



Reproduction Block

Pathology Practicals


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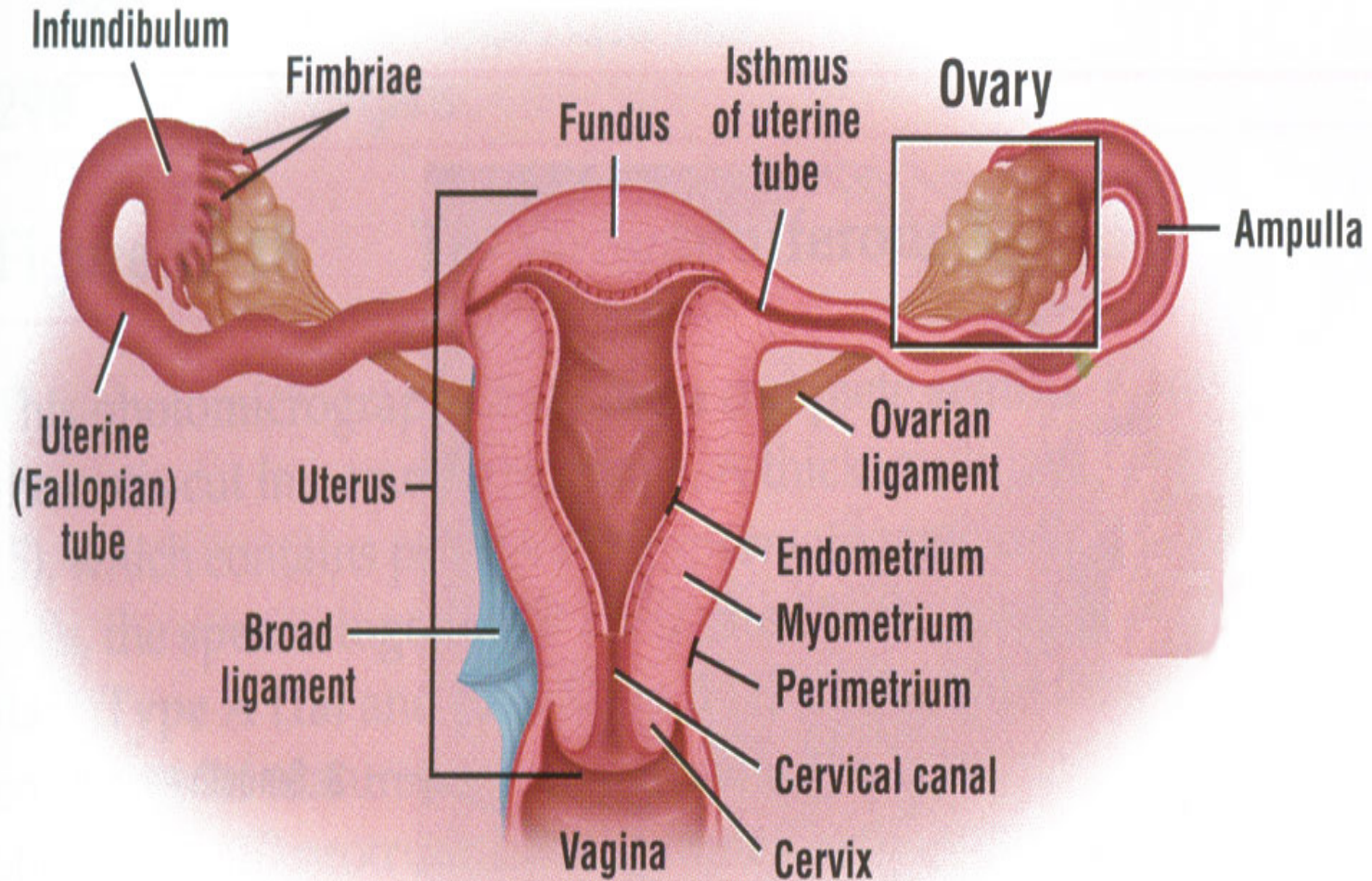
2nd Practical Session

FEMALE GENITAL SYSTEM



Normal Anatomy and Histology

Female Reproductive System - Diagram



Female Reproductive System - Gross



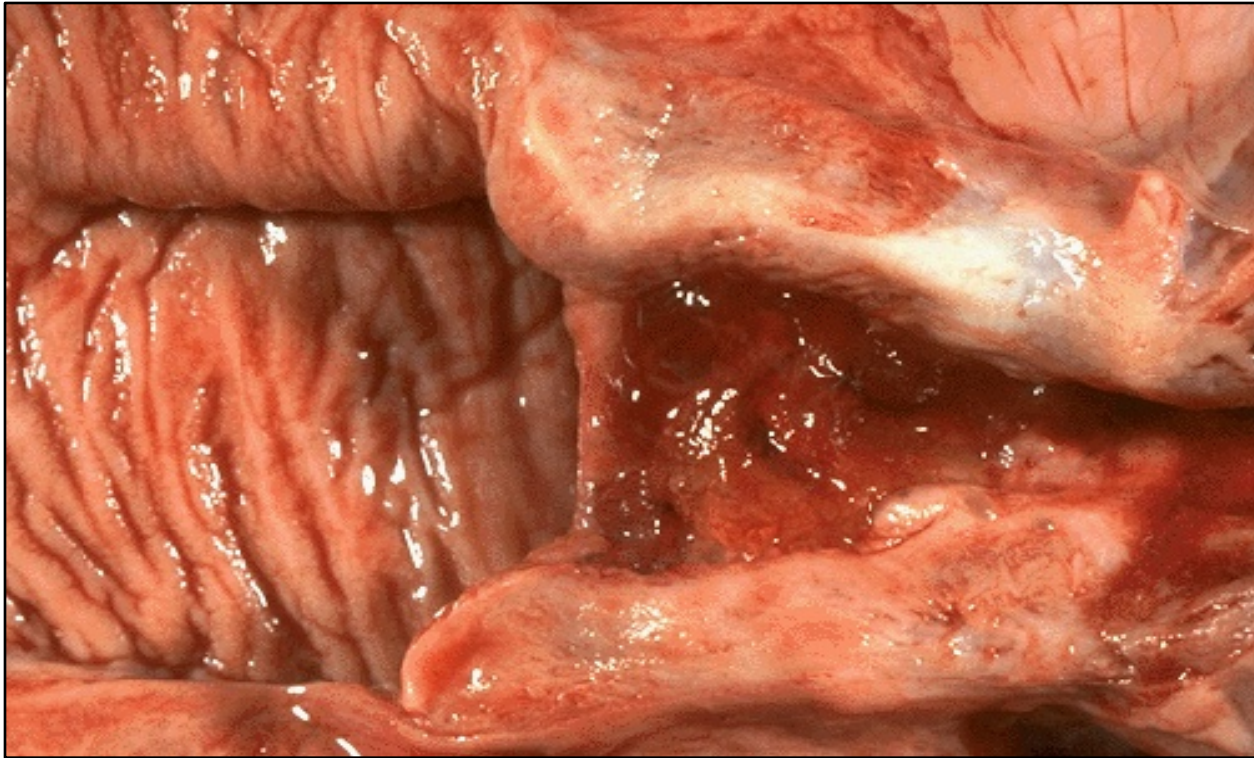
Uterus with Cervix, Ovaries and Fallopian Tubes

Normal Uterine Cervix - Gross



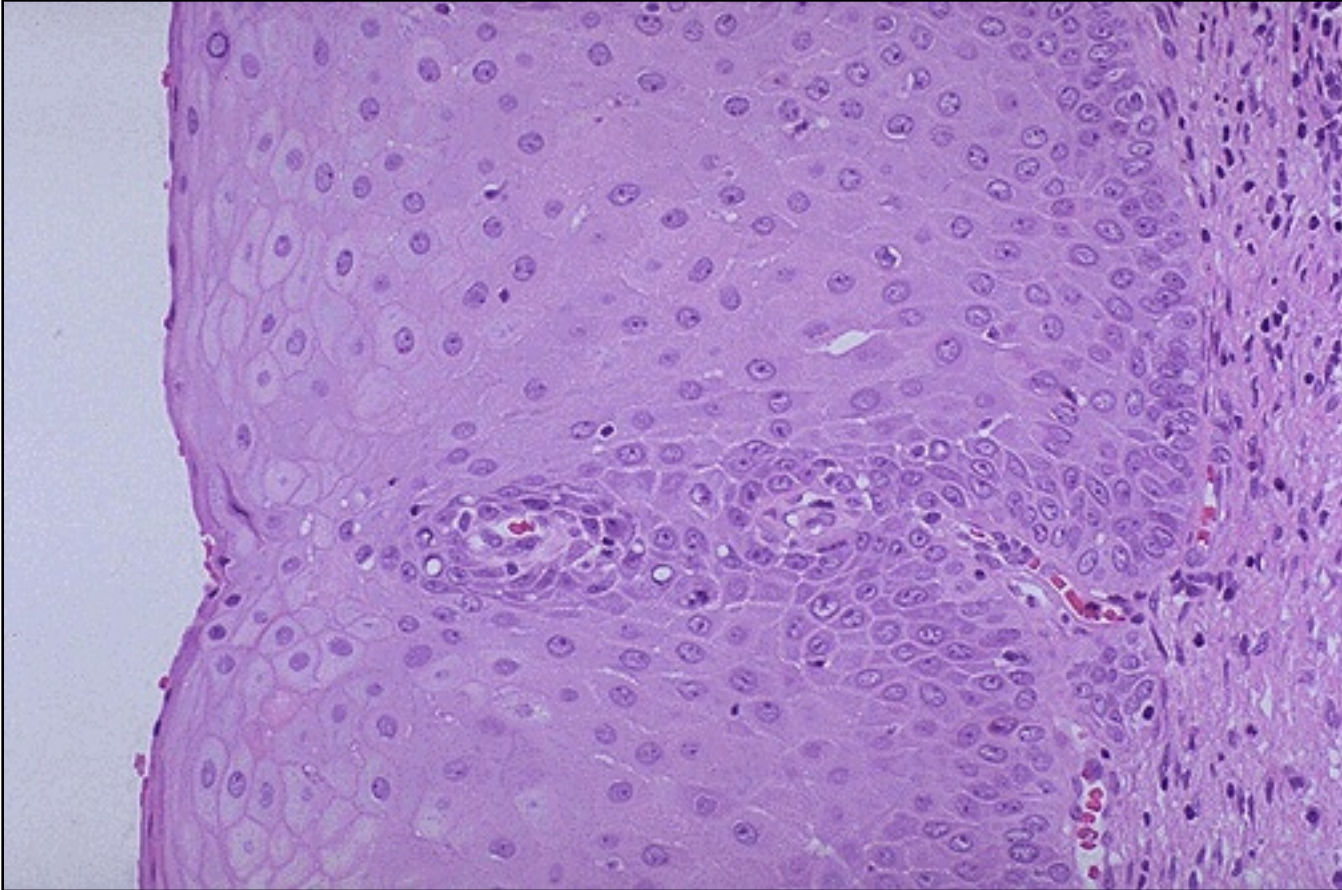
Normal cervix with a smooth, glistening mucosal surface. There is a small rim of vaginal cuff from this hysterectomy specimen. The cervical os is small and round, typical for a nulliparous woman. The os will have a fish-mouth shape after one or more pregnancies

Normal Vagina & Cervix - Gross Cut section



The normal adult vaginal mucosa with a wrinkled appearance that is seen in women of reproductive years appears at the left. The cervix has been opened to reveal an endocervical canal leading to the lower uterine segment at the right that has an erythematous appearance extending to the cervical os consistent with chronic inflammation.

Normal Cervical Mucosa - HPF



This is normal Ectocervical non-keratinizing squamous epithelium. The squamous cells show maturation from the basal layer to the surface



