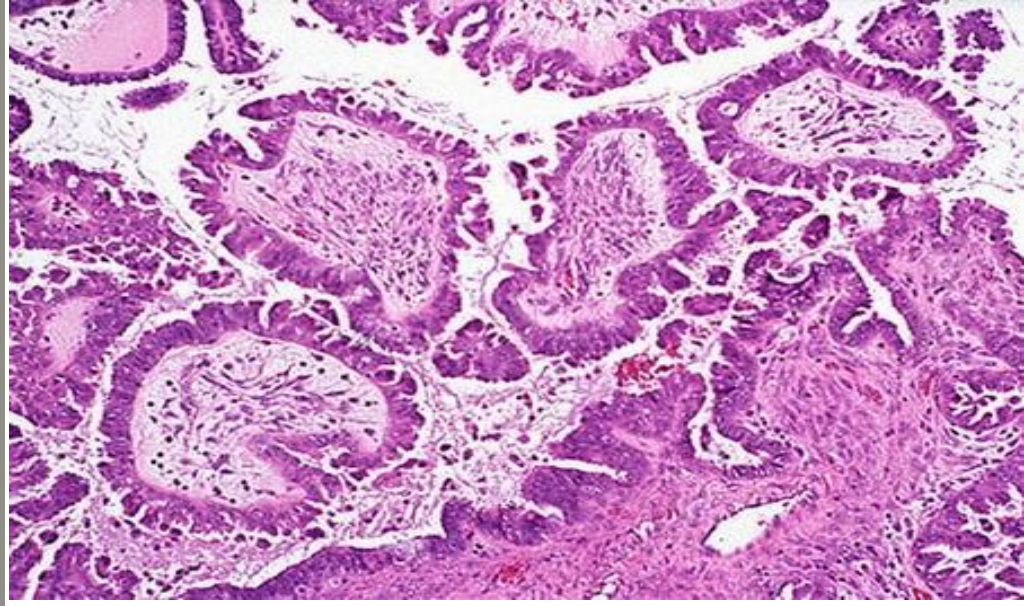








On histologic examination, benign tumors contain a single layer of tall columnar epithelial cells that line the cyst or cysts.

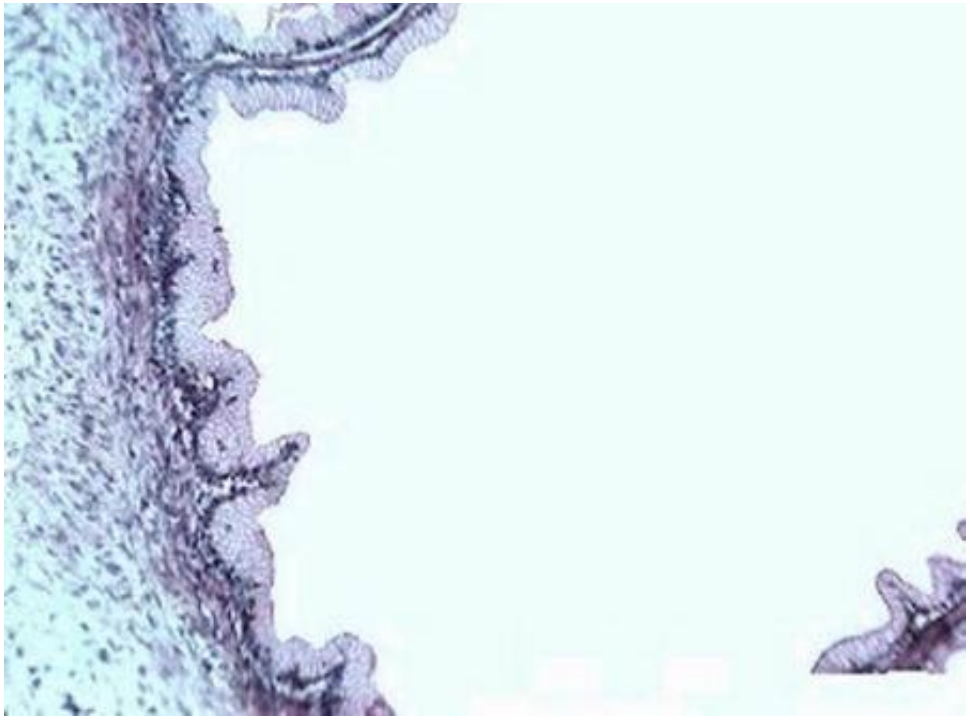
When carcinoma develops, anaplasia of the lining cells appears, as does invasion of the stroma. In carcinoma, papillary formations are complex and multilayered, and nests or undifferentiated sheets of malignant cells invade the axial fibrous tissue

