Uterine Pathology

MED 443
King Saud University

Pathology Teamwork MED 443

Reviewed by
Mohammed AlEssa
Abdulaziz AlFuhayd
Lama AlMutairi

TEAM 443
REPRODUCTIVE BLOCK

Objectives

Lesions of endometrium of uterus: know the risk factors, clinical presentation, macroscopic and histological features of

- Endometrial hyperplasia
- Endometrial carcinoma

Lesions of myometrium of uterus:

- Leiomyoma : understand the pathology and clinical features of uterine leiomyomas and is aware that leiomyoma (fibroid) is the commonest neoplasm arising in the female genital tract.
- Leiomyosarcoma

THIS LECTURE WAS PRESENTED BY DR.AMANY FATHADDIN & DR.HAMAD AL JAEDI

IF YOU WANT TO READ THE LECTURE FROM ROBBINS

IF YOU WANT TO READ THE LECTURE FROM FIRST AID

IF YOU WANT TO READ OSMOSIS SUMMARY

IF YOU WANT TO WATCH OSMOSIS VIDEO

Editing File

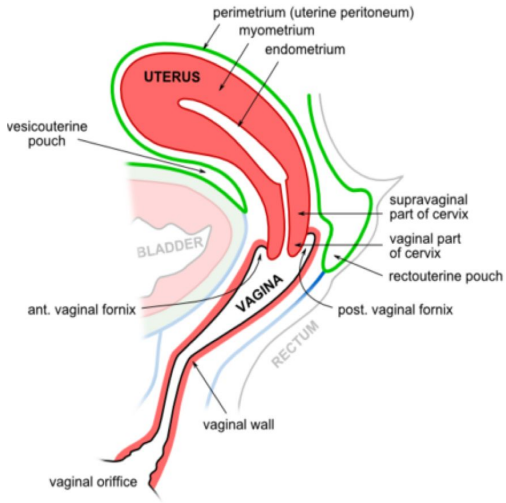
Color index :
Main text (black)
Female Slides (Pink)
Male Slides (Blue)
Important (Red)
Dr's note (Green)
Extra Info (Grey)

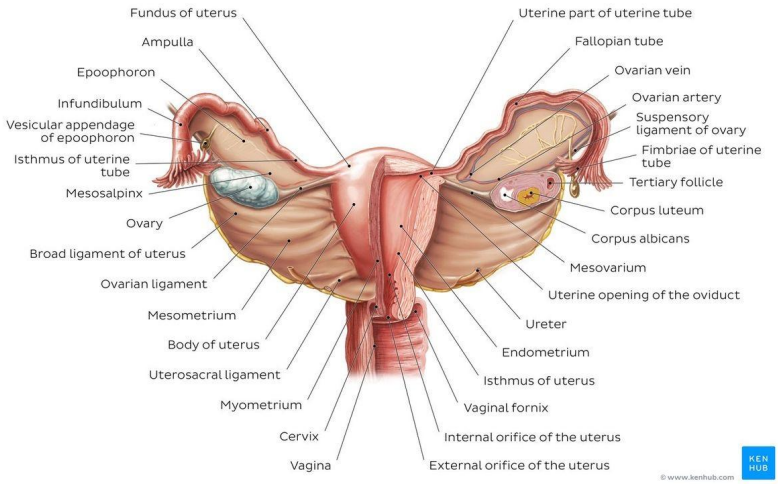
Introduction

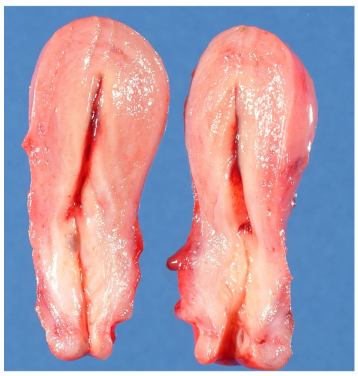
Uterine Corpus Pathology

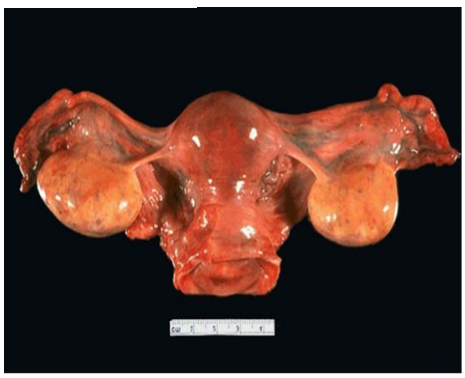
- **Endometrial hyperplasia**
- **Endometrial Carcinoma**
- **Leiomyoma**
- **Leiomyosarcoma**