UTERUS

GROSS and HISTOPATHOLOGY

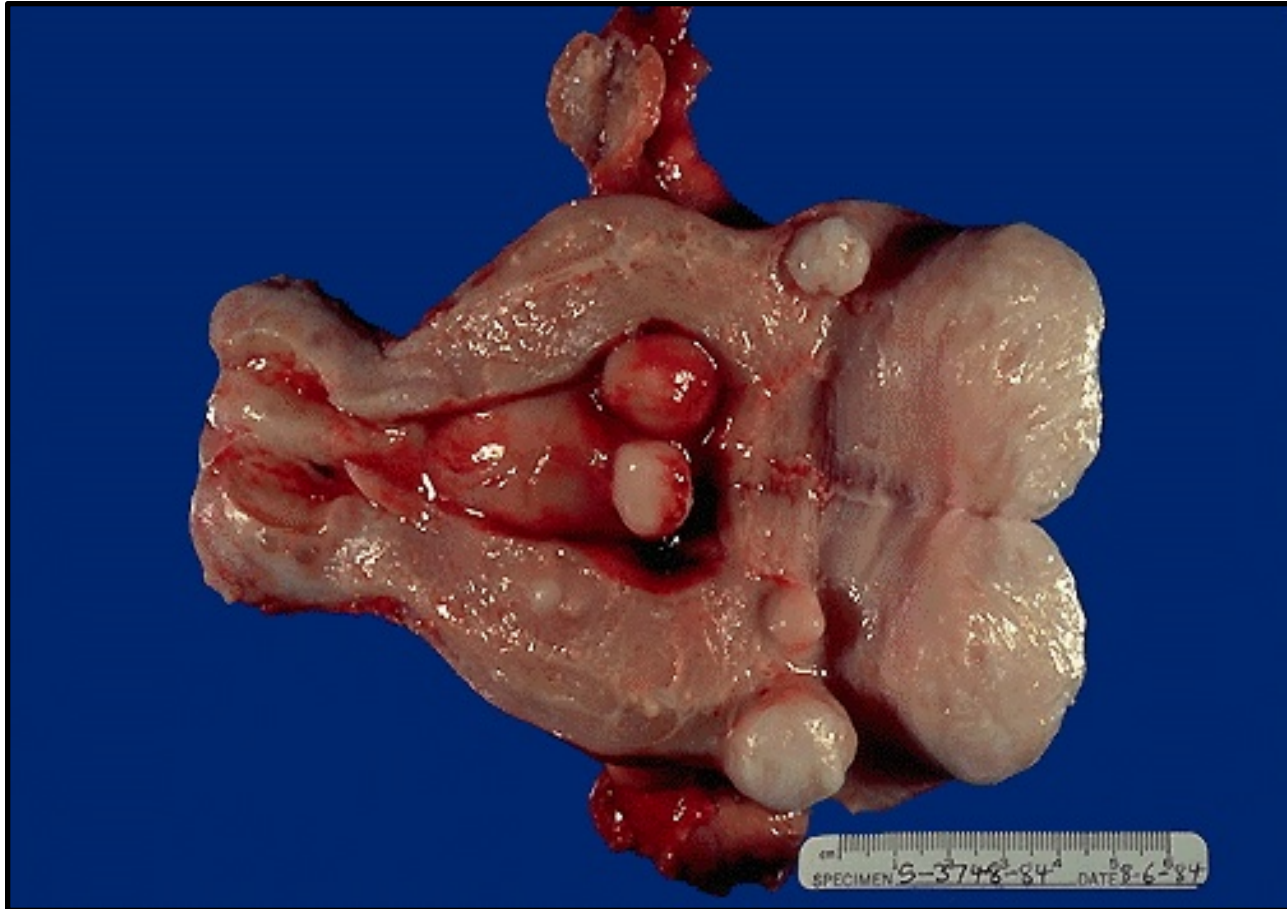


ENDOMETRIUM



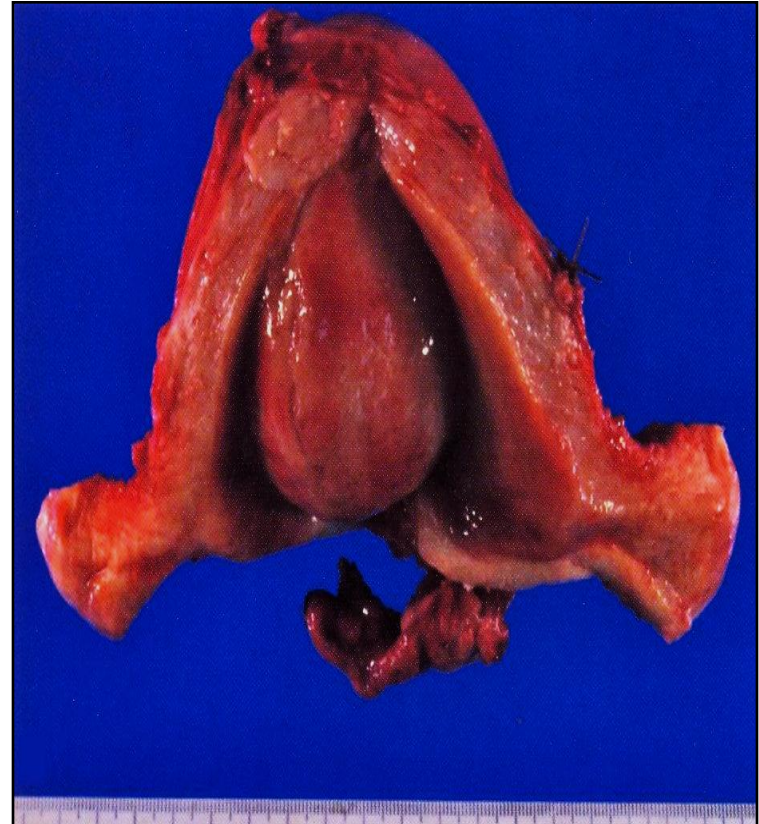
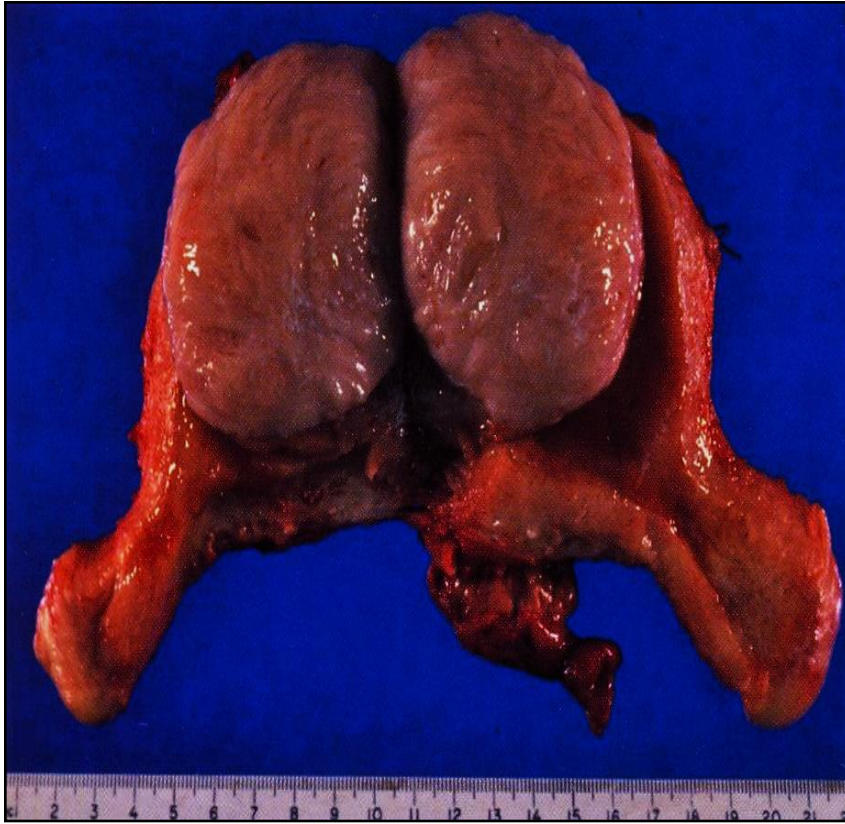
Uterine Leiomyomata

Multiple Uterine Leiomyomata - Gross



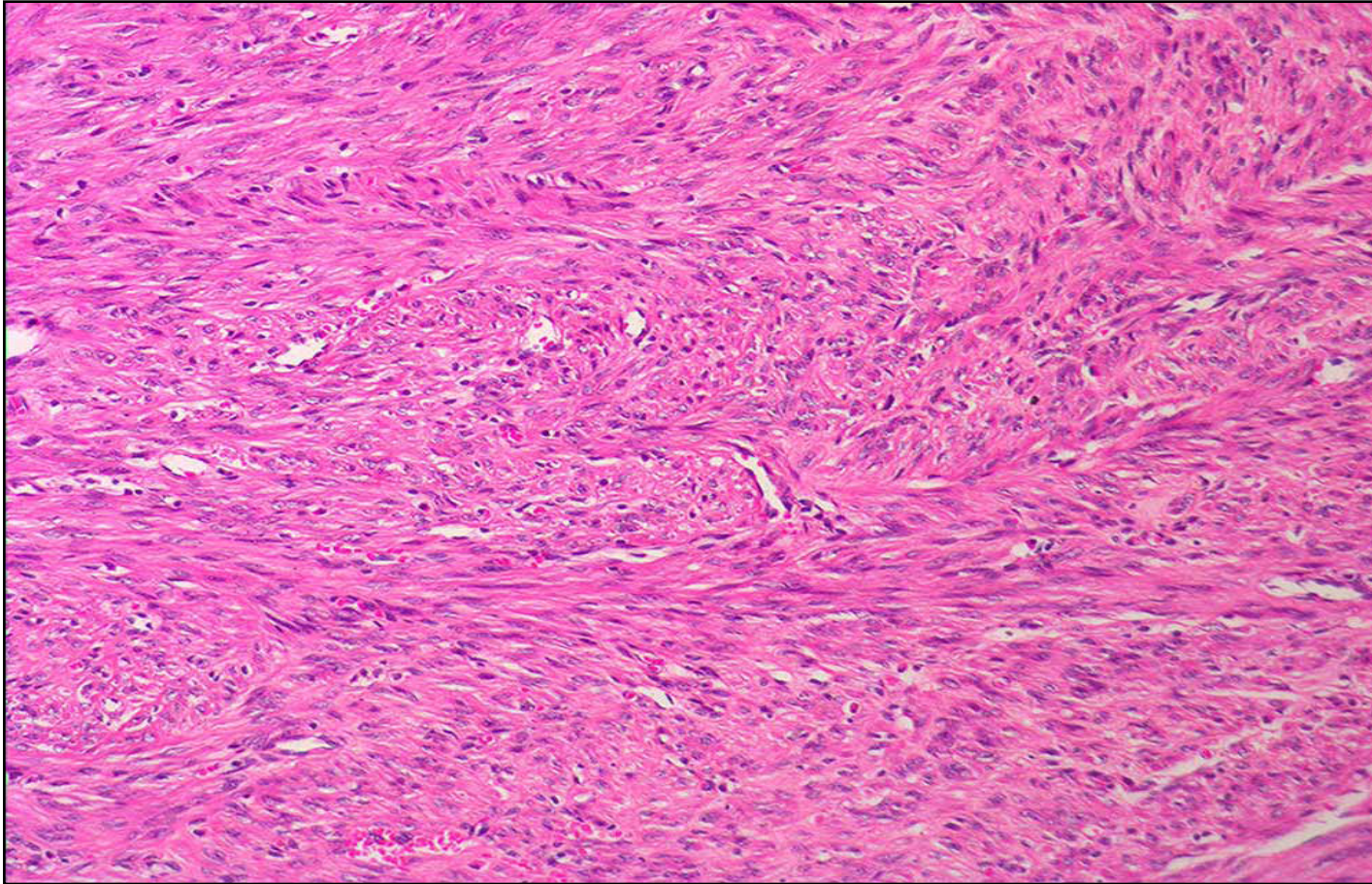
***Smooth muscle tumors of the uterus are often multiple.
Seen here are submucosal, intramural, and subserosal leiomyomata
of the uterus.***

Multiple Uterine Leiomyomata - Gross



A well demarcated tumour mass in the muscle coat of uterus without a definite capsule.

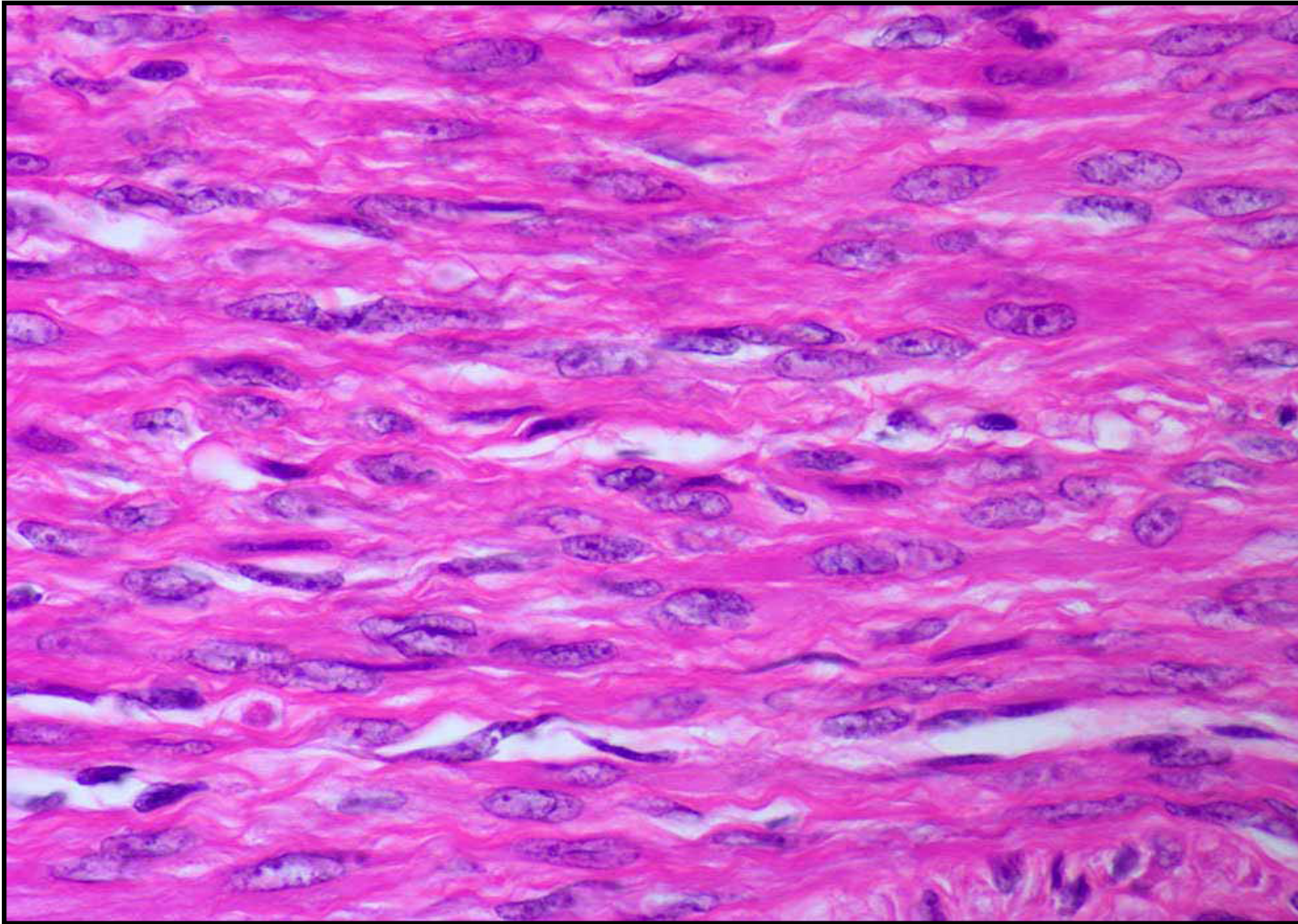
Uterine Leiomyoma – LPF



Tumour consists of interlacing bundles of smooth muscle and fibrous tissue.

The muscle cells are spindle shaped with elongated nuclei and eosinophilic cytoplasm.