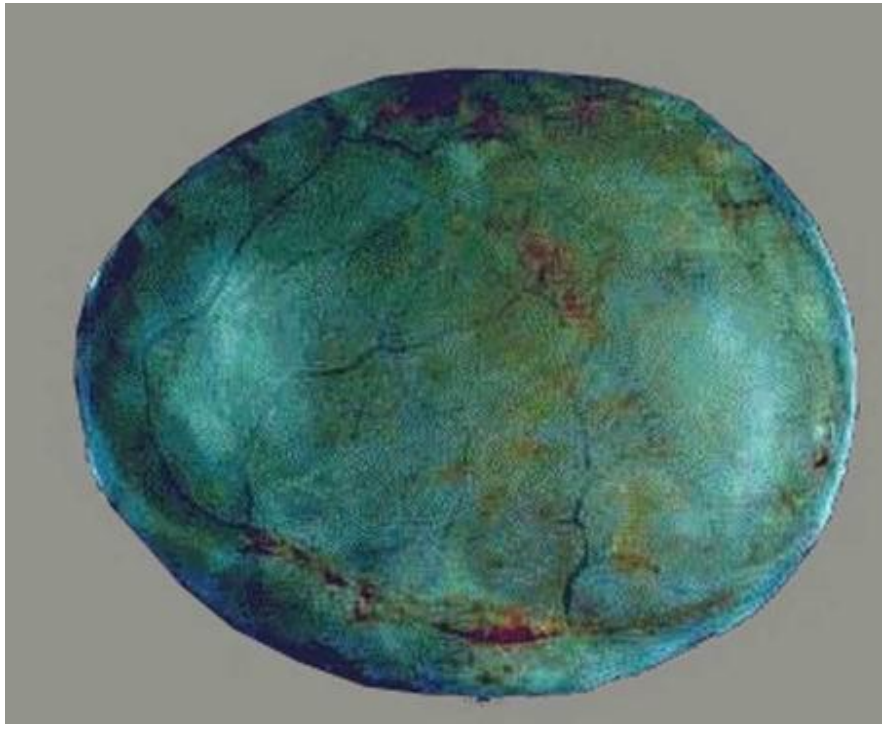
In general, malignant serous tumors spread to regional lymph nodes, including periaortic lymph nodes; distant lymphatic and hematogenous metastases are infrequent

TUMORS OF THE OVARY.

Mucinous tumors

Mucinous tumors are, in most respects, similar to serous tumors, the essential difference being that the neoplastic epithelium consists of mucin-secreting cells. These tumors occur in women in the same age range as for those with serous tumors but are considerably less likely to be malignant. Overall, only 10% of mucinous tumors are malignant; another 10% are of low malignant potential, and 80% are benign.