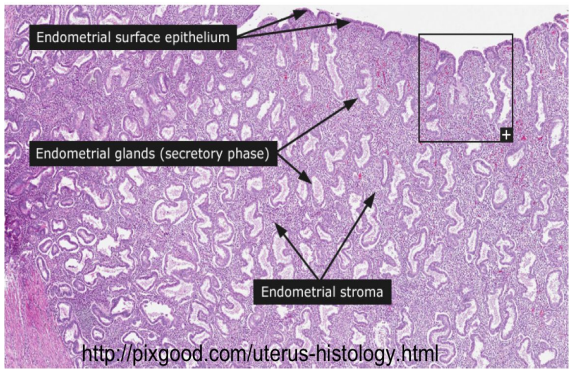
Uterus with bilateral tube and ovaries, posterior view







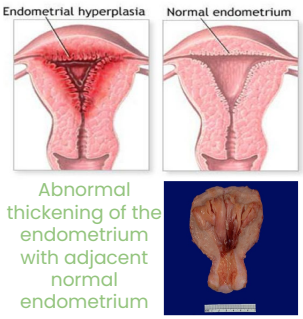




Clinical Note

Abnormal uterine bleeding (most common presenting symptom):
Postmenopausal bleeding
Abnormal menstrual cycles in premenopausal individuals
Vaginal discharge (clear or white) in postmenopausal women
Abdominal or pelvic pain/pressure
Dyspareunia (pain during intercourse)
Urinary symptoms:Dysuria & Difficulty urinating

Endometrial Hyperplasia

Introduction	◎ Is a process in which there's abnormal Proliferation of endometrial glands resulting in increased gland:stroma ratio of the endometrium when compared to normal. ◎ It is Induced by persistent, prolonged stimulation of the endometrium by high levels of estrogen. ◎ The endometrial hyperplasia may progress to endometrial carcinoma. so it's important to recognize them before they progress to carcinoma. ◎ The Risk of developing to carcinoma depends on: - Level & duration of estrogen excess. - The Severity of endometrial hyperplasia. - Associated cellular atypia.  Abnormal thickening of the endometrium with adjacent normal endometrium
Causes	Persistent, prolonged stimulation of the endometrium by high levels of estrogen Any condition in which there is high estrogen can lead to endometrial hyperplasia e.g. A. Anovulatory menstrual cycles(failure of ovulation) such as in perimenopause >level of estrogen is high due to low-level progesterone in the body. B. Excessive endogenous production of estrogen (by the body) e.g.in ★ polycystic ovary syndrome (Stein-Leventhal syndrome), ★ granulosa cell tumors of the ovary ★ cortical stromal hyperplasia (excessive ovarian cortical function) C. Exogenous administration or intake of estrogenic steroids without counter balancing progestins, over a long period of time.
Risk factors males Slides	◎ Hyperestrinism. main cause ◎ Obesity ◎ Western diet. ◎ Hypertension ◎ Diabetes mellitus. ◎ Nulliparity (never given birth before)
Clinical features	◎ Mild type of hyperplasia tends to occur in younger patients. - Most of the mild hyperplasia cases regress, either spontaneously or after treatment. ◎ The more severe type of hyperplasia occur mainly in perimenopausal or postmenopausal women. This form has a significant premalignant potential. ◎ Patients with endometrial hyperplasia usually present with abnormal uterine bleeding. (such as menorrhagia, excessive bleeding, irregular periods,postmenopausal bleeding)

Endometrial Hyperplasia

Classification (old classification)

In endometrial hyperplasia there is proliferation of both glands and stroma but the proliferation of the glands is much more leading to overcrowding of glands. Endometrial hyperplasia is classified based on (A) and (B):