Uterine Leiomyoma – HPF

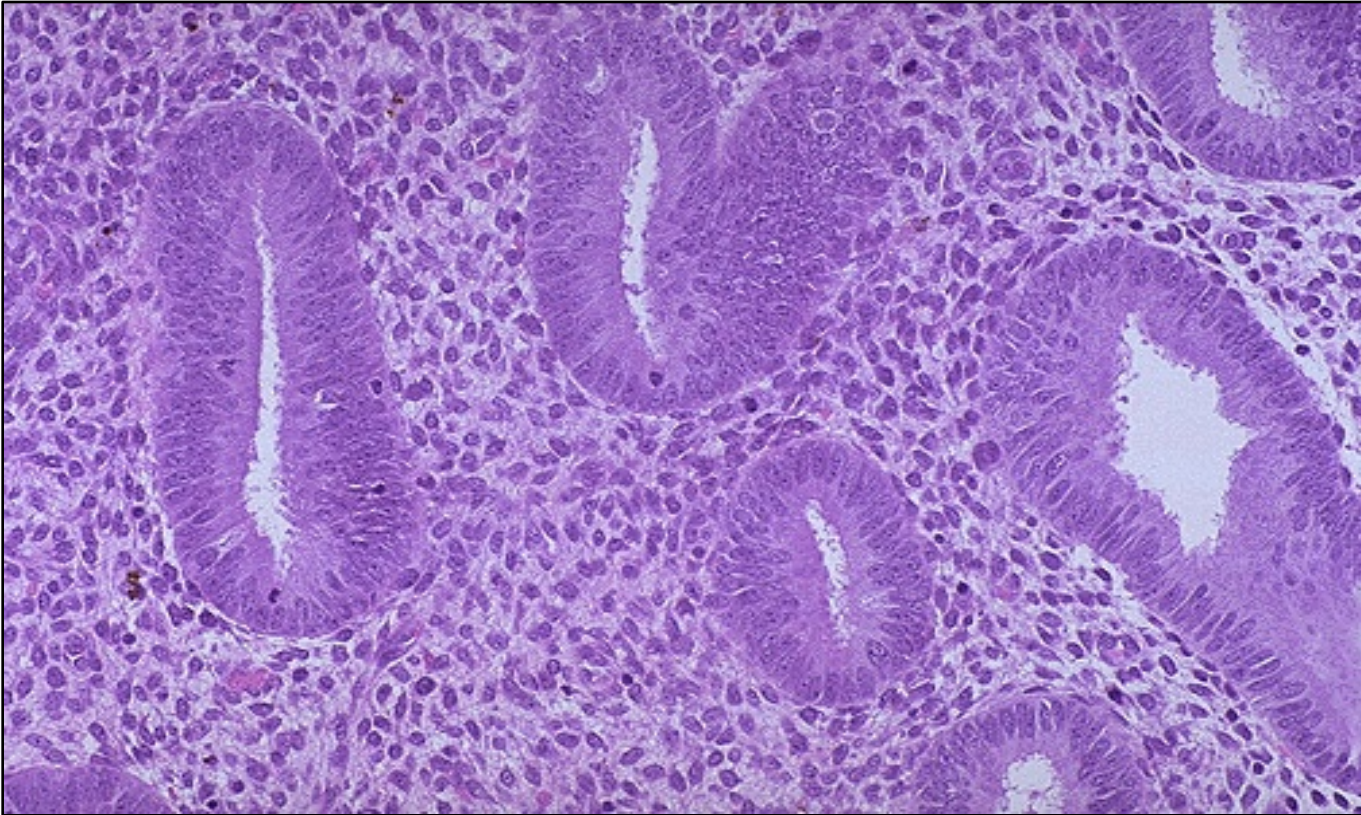


The muscle cells are spindle shaped with elongated nuclei and eosinophilic cytoplasm



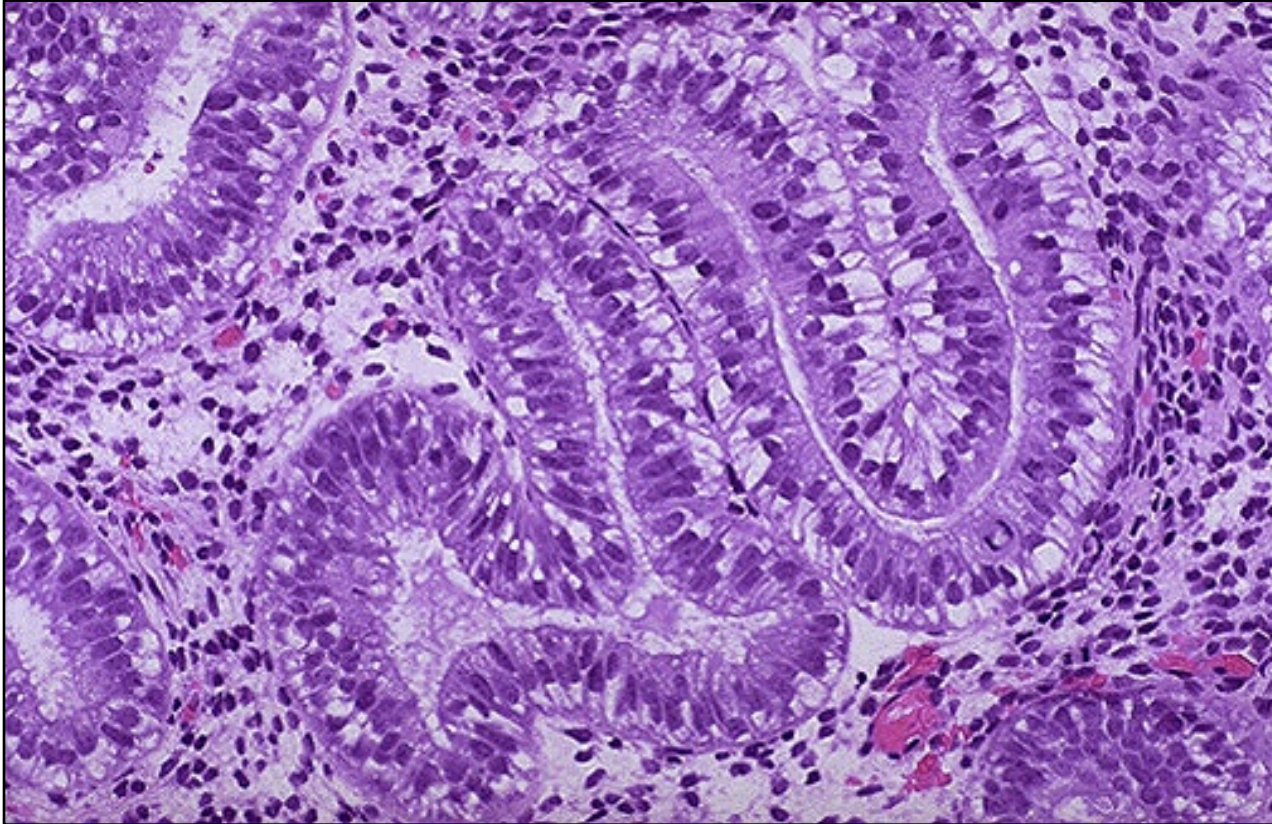
Endometrial Hyperplasia & Carcinoma

Normal Proliferative Endometrium



Normal proliferative endometrium in the menstrual cycle. The proliferative phase is the variable part of the cycle. In this phase, tubular glands with columnar cells and surrounding dense stroma are proliferating to build up the endometrium following shedding with previous menstruation.

Early Secretory Endometrium



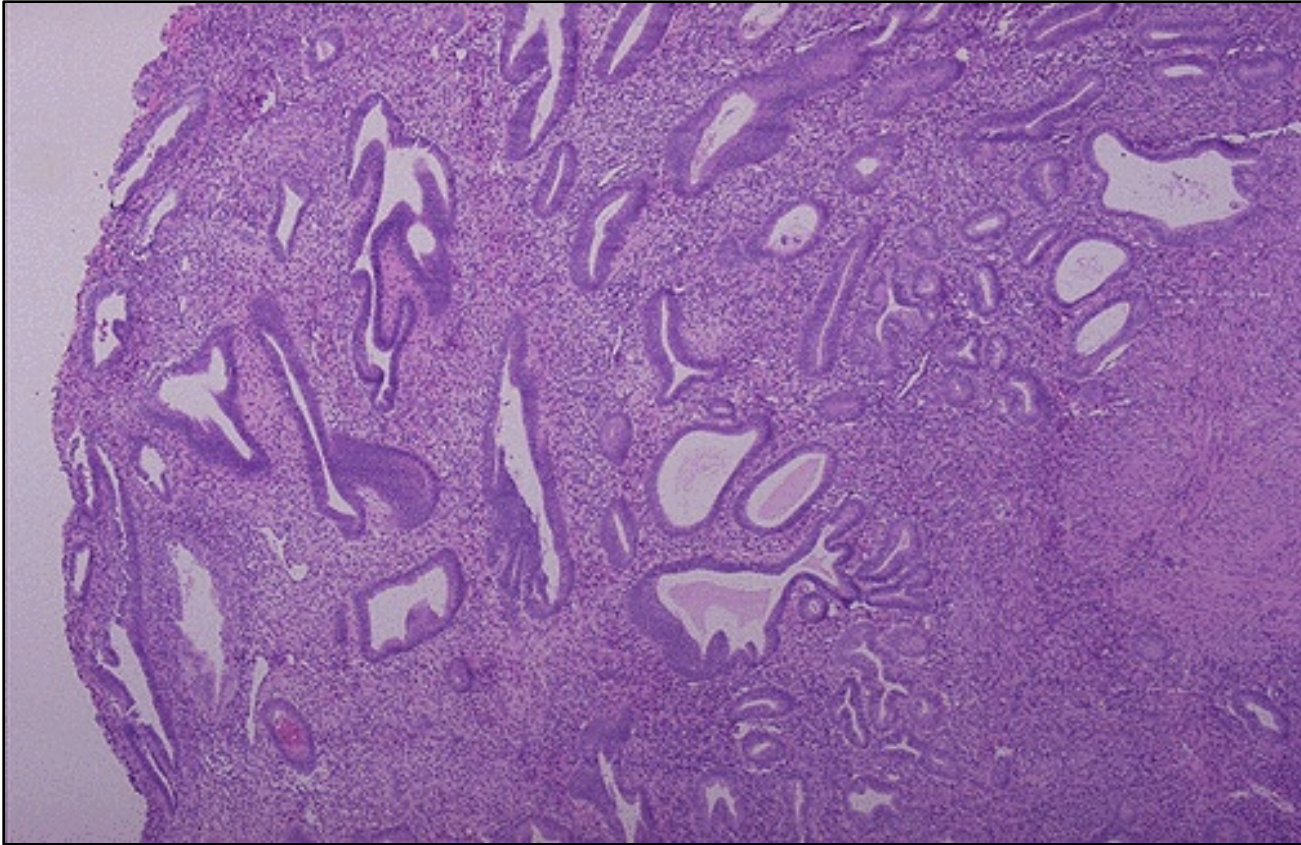
The appearance with prominent subnuclear vacuoles in cells forming the glands is consistent with post-ovulatory day 2 of luteal phase. The histologic changes following ovulation are quite constant over the 14 days to menstruation and can be utilized to date the endometrium.

Endometrial Hyperplasia - Gross



The endometrial cavity is opened to reveal lush fronds of hyperplastic endometrium. Endometrial hyperplasia and carcinoma usually results with conditions of prolonged estrogen excess and can lead to metrorrhagia (uterine bleeding at irregular intervals), menorrhagia (excessive bleeding with menstrual periods), or menometrorrhagia.

Endometrial Hyperplasia - LPF



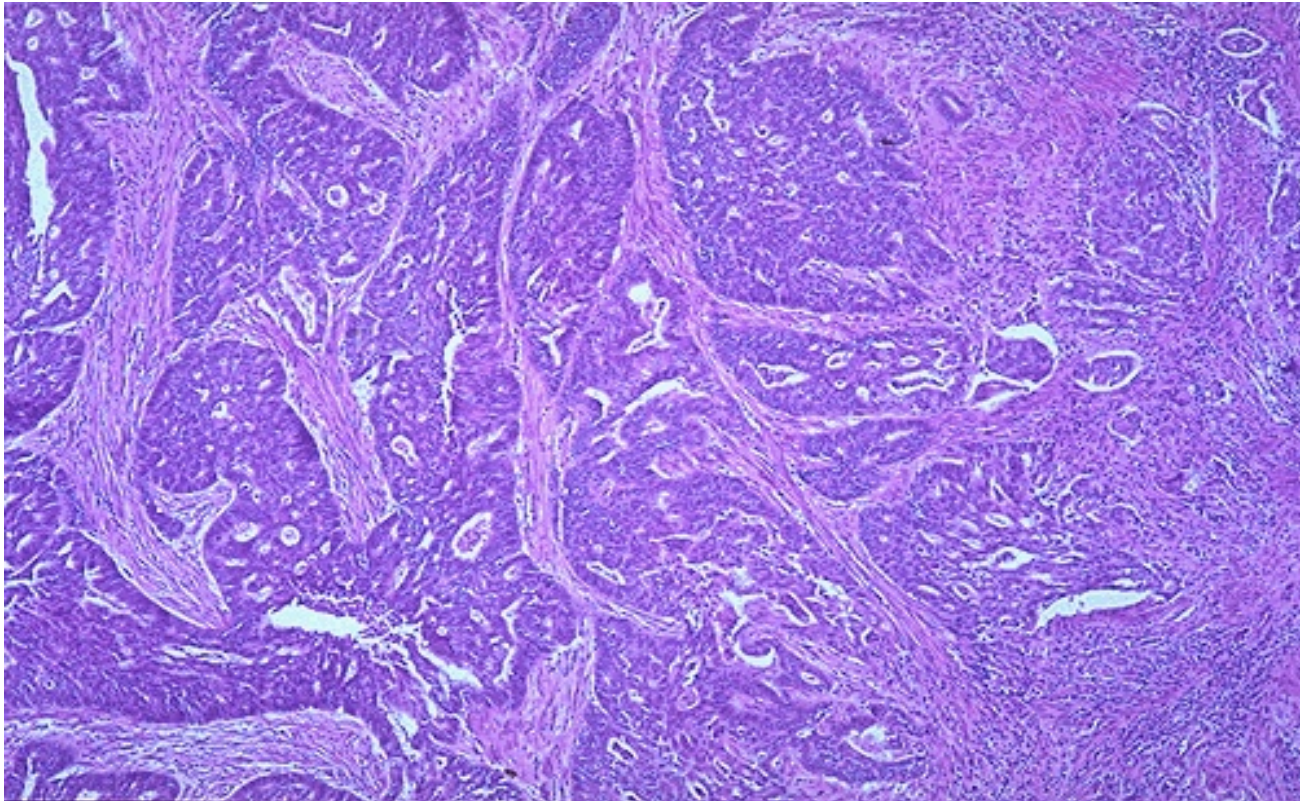
This is endometrial cystic hyperplasia in which the amount of endometrium is abnormally increased and not cycling as it should. The glands are enlarged and irregular with columnar cells that have some atypia. Simple endometrial hyperplasias can cause bleeding.