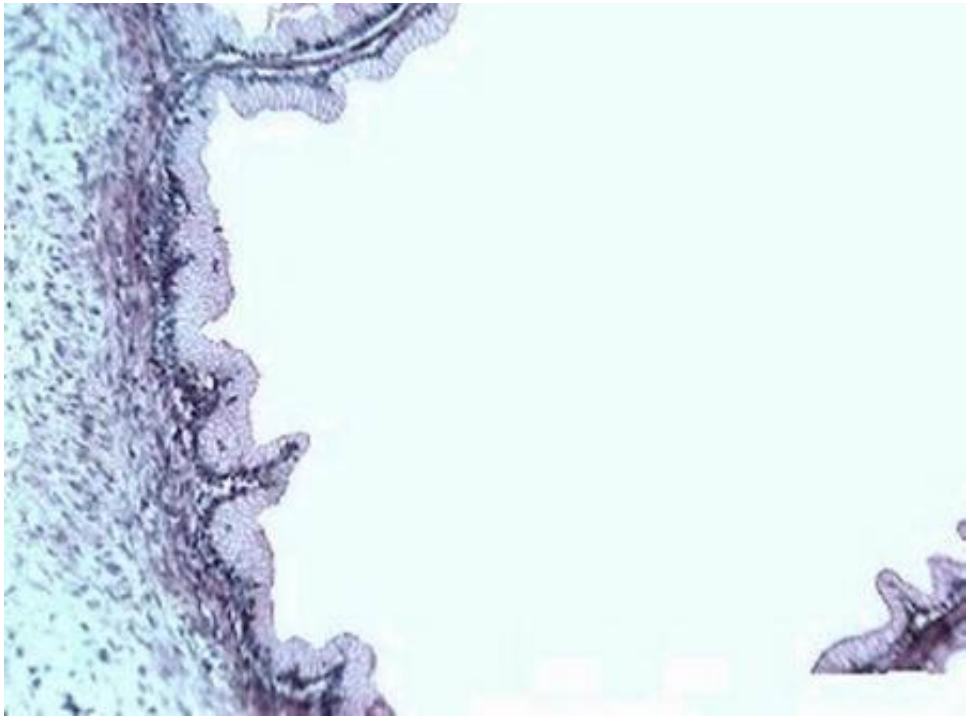


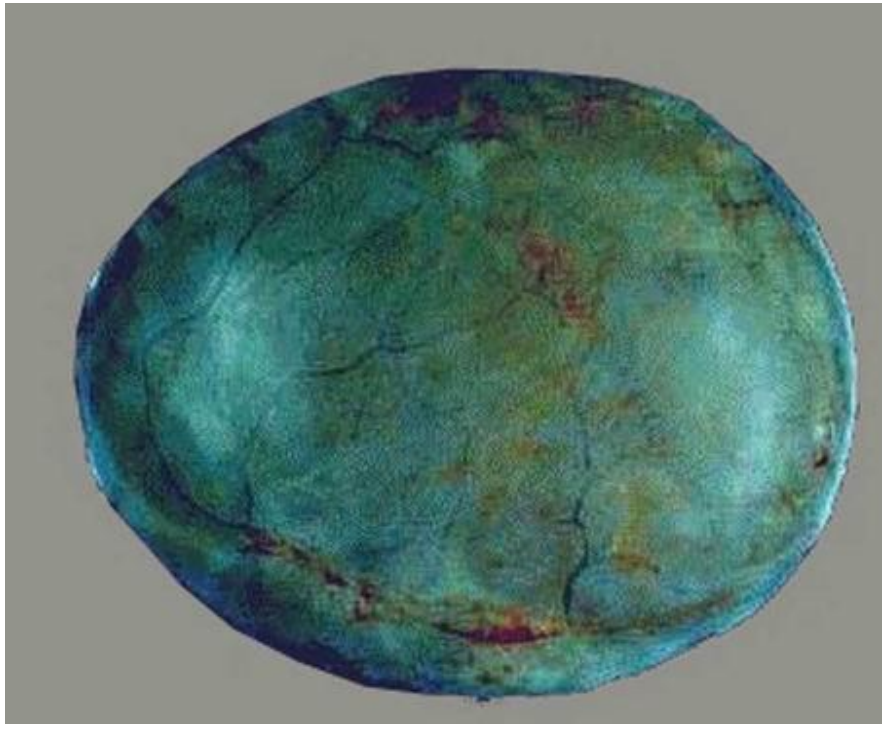


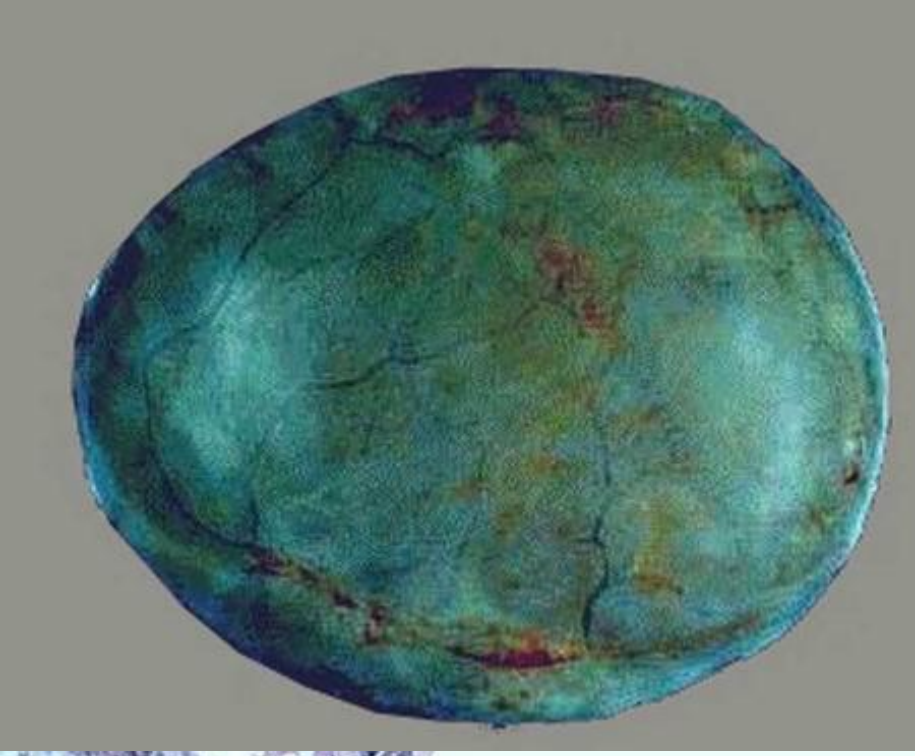
TUMORS OF THE OVARY.

Mucinous tumors

On gross examination, mucinous tumors produce cystic masses that may be indistinguishable from serous tumors except by the mucinous nature of the cystic contents. However, they are more likely to be larger and multicystic. Serosal penetration and solid areas of growth are suggestive of malignancy.