(A) Based on the architecture of endometrial glands, i.e. depending on the degree of glandular complexity and crowding it can be:

- **Simple**
- **Complex**

(B) Based on the presence or absence of atypia of the cells lining the endometrial glands. (atypia depends on nuclei)

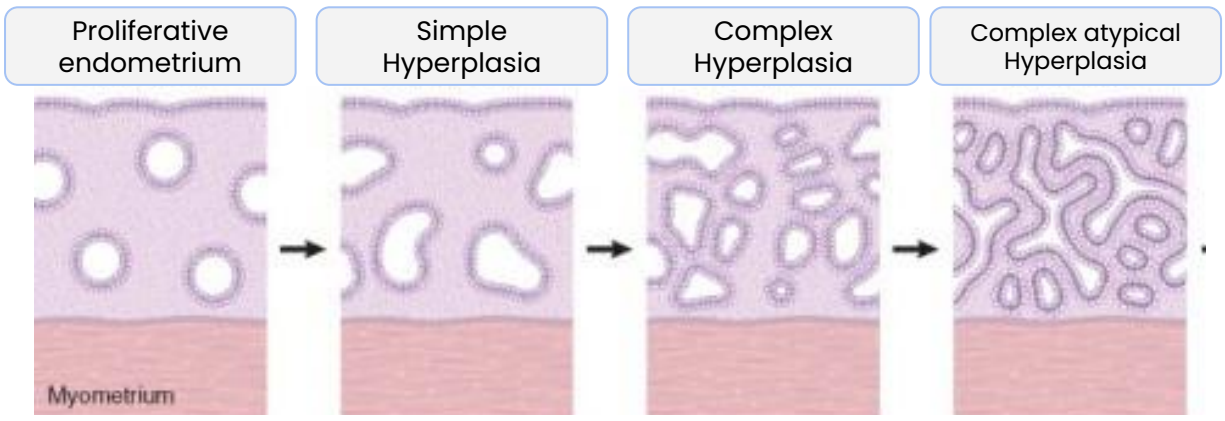
- **With Atypia**
- **Without Atypia**

I. Simple hyperplasia
A-Without atypia
B-With atypia

II.Complex hyperplasia
A-Without atypia
B-With atypia

Atypia/pleomorphism: loss of polarity, vesicular nuclei, prominent nucleoli, rounded cells.

first we do ultrasound that shows increase thickness



Increase number of glands

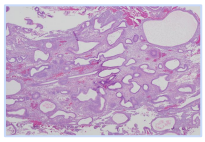
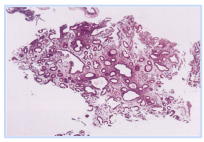
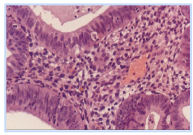
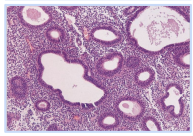
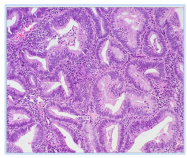
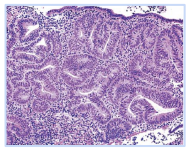
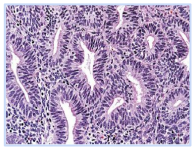
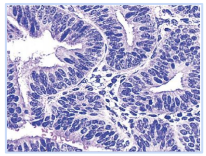
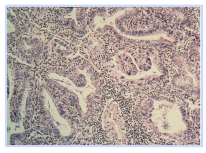
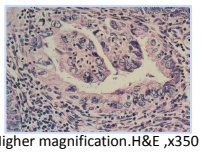
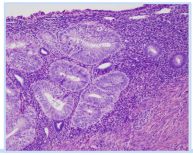
Deep Focus Question

Which of these findings on an endometrial biopsy has the highest risk of progression to endometrial carcinoma?