Endometrial Adenocarcinoma - Gross



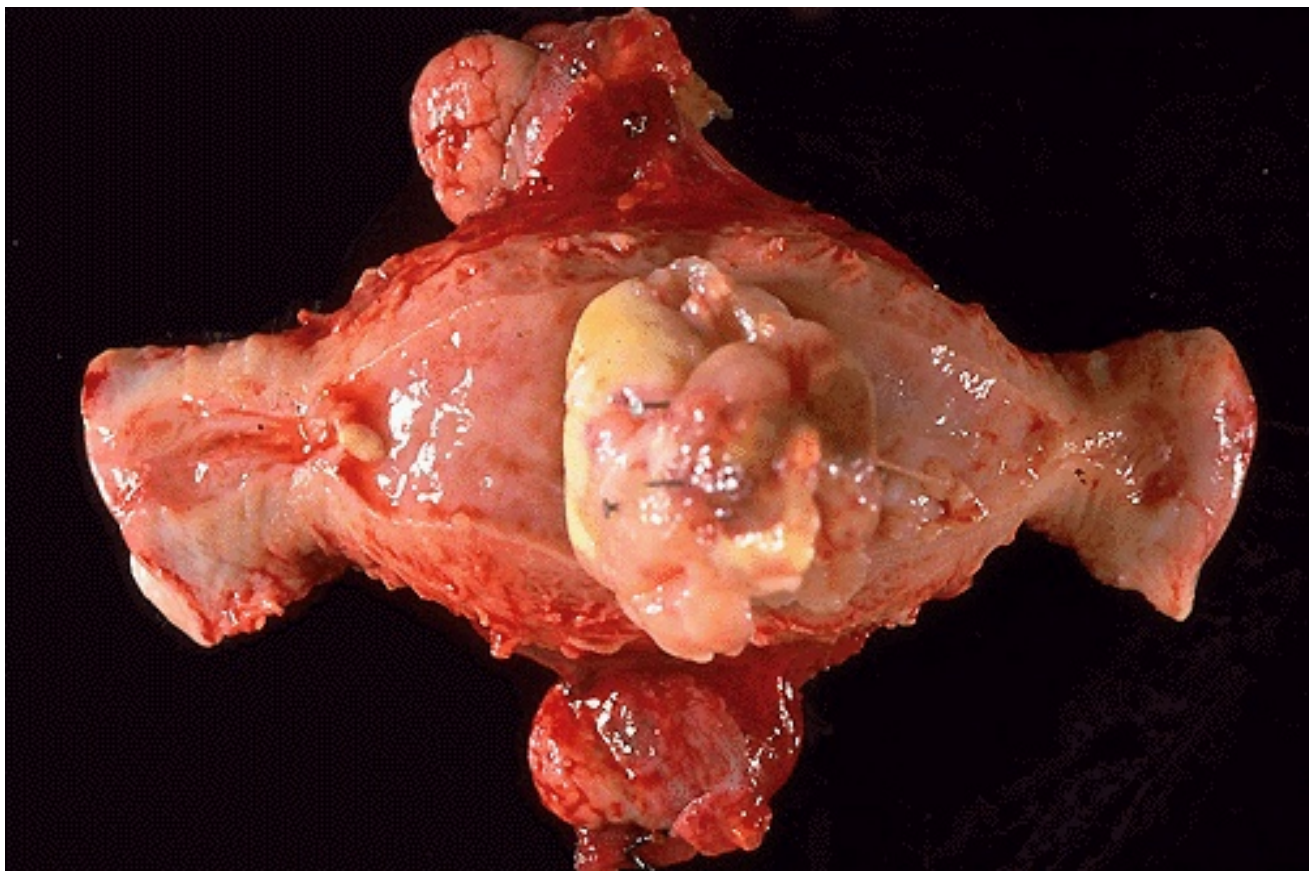
This uterus is not enlarged, but there is an irregular mass in the upper fundus that proved to be endometrial adenocarcinoma on biopsy. Such carcinomas are more likely to occur in postmenopausal women. Thus, any postmenopausal bleeding should make you suspect that this lesion may be present.

Endometrial Adenocarcinoma - LPF



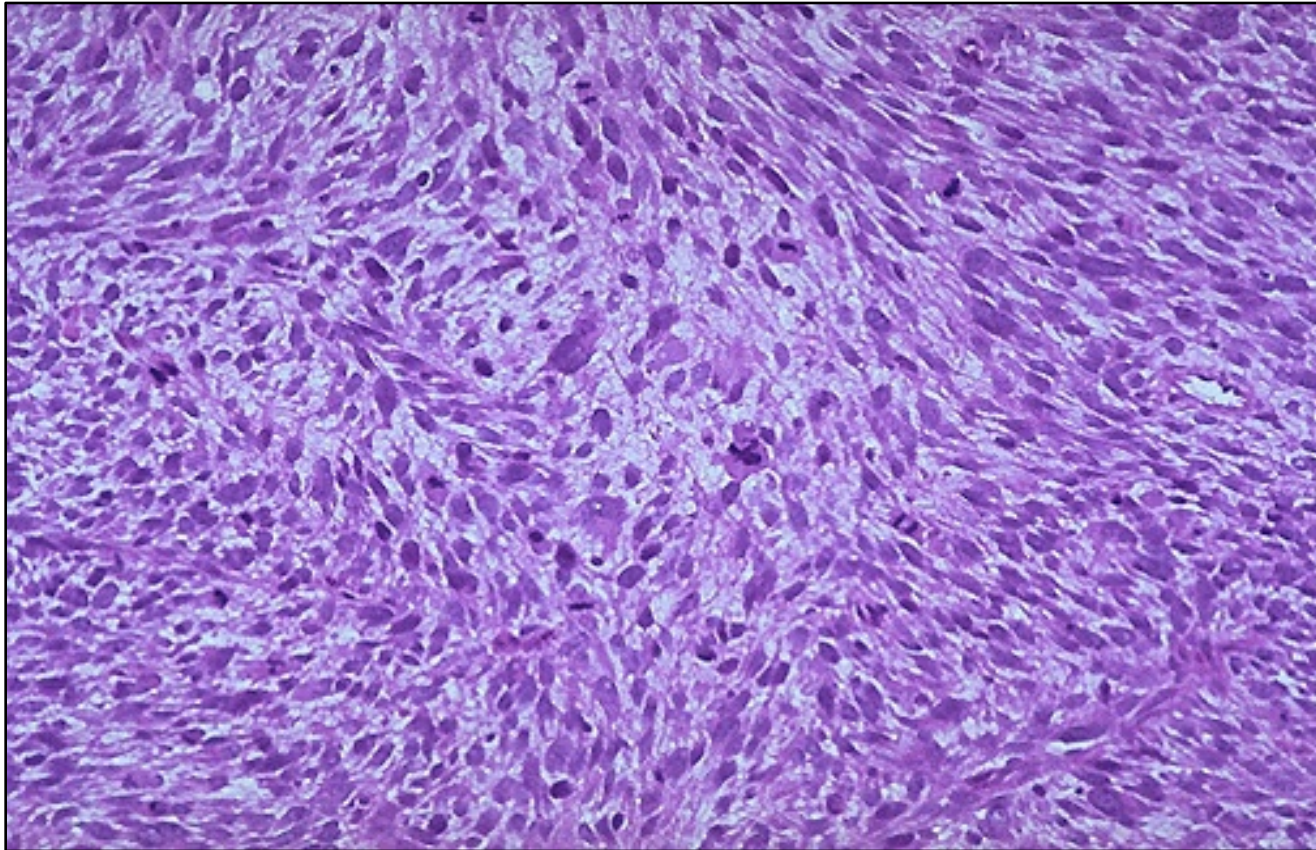
This is an endometrial adenocarcinoma which can be seen invading into the smooth muscle bundles of the myometrial wall of the uterus. This neoplasm has a higher stage than a neoplasm that is just confined to the endometrium

Endometrial Leiomyosarcoma - Gross



- *Large pale irregular mass.*
- *Protruding from myometrium.*

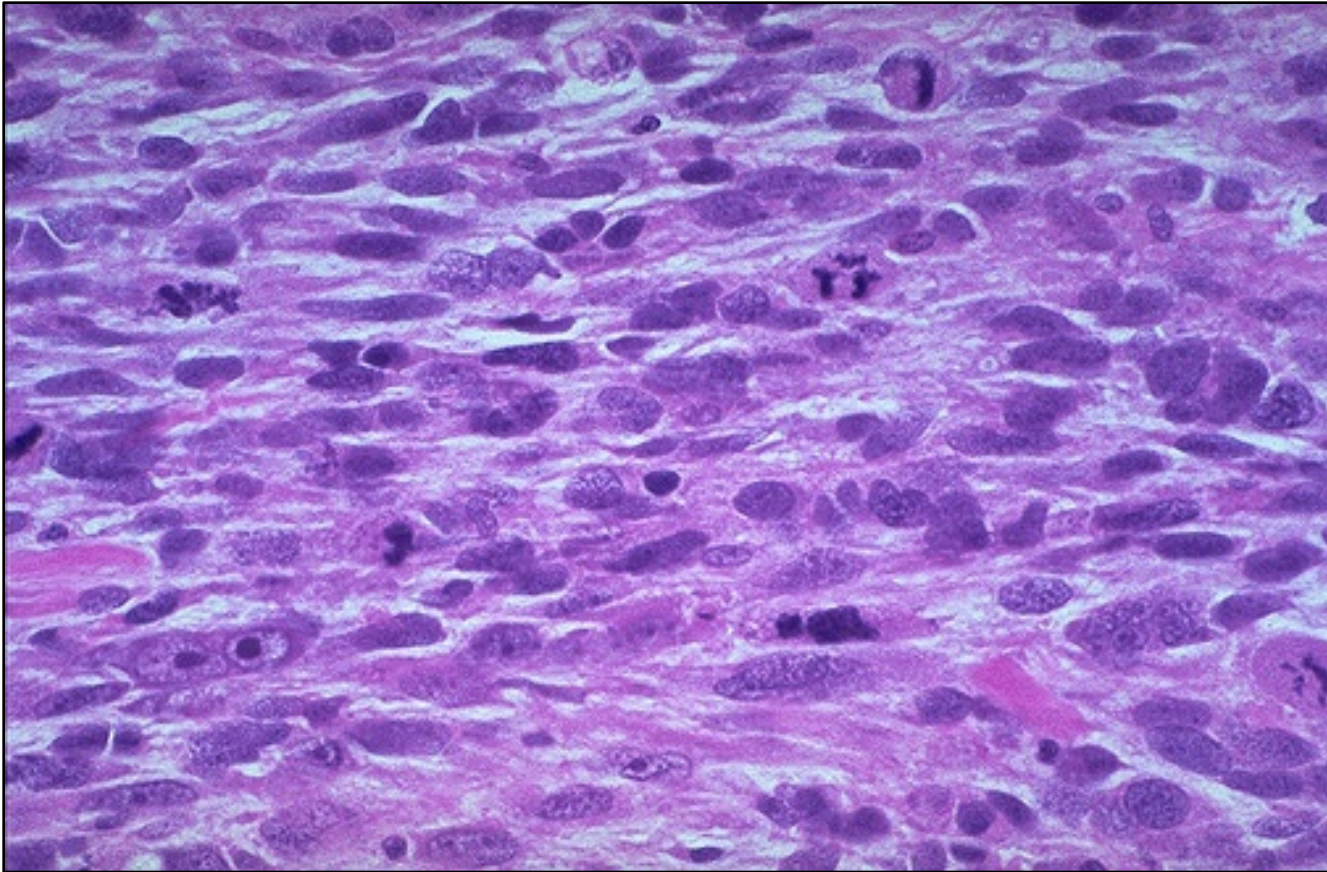
Endometrial Leiomyosarcoma - LPF



Here is the microscopic appearance of a leiomyosarcoma. It is much more cellular and the cells have much more pleomorphism and hyperchromatism than the benign leiomyoma.