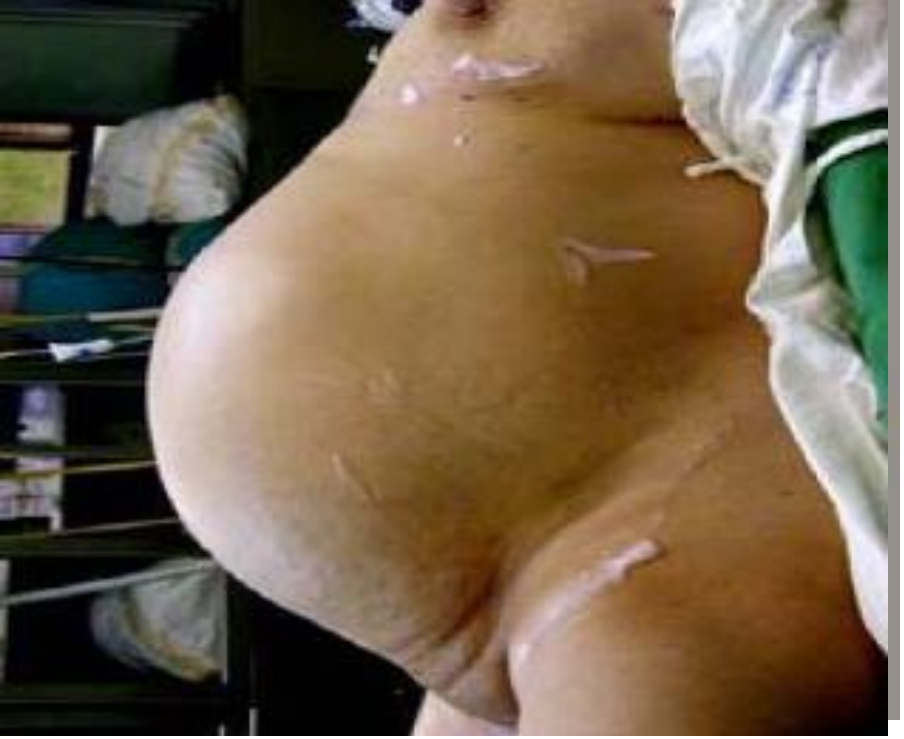




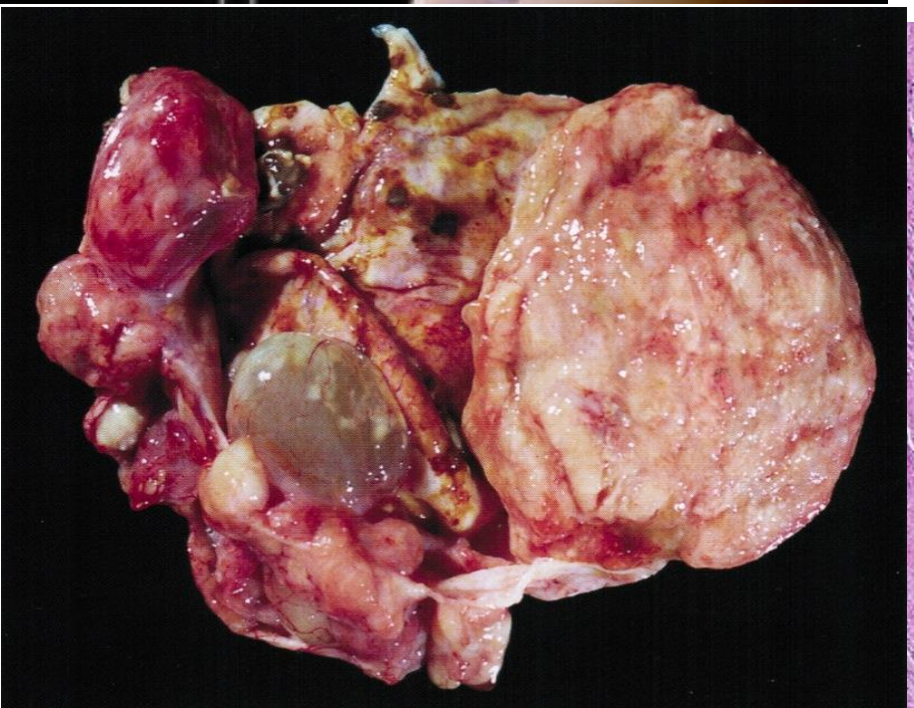


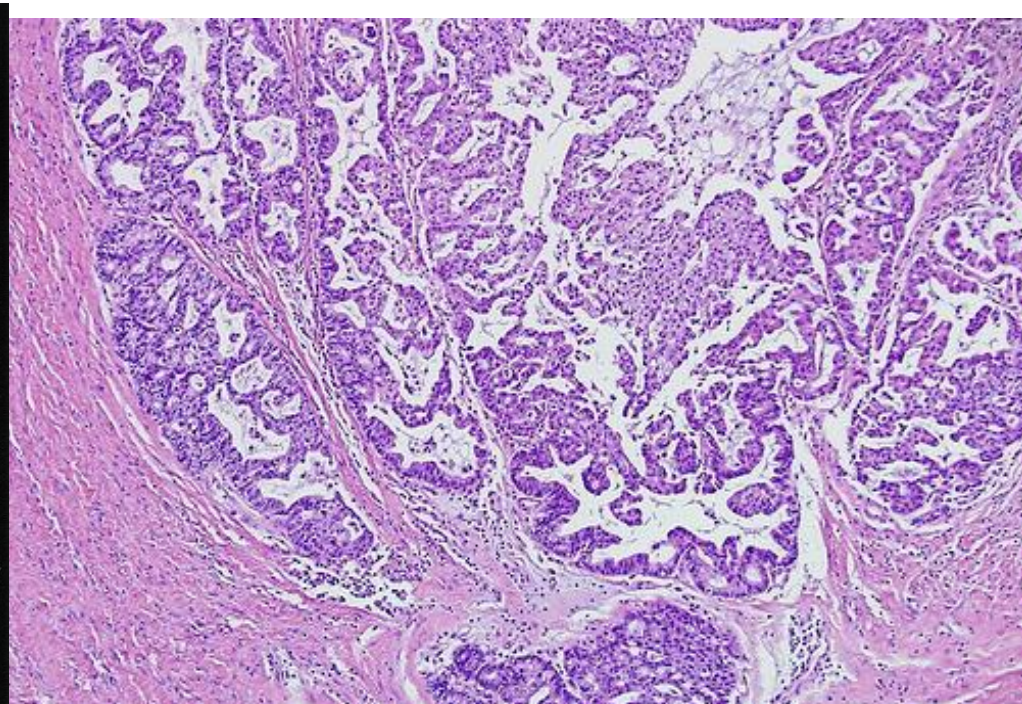
On microscopic examination, these tumors are multi-chamber cystic formations filled with viscous gelatinous contents rich in glycoproteins.