A. Endometrial polyps
B. Endometrial hyperplasia without atypia
C. Endometrial hyperplasia with atypia
D. Chronic endometritis

Answer: C

Endometrial Hyperplasia

I.Simple hyperplasia males Slides	without atypia	• Simple hyperplasia (Cystic hyperplasia): glands are variably shaped and sized, and are cystically dilated, with abundant stroma and gives a **SWISS CHEESE APPEARANCE.** • **Mild** increase in gland to stroma ratio. • May progress to cystic atrophy. • These lesions Rarely progress to adenocarcinoma	  Simple hyperplasia , early stage H&E x25   Simple hyperplasia , advanced stage H&E
	with atypia	• **Uncommon**. • Architecture of simple hyperplasia, but there is cytological **atypia** within the glandular epithelial cells. (less crowding then complex) • 10% progress to carcinoma.	
II.Complex hyperplasia	without atypia	• Proliferation of endometrial glands resulting in Complex, crowded glands with **papillary infoldings** irregular shapes. • **Crowded glands:** are **"back-to-back"** with little intervening stroma in between. • The epithelial cells remain cytologically **normal**. • 3% progress to adenocarcinoma.	 Complex hyperplasia without atypia  Complex hyperplasia.The glands are closely packed,lacking the abundant stroma seen in a hyperplasia.There is no atypia
	with atypia	• Complex proliferation of endometrial glands (back-to-back irregular glands) with atypia. (back-to-back means very little stroma in between.) • Nuclei are: - Enlarged and rounded. - Show **loss of polarity.** - **Have irregular nuclear membranes.** • Commonly about 30% of women with this diagnosis have carcinoma somewhere in the uterus when a hysterectomy is performed. (When perform endometrial curettage or endometrial biopsy the biopsy is not represented by the whole endometrium so if we see a Complex hyperplasia with atypia in the biopsy there's a 30% chance that she has carcinoma somewhere else in the endometrium but it's not represented in the biopsy so in this case you have to perform hysterectomy especially in post menopause or perimenopause (as they don't need for the uterus anymore) • 30% progress to carcinoma.	 Complex hyperplasia without atypia.The glands vary in size and are separated by only a small amount of stroma.Nuclei are oval and pseudostratified.There is no atypia.  Complex hyperplasia without atypia  Atypical hyperplasia with cytologic atypia.H&E x100  Higher magnification.H&E ,x350  Complex hyperplasia with atypia

Endometrial Hyperplasia

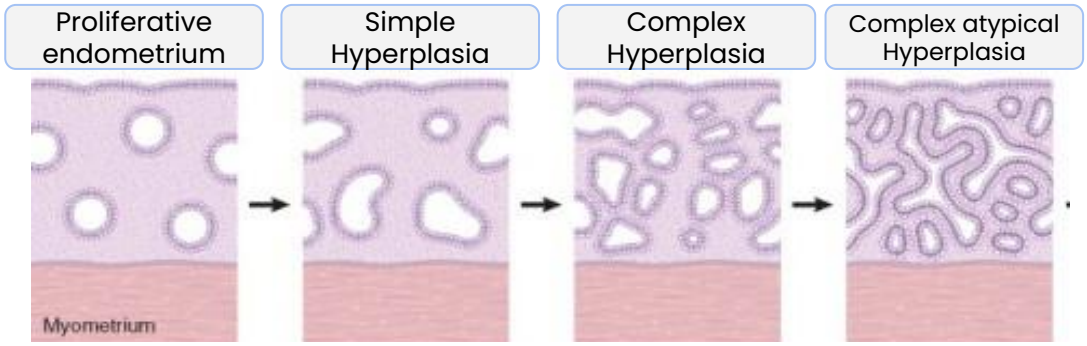
6. Clinical behavior and premalignant potential

males Slides

Some endometrial hyperplasia revert to normal spontaneously or with medical treatment (In a young patient start hormonal treatment (progesterone),others persist as hyperplasia, and a few progresses to endometrial adenocarcinoma.
The risks for developing adenocarcinoma in each are as follows:

- **Simple hyperplasia without atypia — 1%**
- Complex hyperplasia without atypia — 3%
- Simple hyperplasia with atypia (simple atypical hyperplasia) - 10%
- **Complex hyperplasia with atypia (complex atypical hyperplasia) - 30% ****

Atypical hyperplasia in postmenopausal women appears to have a higher rate of progression to adenocarcinoma.