An irregular mitosis is seen in the center

Endometrial Leiomyosarcoma - HPF

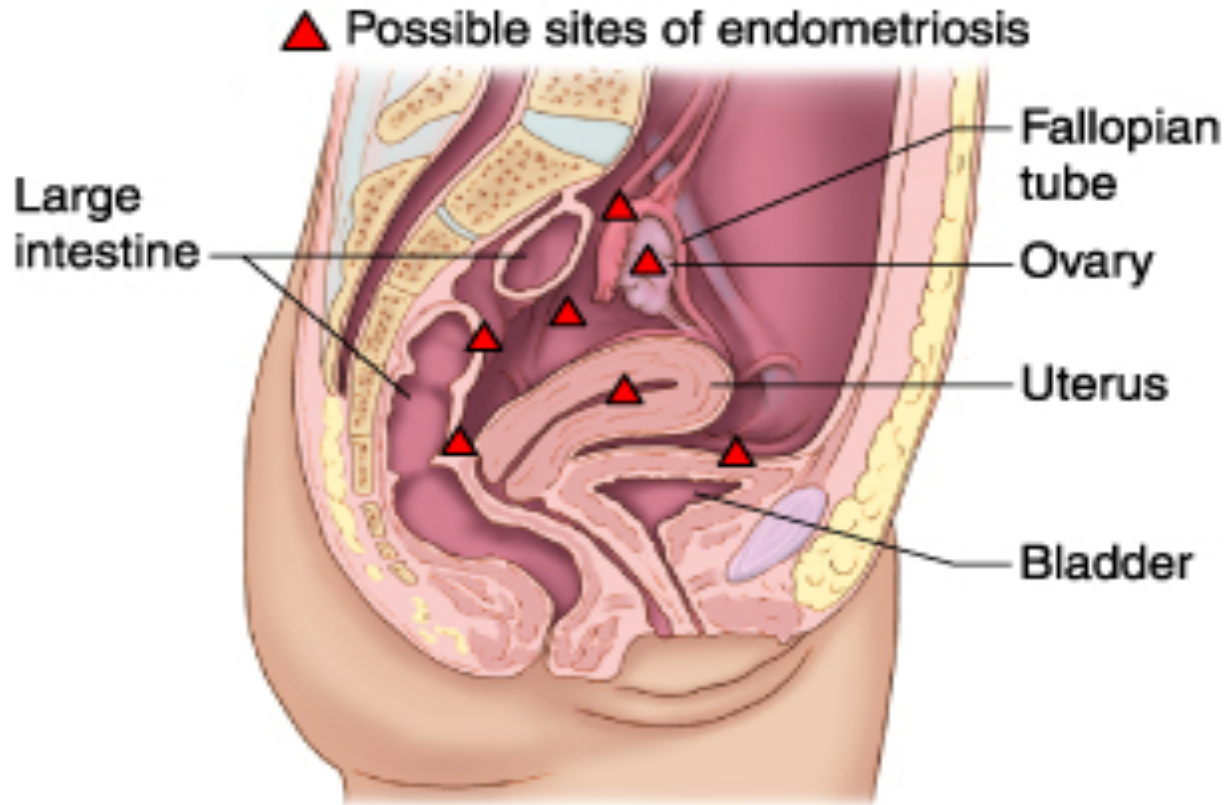


- *Nuclear and cellular pleomorphism.*
- *Mitoses.*
- *Spindle cells*



ENDOMETRIOSIS

Endometriosis sites - Diagram



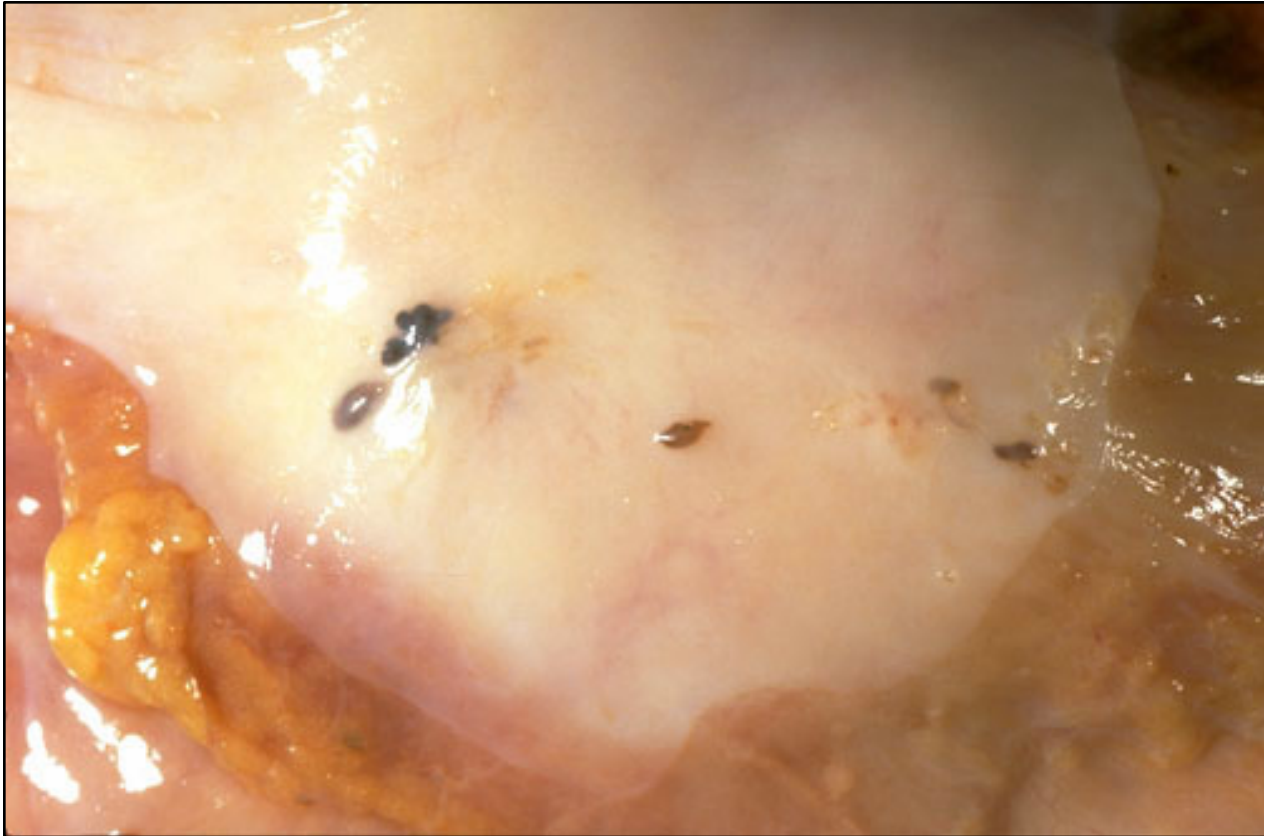
Endometriosis, a chronic noncancerous disorder of the female reproductive system, develops when the endometrium grows outside the uterus. Common sites for endometriosis include ovaries, fallopian tubes, external genitalia (vulva), ligaments supporting the uterus, intestine, bladder, cervix, and vagina.

Endometriosis - Gross



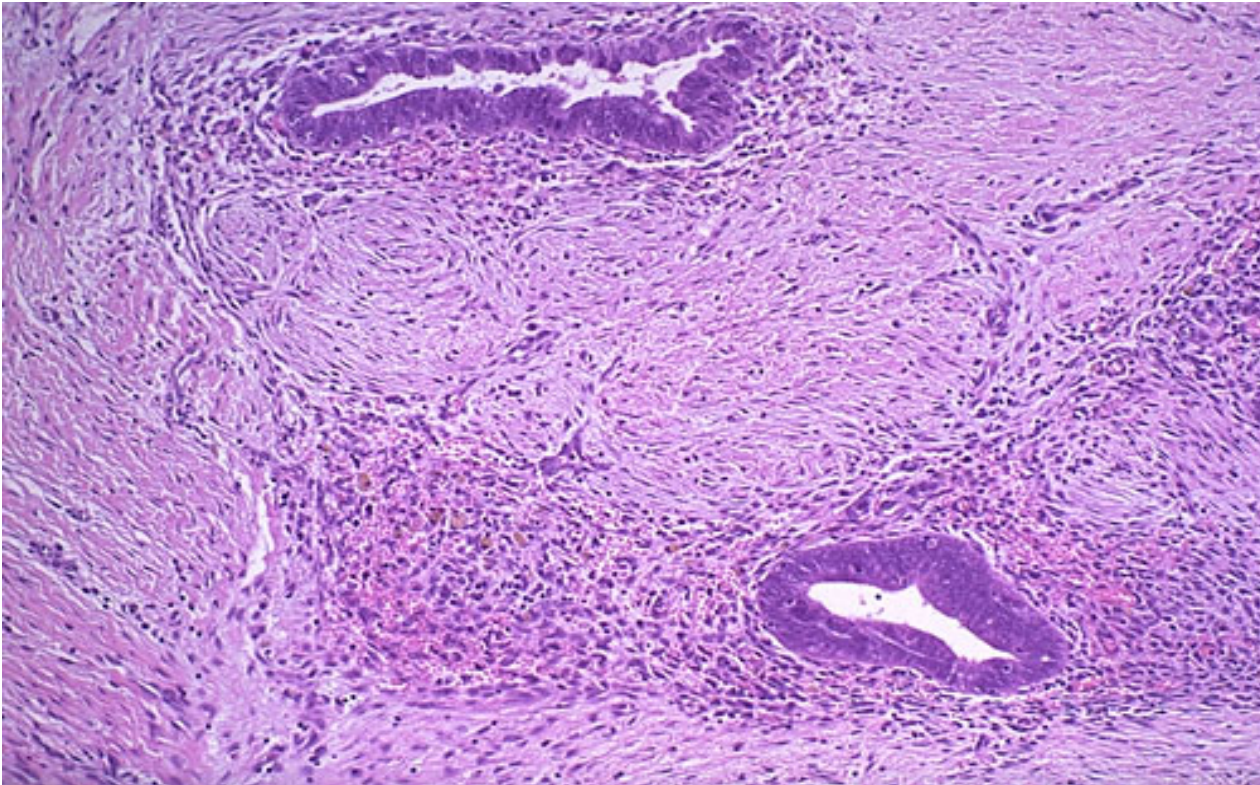
Grossly, in areas of endometriosis the blood is darker and gives the small foci of endometriosis the gross appearance of "powder burns". Small foci are seen here just under the serosa of the posterior uterus in the pouch of Douglas.

Endometriosis - Gross



Upon closer view, these five small areas of endometriosis have a reddish-brown to bluish appearance. Typical locations for endometriosis may include: ovaries, uterine ligaments, rectovaginal septum, pelvic peritoneum, and laparotomy scars

Endometriosis - HPF Microscopy



Endometrial *glands* along with *stroma* are seen at high magnification in the smooth muscle wall of the colon. Endometriosis is symptomatic during reproductive years when patients may present with dysmenorrhea, pelvic pain, and infertility

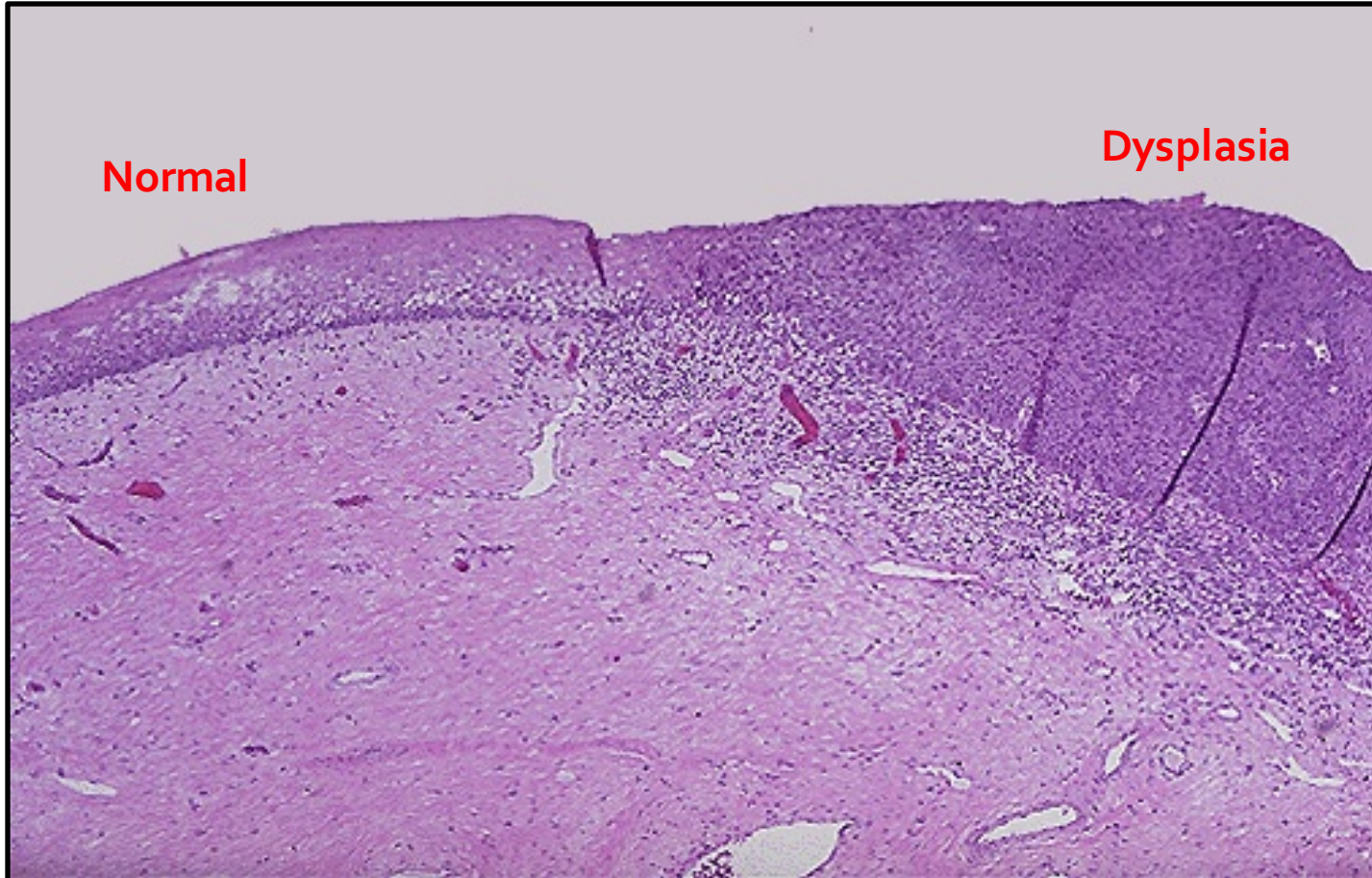


UTERINE CERVIX



Cervical Dysplasia & Cervical Carcinoma

Normal and Dysplastic Cervical Squamous Epithelium

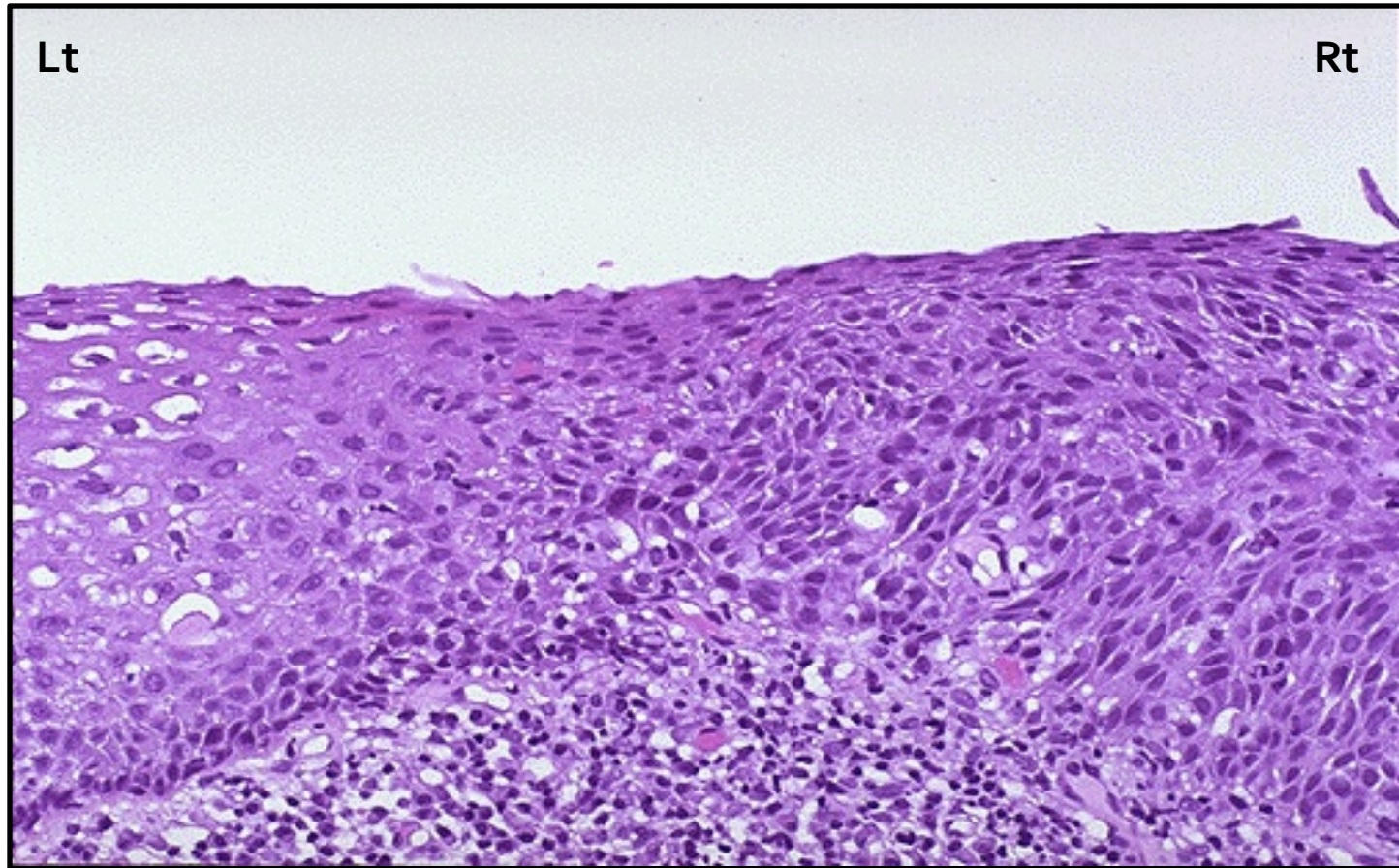


Diagnosis:

- Uterine cervical squamous dysplasia.
- CIN (cervical intraepithelial neoplasia).