In a histological examination, benign mucinous tumors are characterized by the presence of a lining of high cylindrical epithelial cells without cilia with apically located mucin, resembling epithelium of the cervical canal or intestine.



It is believed that tumors with glandular or papillary growth patterns are the precursors of most cystadenocarcinomas. In cystadenocarcinomas, areas of a solid structure, signs of severe atypia of epithelial cells and their pseudostratification, loss of glandular structures and necrosis zone are determined. Cystadenocarcinomas are similar in appearance to colon cancer.

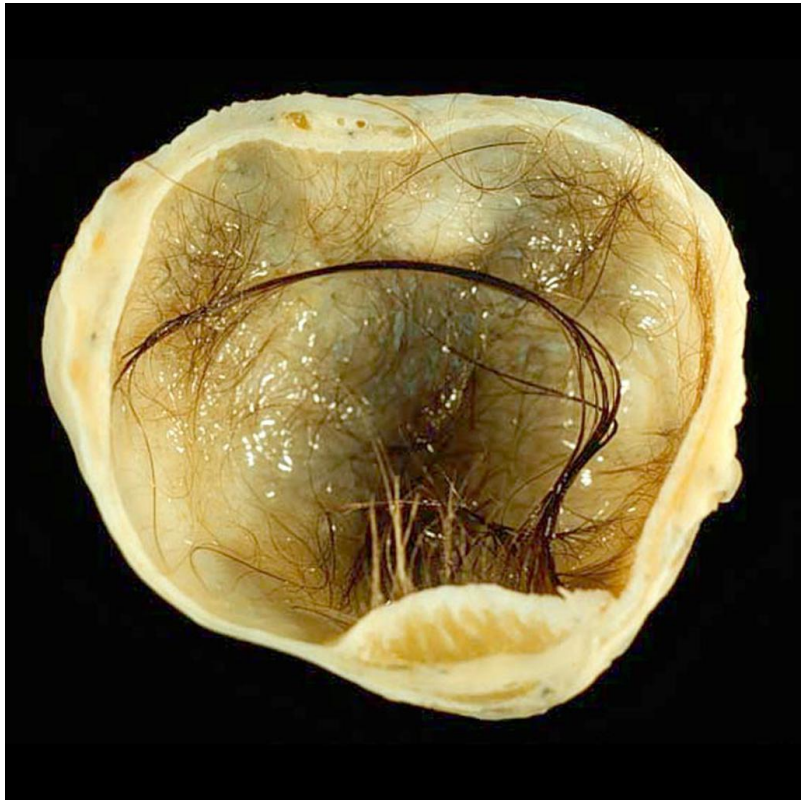




TUMORS OF THE OVARY.

Teratomas

Teratomas constitute 15% to 20% of ovarian tumors. A distressing feature of these germ cell tumors is their predilection to arise in the first 2 decades of life; to make matters worse, the younger the person, the greater the likelihood of malignancy. More than 90% of these germ cell neoplasms, however, are benign mature cystic teratomas; the immature, malignant variant is rare.