7. New classification

Endometrial hyperplasia is placed into two categories **based on presence of atypia:**

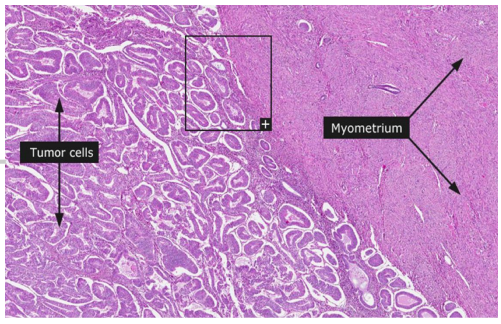
Hyperplasia without cellular atypia (Non atypical endometrial hyperplasia) carries a low risk (1% - 3%) for progression to endometrial carcinoma.

Hyperplasia with atypia (Atypical endometrial hyperplasia) / **Endometrioid intraepithelial neoplasia (EIN)** associated with a much higher risk (20%-50%).

- The importance of this classification is that the presence of cytologic atypia correlates with the development or concurrent finding of endometrial carcinoma.
- When hyperplasia with atypia is discovered, it must be carefully evaluated for the presence of cancer and usually warrants a hysterectomy in patients no longer desiring fertility.
- In younger patients, treatment with high-dose progestins may be used in an attempt to preserve the uterus.

Endometrial carcinoma

- This is a common neoplasm in women. Overall it is the fifth commonest cancer in women.
- Endometrial cancers arise mainly in postmenopausal women
- They cause postmenopausal bleeding
- Early detection and cures are possible

Classification These tumors are classified into two broad categories:	**Type 1**	**Type 2**
	endometrioid carcinoma	papillary **serous** carcinoma,clear cell carcinoma.
Histological type	Endometrioid adenocarcinoma	Papillary Serous or clear cell carcinoma Papillary serous is the more common form of type II carcinoma.
Prevalence	80% of endometrial cancers, (most common type) *e.g. endometrioid adenocarcinoma and its variants.	15% of cases of all endometrial carcinoma
Age	Premenopausal & perimenopausal (50-60 yrs)	**Postmenopausal** (~ 70 yrs) with endometrial atrophy (small atrophic uterus). late in life, about one decade later than type I
Unopposed estrogen	Present (associated with estrogen excess and endometrial hyperplasia)	Absent (no association with hyperestrinism or preexisting hyperplasia)
Precursor lesion	Endometrial hyperplasia :disease may follow atypical hyperplasia but may occur independently of it especially in older patients	Endometrial intraepithelial carcinoma (its like carcinoma in situ) (SEIC)
Growth	Slow growing	Rapidly progressing
Grade	Low (majority of the carcinomas are well differentiated)	High (These tumors are large bulky poorly differentiated tumors, which invade early into the myometrium, Extrauterine extension is common)
Myometrial invasion	Usually superficial	Usually deep and early
Prognosis	Favorable	Poor
Genetic Alteration IMPORTANT	PTEN, microsatellite instability • Majority of endometrioid carcinomas have PTEN gene mutations. • Also there may be inactivation of DNA mismatch repair genes. • P53 mutations is seen in half of the poorly differentiated endometrioid carcinomas. • Mutations in mismatch repair genes and the tumor suppressor gene PTEN are early events in the stepwise development of endometrioid carcinoma. • Women with germline mutations in PTEN(Cowden Syndrome) and germline alterations in DNA mismatch repair genes (Lynch Syndrome) are at high risk for this cancer. • TP53 mutations occur but are relatively uncommon and are late events in the genesis of this tumor type.	P53 mutations • P53 mutations (at least 90% of serous endometrial carcinoma) • The precursor of serous carcinoma is serous endometrial intraepithelial carcinoma (its like carcinoma in situ) (SEIC) in which TP53 mutations are often detected, suggesting an early role for such mutations in the development of this form of endometrial carcinoma. 