The normal cervical squamous epithelium at the left transforms to dysplastic changes on the right with underlying chronic inflammation

Endocervical Squamous Dysplasia



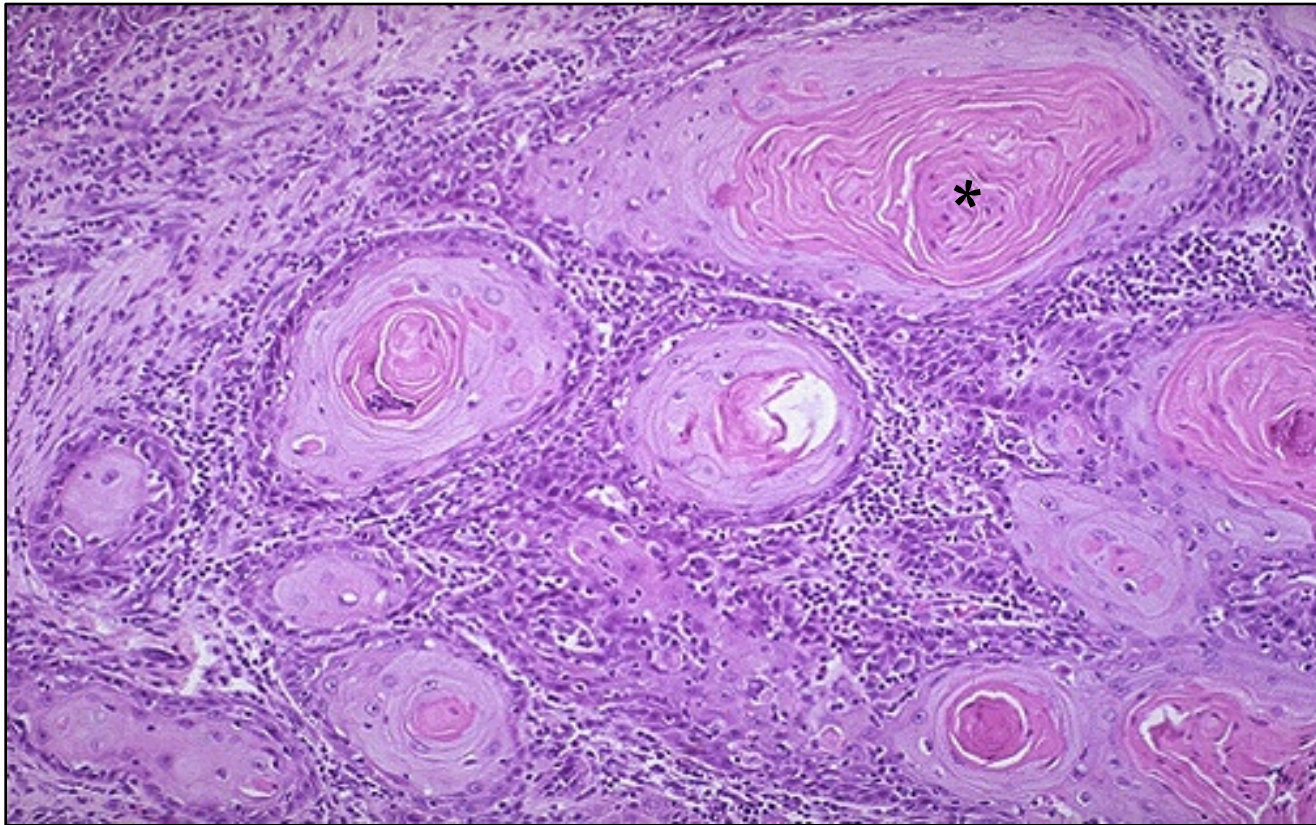
- *Dysplastic cells/nuclei.*
- *Large and dark nuclei.*
- *Disordered cells, loss of polarity.*
- *Chronic inflammatory cells.*

Cervical Squamous Cell Carcinoma




*This is the gross appearance of a cervical squamous cell carcinoma that is still limited to the cervix (stage I).
The tumor is a fungating red to tan to yellow mass.*


Cervical Squamous Cell Carcinoma - HPF



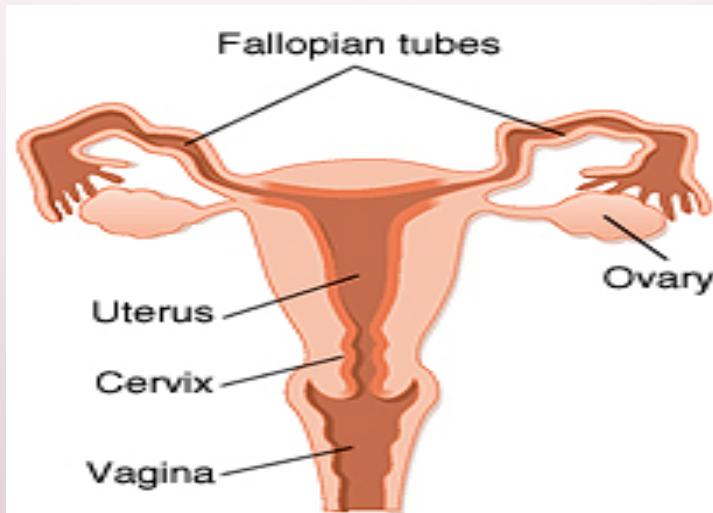
At high magnification, nests of neoplastic squamous cells are invaded through a chronically inflamed stroma. This cancer is well-differentiated, as evidenced by keratin pearls (*) within nests of tumor cells. However, most cervical squamous carcinomas are non-keratinizing.



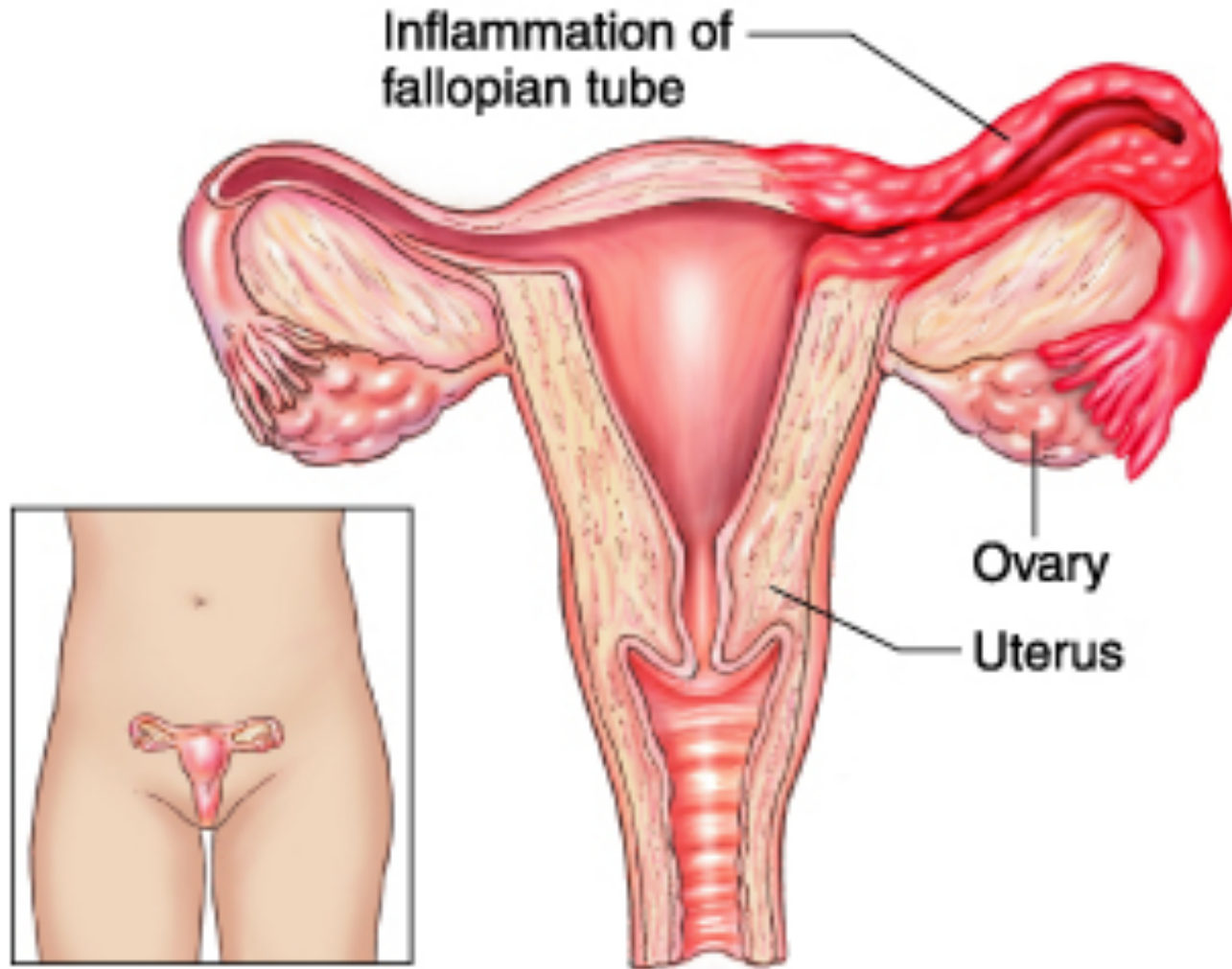
Important risk factors for the development of CIN and invasive carcinoma thus are directly related to Human Papilloma Virus (HPV) exposure and include:

- Early age at first intercourse.***
 - Multiple sexual partners.***
 - Male partner with multiple previous sexual partners.***
 - Persistent infection by high-risk strains of papillomavirus.***
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FALLOPIAN TUBES



Normal vs Inflamed Fallopian Tube

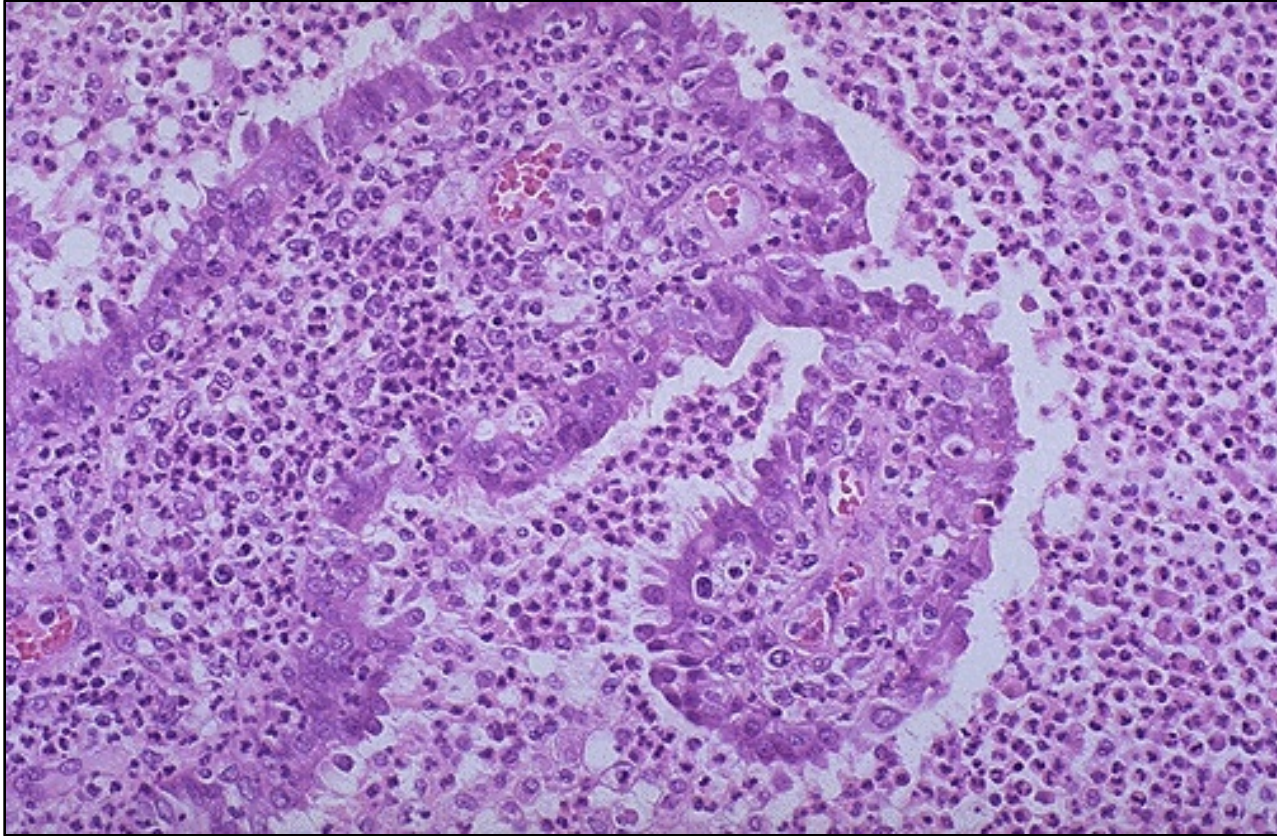


Acute Salpingitis - Gross



Acute salpingitis: Excised congested swollen fallopian tube with hemorrhagic patches

Acute Salpingitis - Microscopic

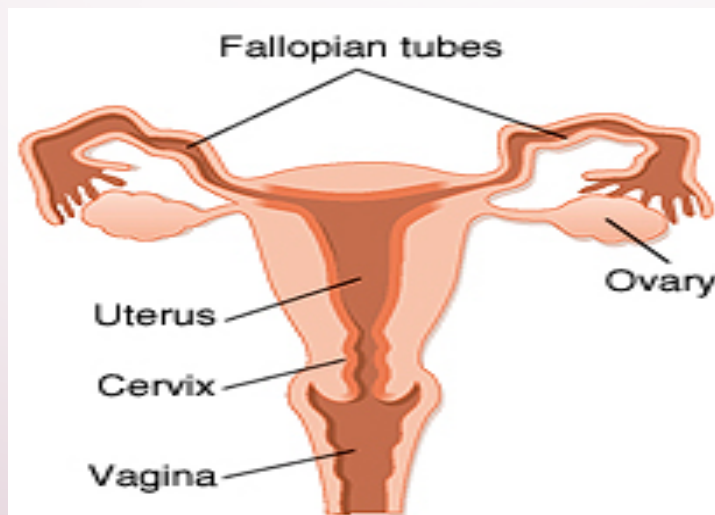


A remnant of tubal epithelium is seen here surrounded and infiltrated by numerous neutrophils. This is acute salpingitis. Neisseria gonorrhoeae was cultured.