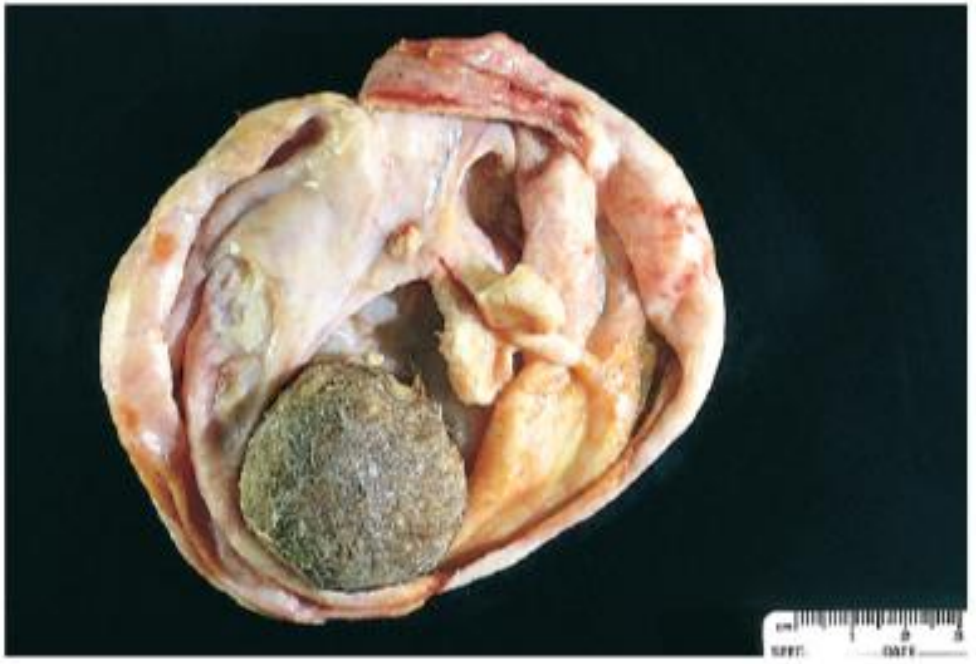
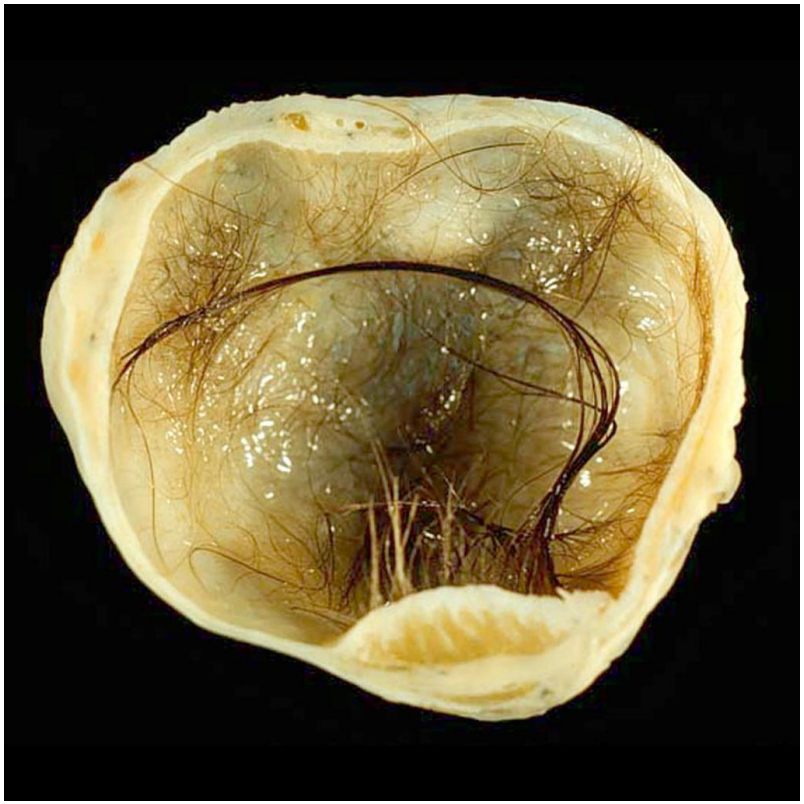


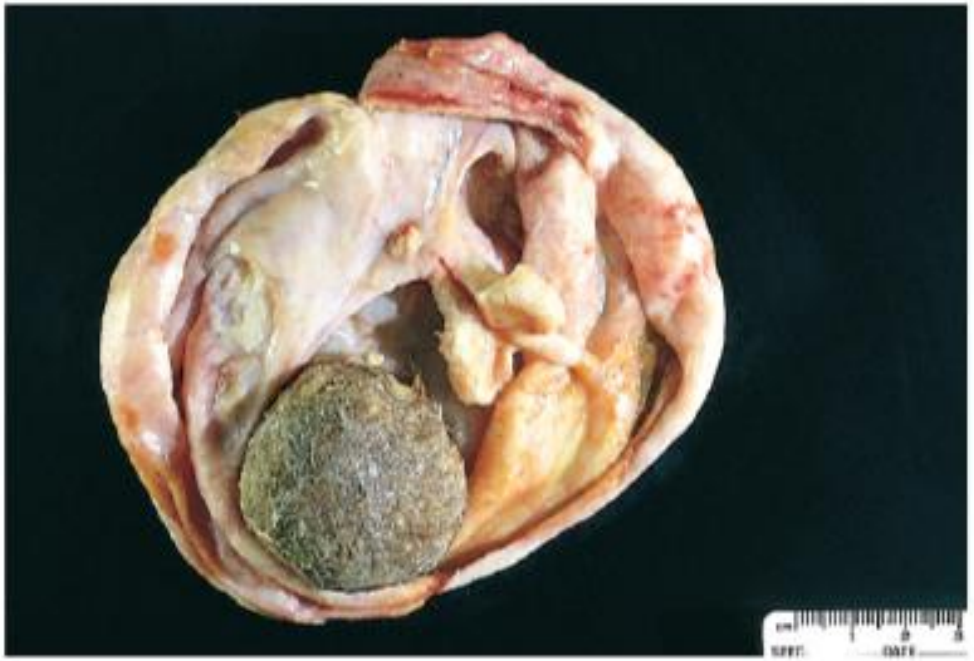
Figure 18–18 Mature cystic teratoma (dermoid cyst) of the ovary. A ball of hair (*bottom*) and a mixture of tissues are evident.
(Courtesy of Dr. Christopher Crum, Brigham and Women's Hospital, Boston, Massachusetts.)