3RD PRACTICAL SESSION

Ovarian Cysts and Breast Masses

OVARIES





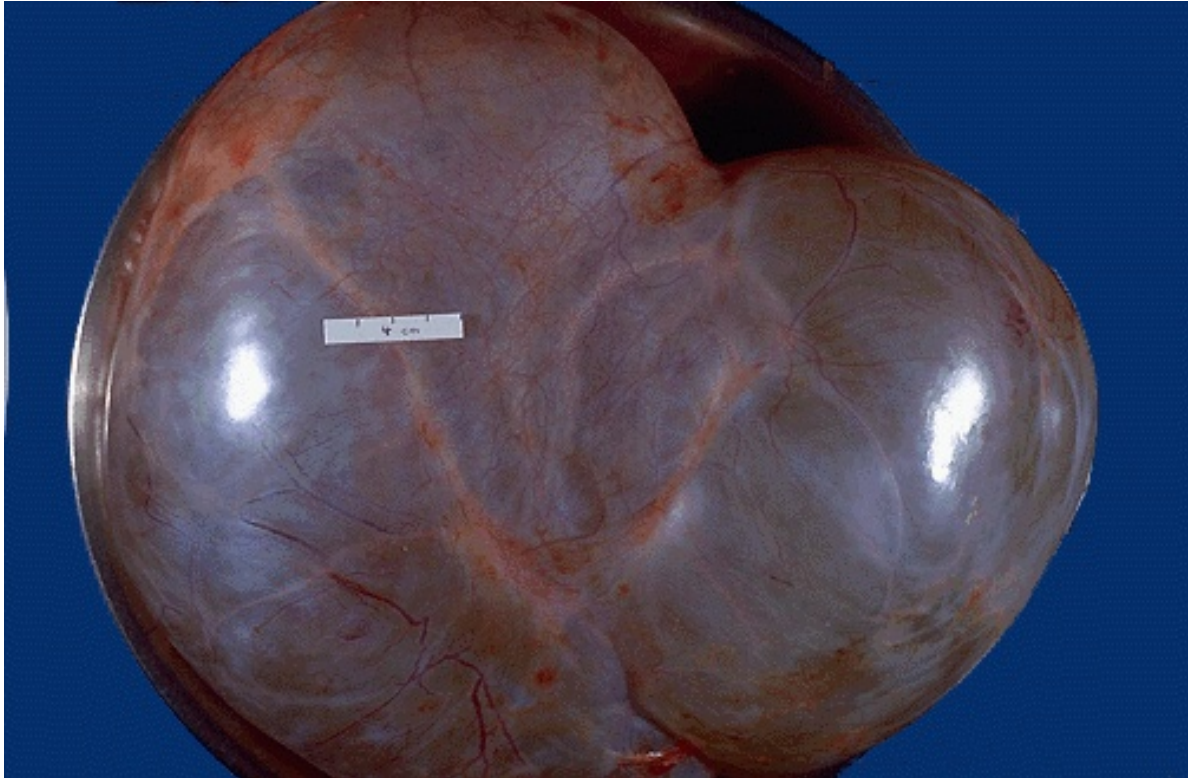
OVARIAN CYST

Benign Ovarian Cyst - Gross



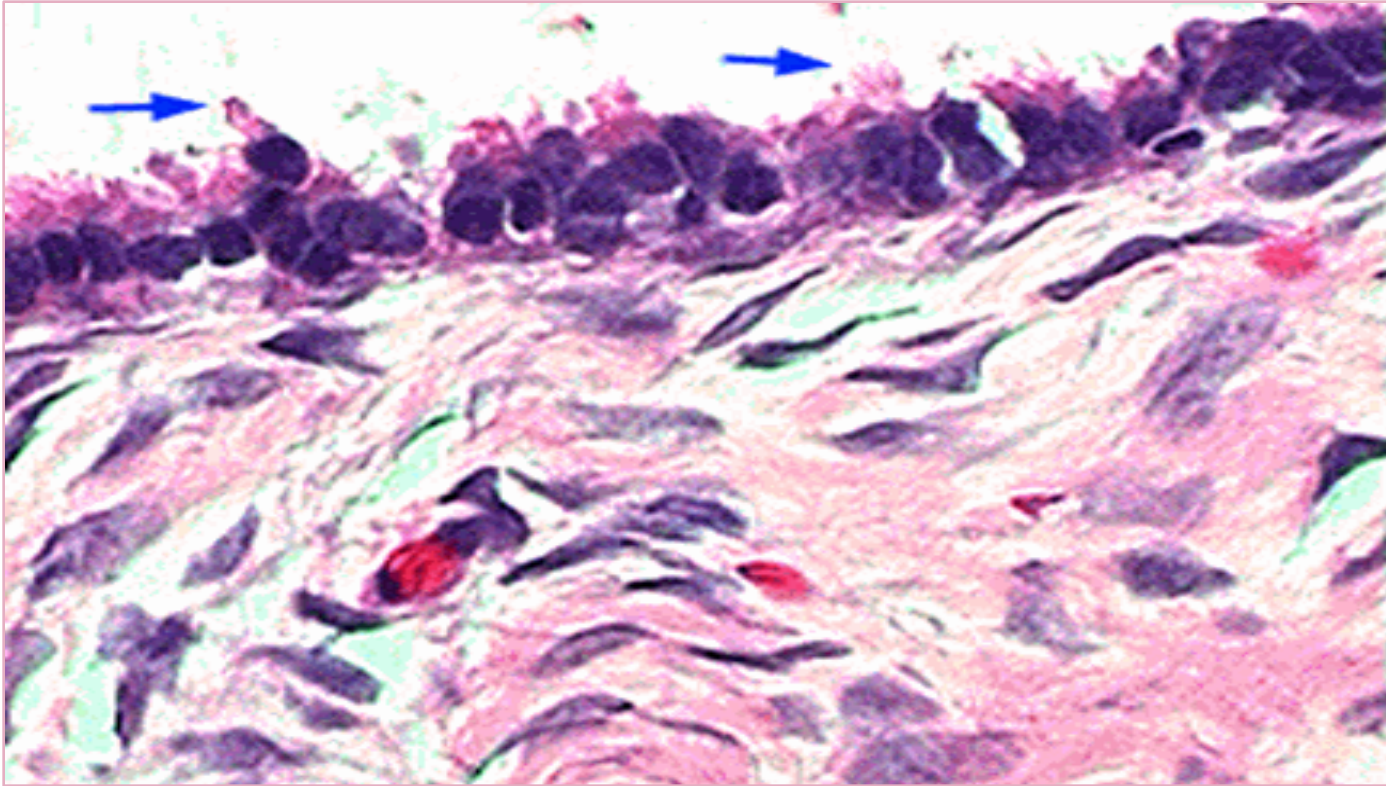
Here is a benign cyst in an ovary. This is probably a follicular cyst. Occasionally such cysts may reach several centimeters in size and, if they rupture, can cause abdominal pain.

Serous Cystadenoma of the Ovary



Benign epithelial tumors of the ovary can reach massive proportions. The serous cystadenoma seen here fills a surgical pan and dwarfs the 4 cm ruler.

Serous Cystadenoma of the Ovary - HPF



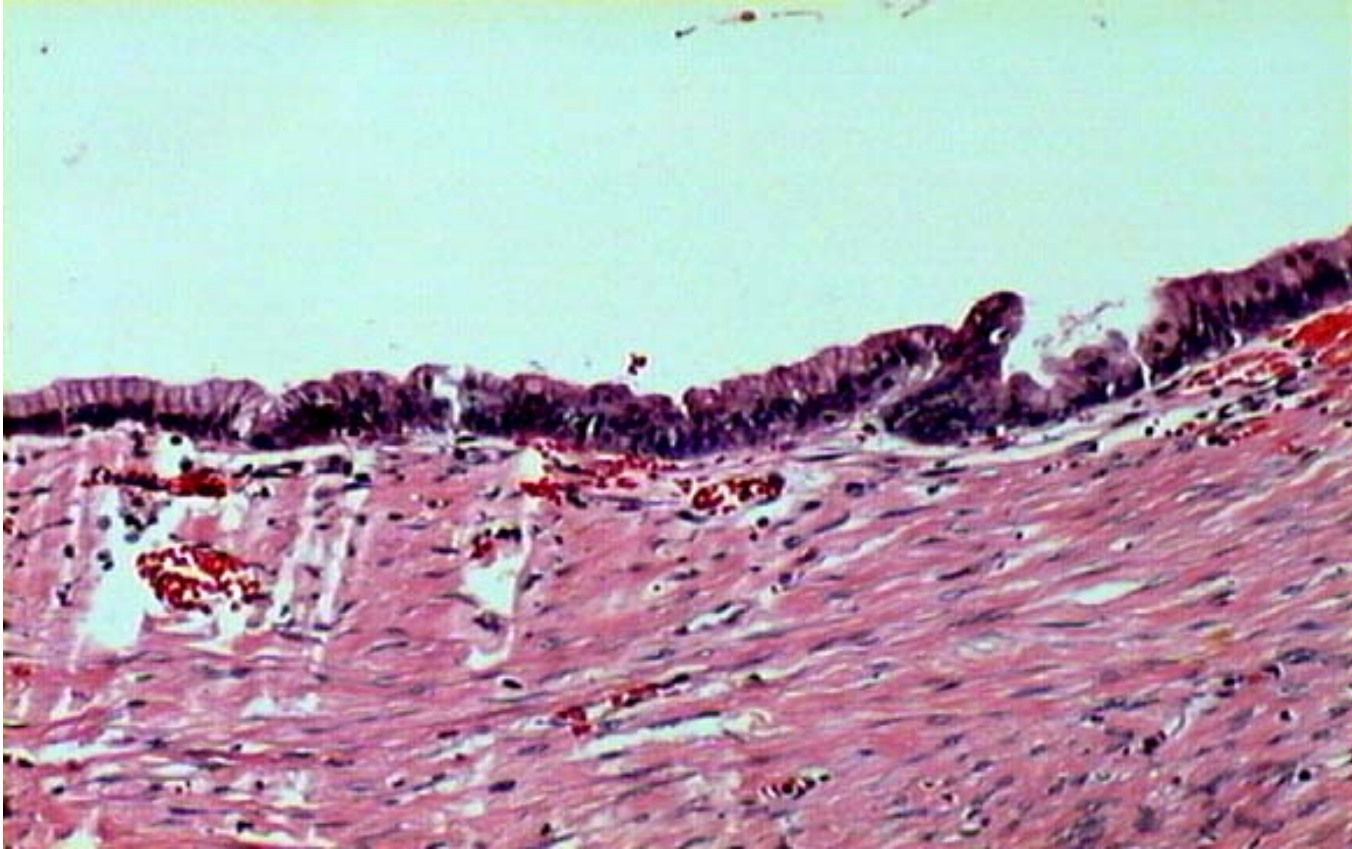
- *The blue arrows point to cilia.*
- *The cells have dark nuclei without nucleoli or mitoses.*
- *The cytoplasm is eosinophilic and ciliated like tubal epithelium.*
- *The stroma contains spindle fibroblasts*

Mucinous Cystadenoma of the Ovary - LPF



Microscopy shows the thin wall lined by a single layer of mucin-secreting columnar cells with a basally-placed spherical small nucleus

Mucinous Cystadenoma of the Ovary - HPF



High power shows the thin wall lined by a single layer of mucin-secreting columnar cells with a basally-placed spherical small nucleus