TUMORS OF THE OVARY.

Teratomas

Almost all benign (mature) cystic teratomas are marked by the presence of mature tissues derived from all three germ cell layers: ectoderm, endoderm, and mesoderm. Usually these tumors contain cysts lined by epidermis replete with adnexal appendages—hence the common designation dermoid cysts.





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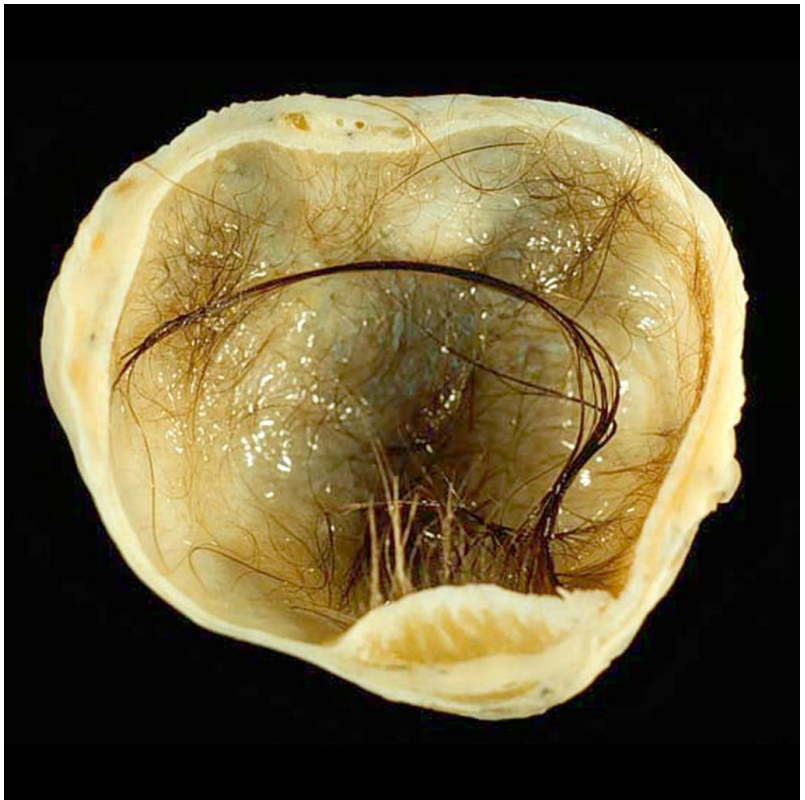
(Courtesy of Dr. Christopher Crum, Brigham and Women's Hospital, Boston, Massachusetts.)

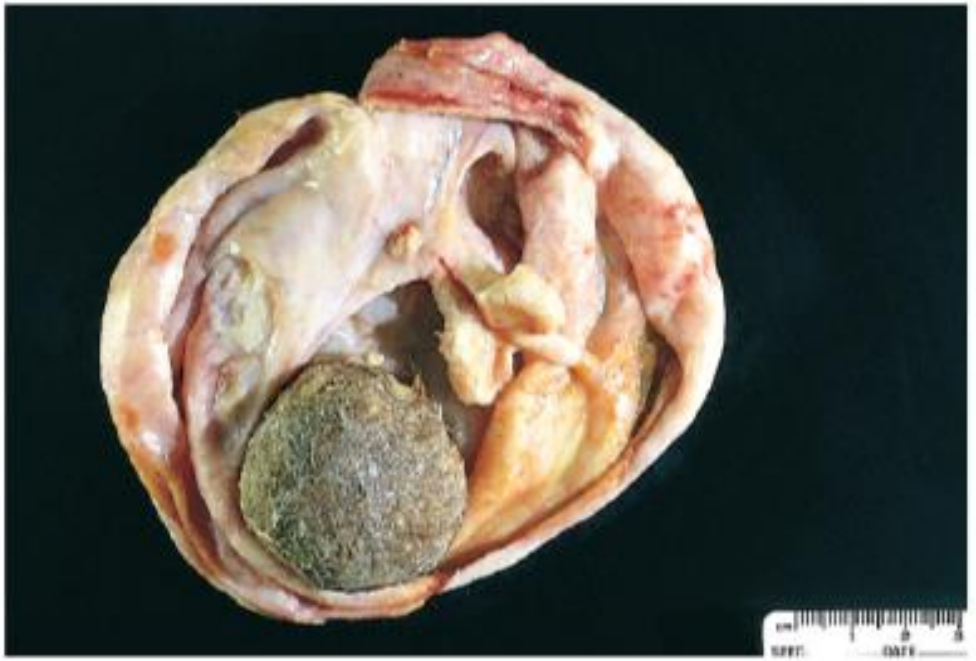
TUMORS OF THE OVARY.