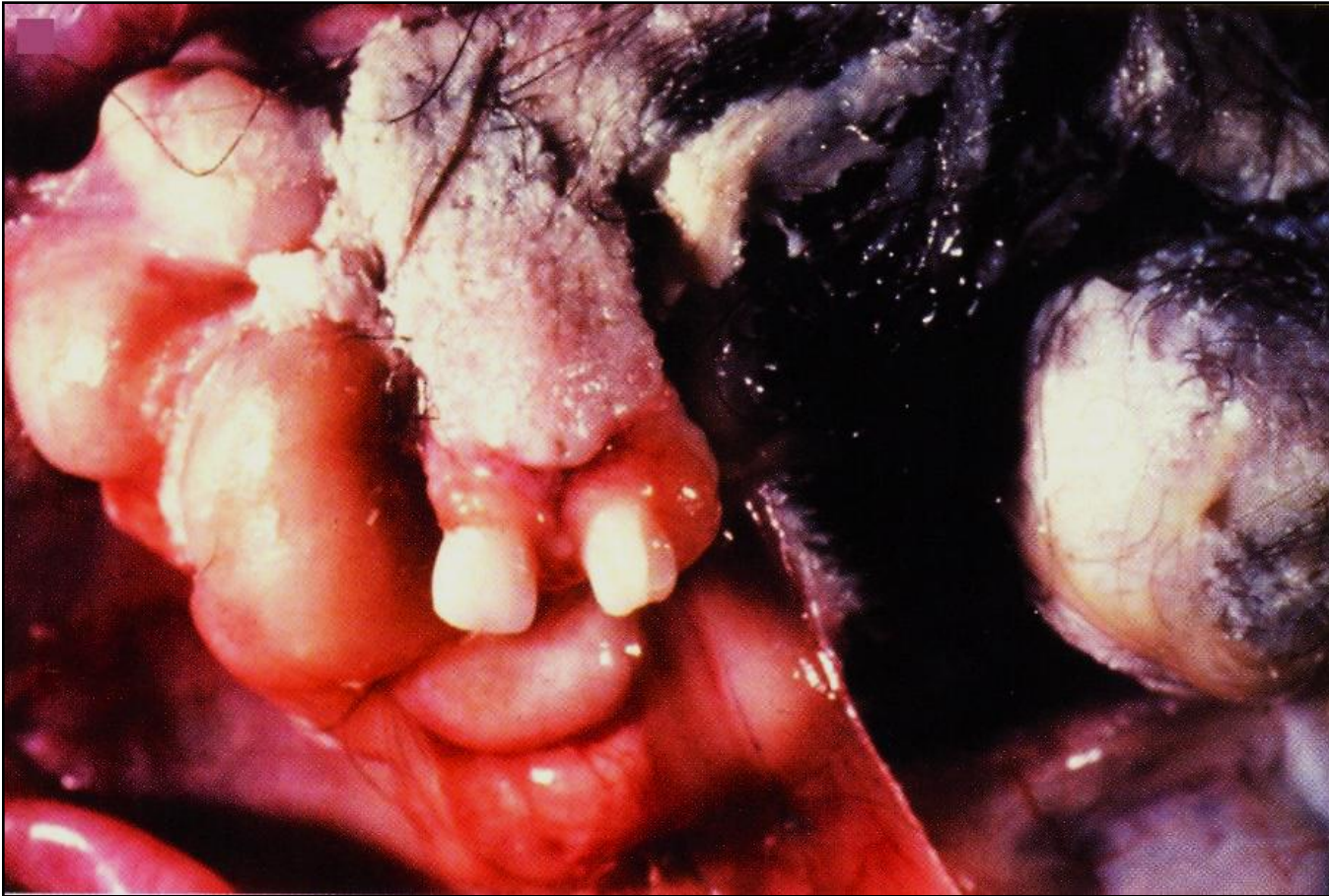
***Dermoid Cyst
(Teratoma)
of the Ovary***

Ovary: Mature Cystic Teratoma



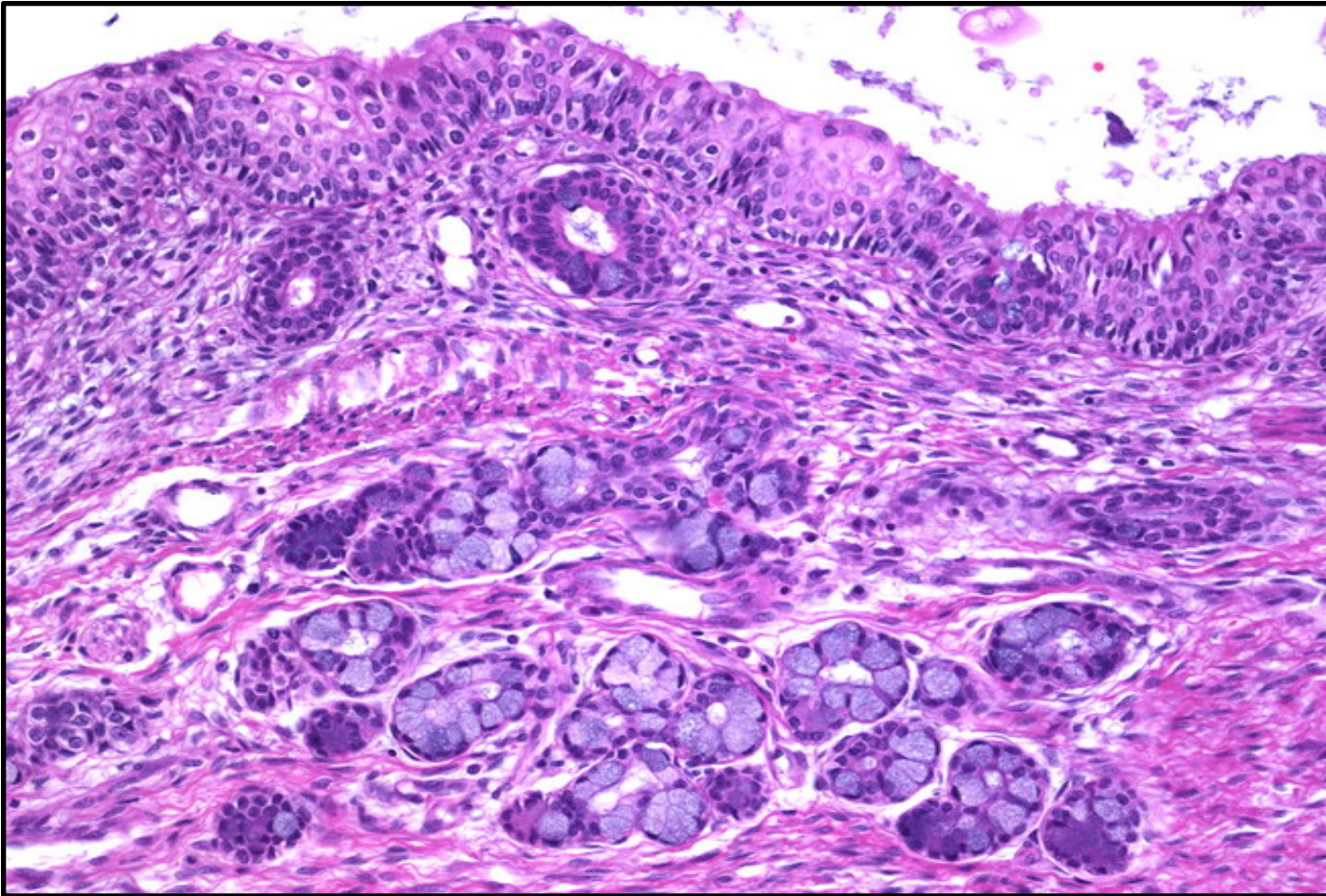
This 4.0 cm dermoid cyst is filled with greasy material (keratin and sebaceous secretions) and shows tufts of hair. The rounded solid area at the bottom is called Rokitansky's protruberance. Microscopically, it also showed foci of neural tissue (Immature Cystic teratoma).

Ovary: Mature Cystic Teratoma



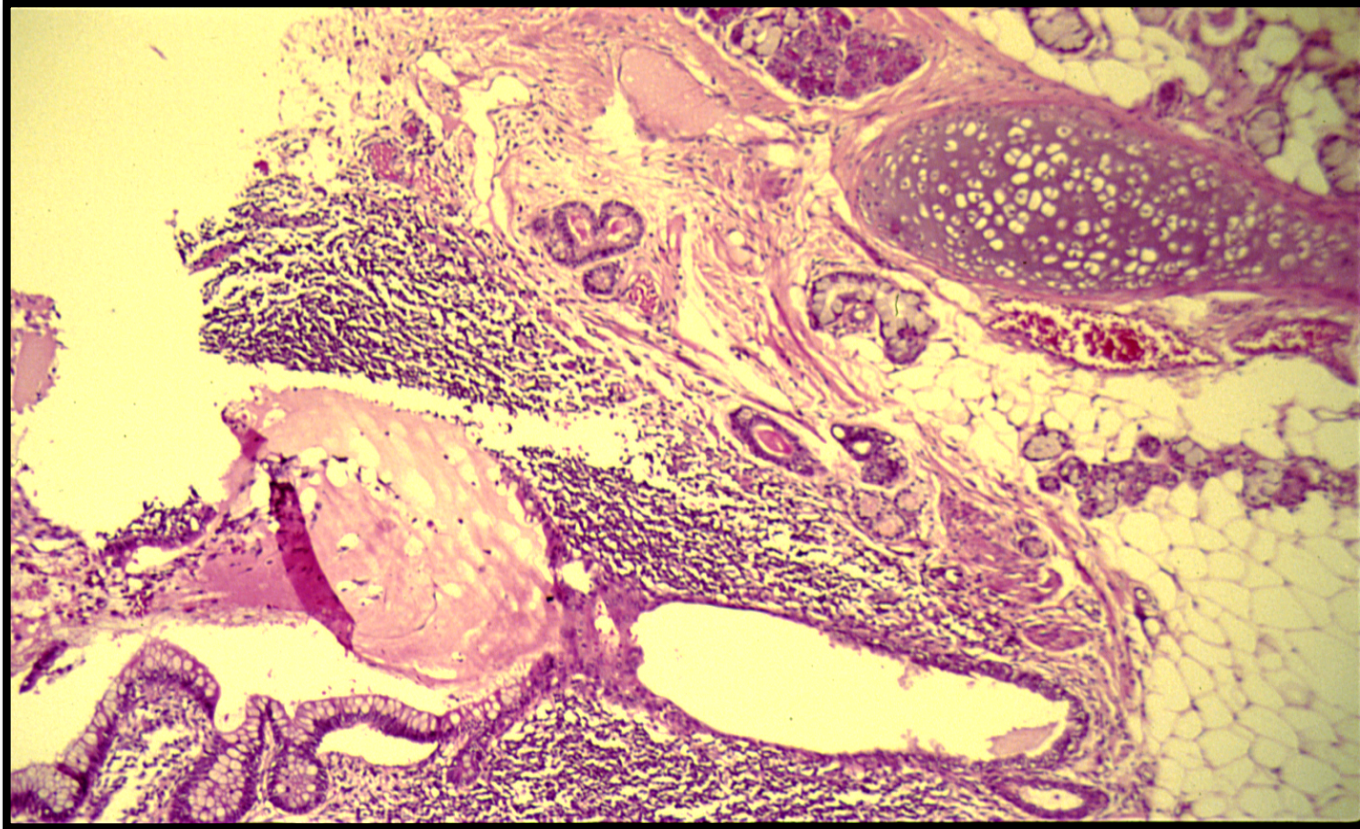
- *Skin.*
- *Nail.*
- *Hairs.*
- *Teeth.*

Ovary: Mature Cystic Teratoma



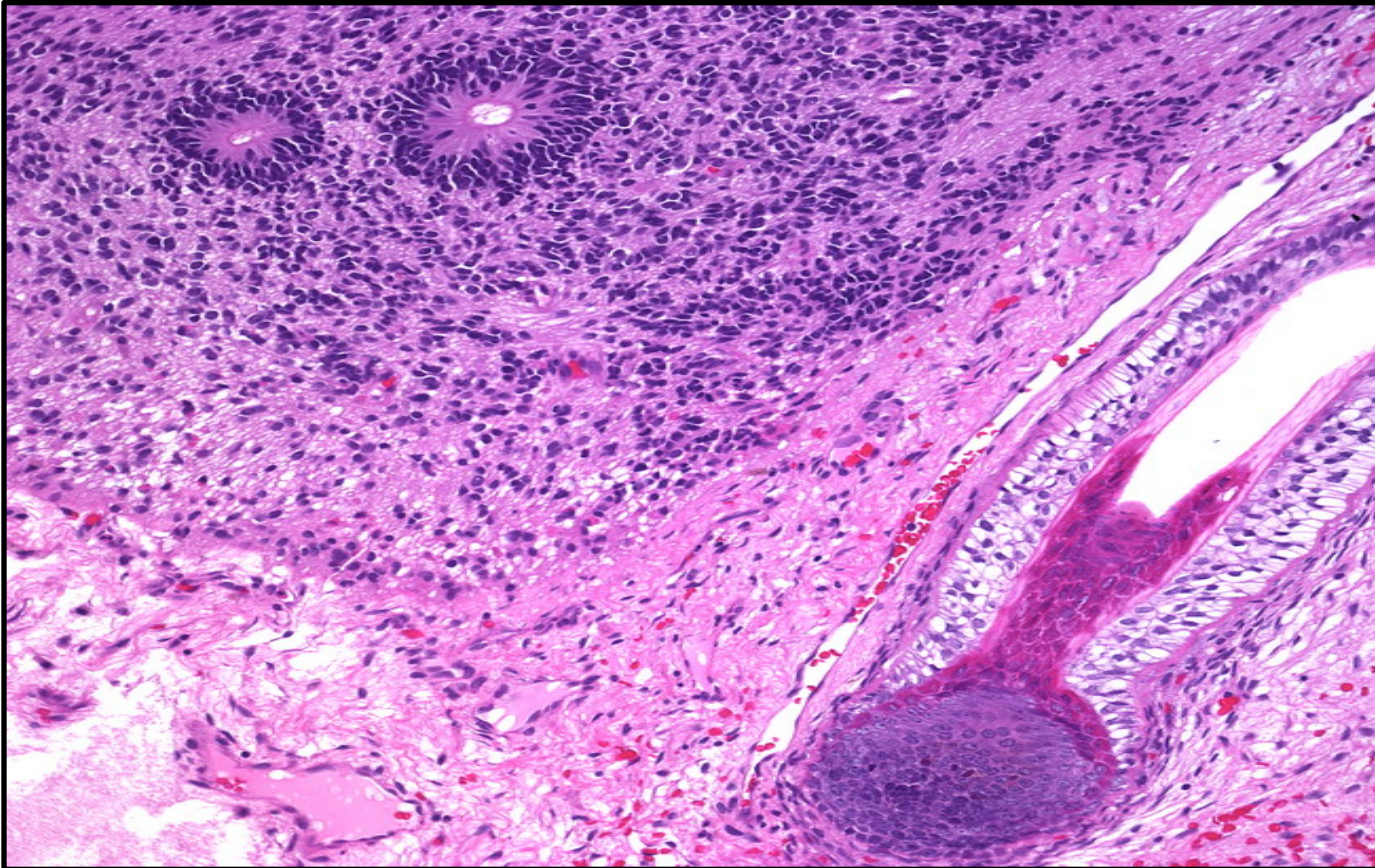
This image shows skin and mucinous glands in a mature solid teratoma of the ovary

Ovary: Mature Cystic Teratoma



- *Cartilage*
- *Fatty tissue.*
- *Columnar epithelium.*
- *Mucous and serous gland.*

Ovary: Immature Cystic Teratoma



Ovarian teratoma showing neuroepithelial tubules and rosettes (immature component) adjacent to a hair follicle (mature component). They consist of epidermis, hair follicles, sweat and sebaceous glands and neuroectodermal derivatives