Benign (Mature) Cystic Teratomas

On cut section, they often are filled with sebaceous secretion and matted hair that, when removed, reveal a hair-bearing epidermal lining Sometimes there is a nodular projection from which teeth protrude. Occasionally, foci of bone and cartilage, nests of bronchial or gastrointestinal epithelium, and other tissues also are present.

For unknown reasons, these neoplasms sometimes produce infertility





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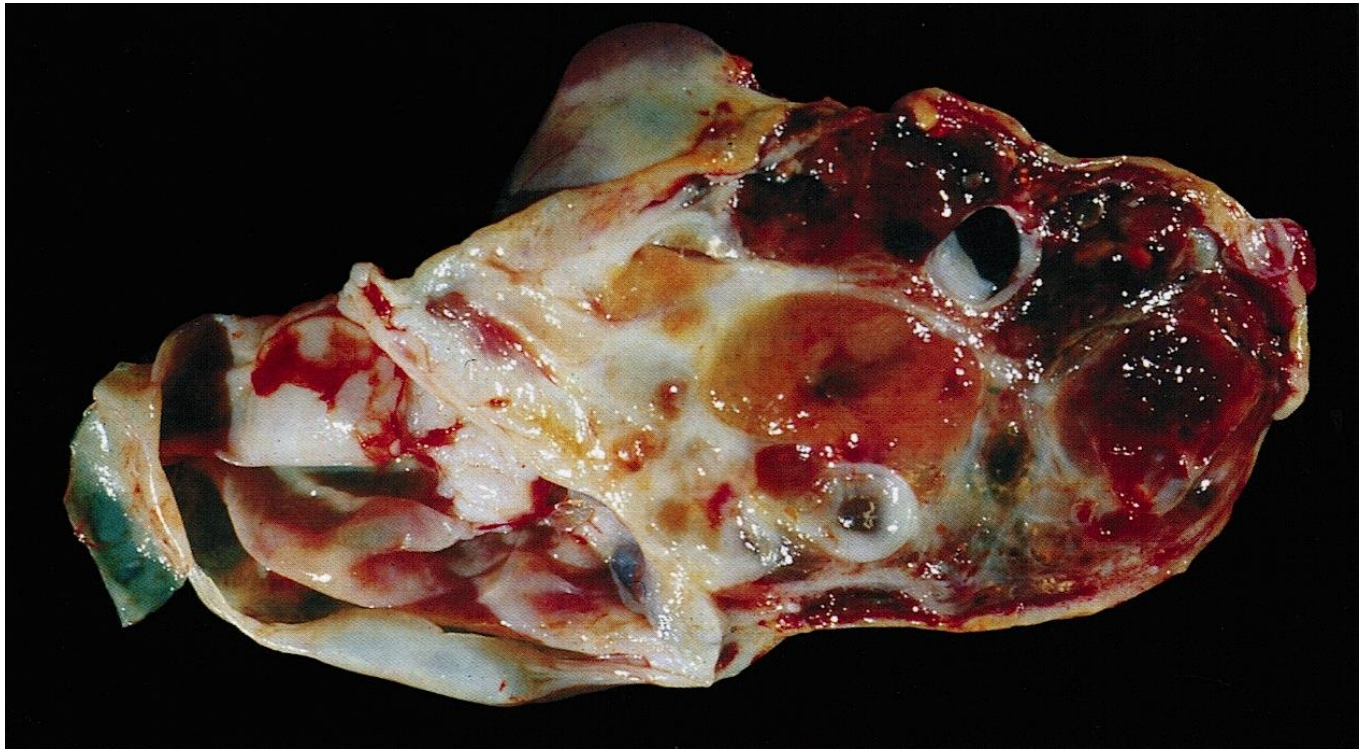
(Courtesy of Dr. Christopher Crum, Brigham and Women's Hospital, Boston, Massachusetts.)

TUMORS OF THE OVARY.

Immature Malignant Teratomas

Malignant (immature) teratomas are found early in life, the mean age at clinical detection being 18 years. They differ strikingly from benign mature teratomas insofar as they often are bulky, predominantly solid on cut section, and punctuated by areas of necrosis. On microscopic examination, the distinguishing feature is presence of immature elements or minimally differentiated cartilage, bone, muscle, nerve, or other tissues.



TUMORS OF THE OVARY.

Specialized Teratomas

A rare subtype of teratoma is composed entirely of specialized tissue. The most common example is struma ovarii, which is composed entirely of mature thyroid tissue that may actually produce hyperthyroidism. These tumors appear as small, solid, unilateral brown ovarian masses. Other specialized teratomas may take the form of ovarian carcinoid, which in rare instances produces carcinoid syndrome.