Endometrial carcinoma

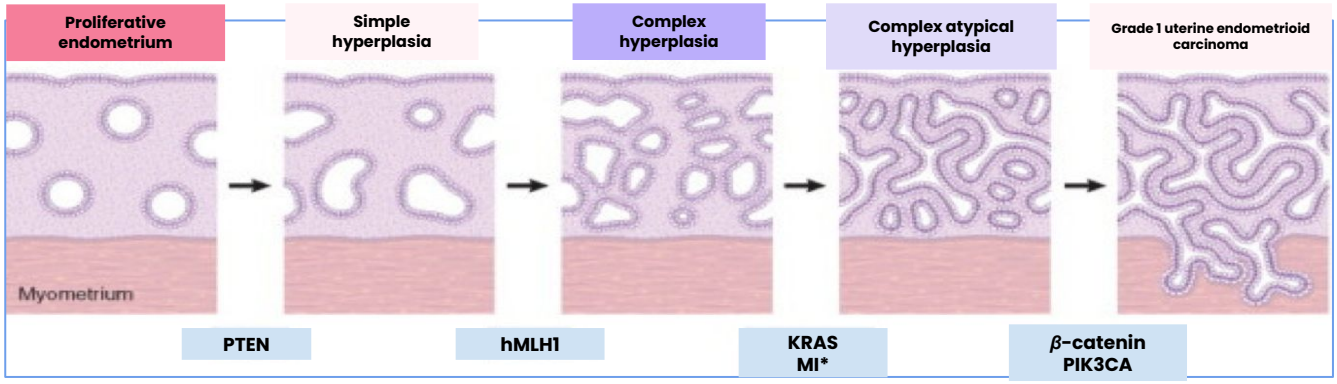
Pathogenesis

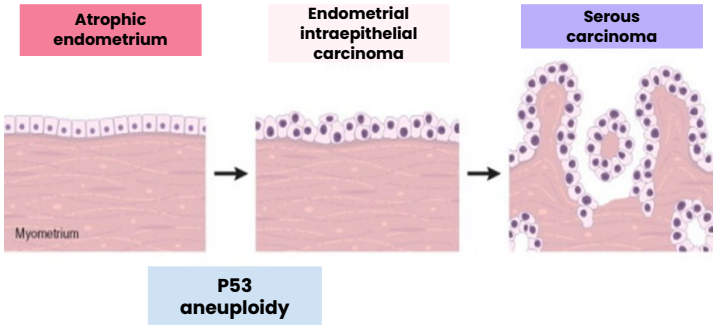
This is a common neoplasm in women. Overall it is the fifth commonest cancer in women.

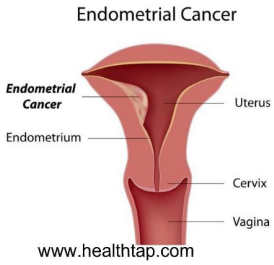
Endometrial cancers arise mainly in postmenopausal women

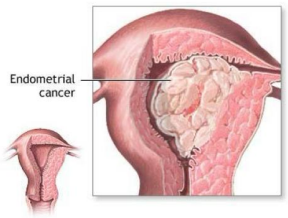
They cause postmenopausal bleeding and Early detection and cures are possible.

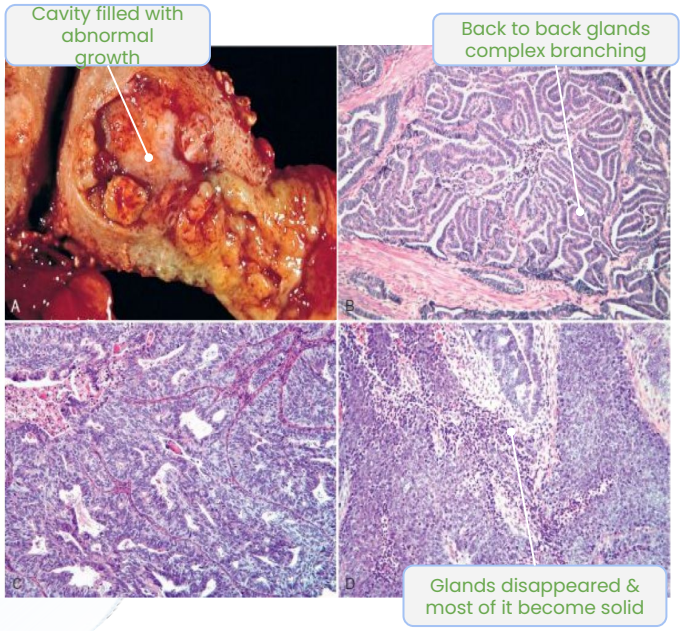
Usual sequence of events in Type I endometrioid carcinoma:



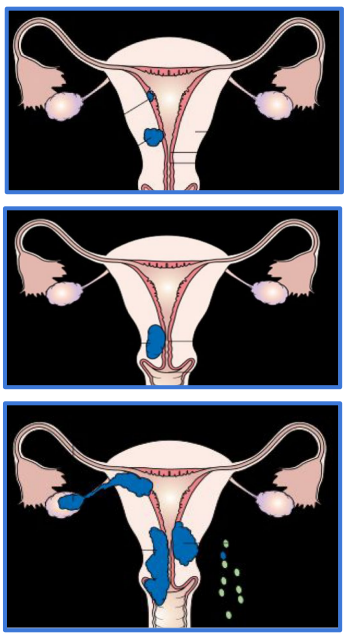








How endometrial carcinoma can spread (stages 1, 2 and 3 of endometrial carcinoma)



Endometrial carcinoma

Extra Slide

Pathogenesis of endometrial intraepithelial neoplasia and endometrial carcinoma

Genetic mutations

lead to:

- Uncontrolled proliferation starting from a single location
- Absence of programmed cell death

Classic mutations include:

PTEN: tumor suppressor (common in type 1 EC)

p53: tumor suppressor :

- Present in > 90% of type 2 ECs
- Worse outcomes associated with p53 mutations

POLE gene: involved in DNA replication and repair

Lynch syndrome mutations (DNA mismatch repair genes)

Progression of disease

Meaning it progressed from endometrial hyperplasia
In order lead to:

Uncontrolled endometrial proliferation → EIN → EC

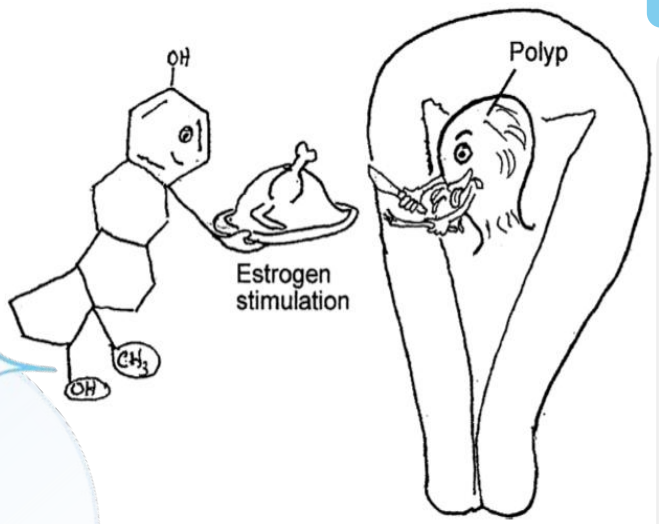
Direct extension into the myometrium and adjacent structures

Invasion into lymphatic capillaries

Metastasis to regional lymph nodes:

- Pelvic lymph nodes
- Para-aortic lymph nodes

Distant metastasis via lymphatic and hematologic spread



Pathogenesis of benign endometrial hyperplasia

- Estrogen naturally stimulates proliferation of endometrial tissue
- Progesterone (produced by the corpus luteum only after ovulation) counteracts estrogen/has a protective effect on the endometrium
- Excess estrogenic stimulation → diffuse hyperplasia throughout the cavity
- Altering the hormonal milieu (e.g., treating with progestins and/or removing estrogenic stimulation) can lead to resolution of hyperplasia.

Slide Made by : Lama Alotaibi

Endometrial carcinoma

Risk factors (only type 1)

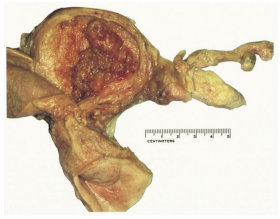
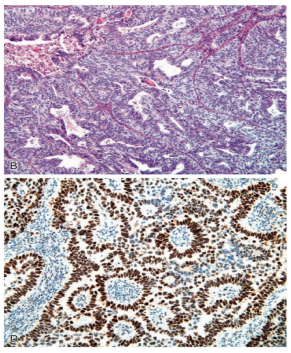
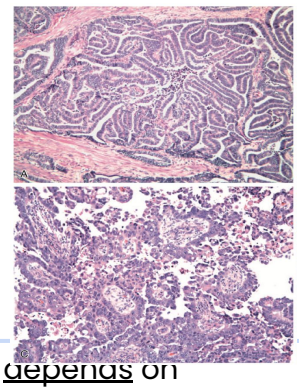
Risk factors for type I are the same as that of endometrial hyperplasia and include:

- Hyperestrinism
- Obesity
- western diet.
- Estrogen therapy
- chronic anovulation
- High socioeconomic status.
- **Nulliparity**
- Diabetes Mellitus
- Hypertension
- Late menopause
- Tamoxifen therapy (drug that induce LH & FSH production)

Clinical features

- Most patients are between 50 and 60 years.
- Many of the patients tend to be nulliparous and obese.
- Patients have abnormal vaginal bleeding and excessive leukorrhea
- Elderly women present with postmenopausal bleeding.
- The diagnosis of endometrial cancer must be confirmed by biopsy or curettage and histologic examination of the tissue.

Basic Morphology

Grossly	May look close to normal or exophytic or infiltrative	
Microscopy	• Both type I and II are adenocarcinomas originate in the endometrium and can eventually infiltrate the underlying myometrium, enter vascular spaces and metastasize to lymph nodes. • Serous carcinoma has much greater cytologic atypia and are more poorly differentiated and is therefore more aggressive	
Tumor spreads by	• Direct myometrial invasion with extension to the periuterine structures • Through lymphatics to lymph nodes • In the late stages, metastasize to the lungs, liver, bones, others	

Prognosis

Clinical behavior of endometrial adenocarcinoma depends on
- the histologic type
- the grade (degree of differentiation)
- the stage (extent of spread).

- Endometrioid carcinoma (type I) has a better prognosis than the other histologic types.
- Serous carcinomas (type II) have poorer prognosis
- Stage is the major determinant of survival.

Leiomyoma

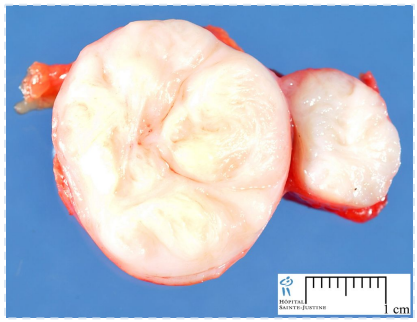
Overview	Benign tumors that arise from the **smooth muscle cells** in the **myometrium** are properly termed leiomyomas, but because of their firmness often are referred to clinically as **fibroids**.
Epidemiology	The most common benign tumor in females, affecting 30- 50% of women of reproductive age, and are considerably more frequent in black women and probably the most common neoplasm in women.
Pathogenesis	○ About 40% of leiomyomas have an associated chromosomal abnormality. ○ These tumors are associated with several different recurrent chromosomal abnormalities, including rearrangements of chromosomes 6 & 12 that also are found in a variety of other benign neoplasms, such as endometrial polyps and lipomas. ○ Mutations in the MED12 gene, which encodes a component of the RNA polymerase transcription complex, have been identified in up to 70% of leiomyomas. The mechanism by which MED12 mutations contribute to the development of leiomyomas is not presently understood. ○ The tumor is estrogen responsive. Estrogens and possibly oral contraceptives stimulate the growth of leiomyomas; conversely, these tumors shrink postmenopausally
Clinical Features	○ Leiomyomas of the uterus often are **asymptomatic**, being discovered incidentally on routine pelvic examination. ○ The most frequent presenting sign is **menorrhagia** heavy bleeding **, with or without metrorrhagia** abnormality in timing**.** ○ Leiomyomas rarely, if ever, transform into sarcomas, and the presence of multiple lesions does not increase the risk of malignancy They are benign tumors with no appreciable malignant potential (incidence of malignant transformation to sarcoma is 0.1-0.5%). ○ It can be single or multiple (mostly multiple). ○ Irregular abnormal bleeding and sometimes pelvic pain. ○ It may cause anemia from heavy bleeding. ○ Can have urinary frequency if the fibroid is compressing the urinary bladder. ○ It may interfere with implantation and therefore cause infertility. ○ In pregnant women it may cause abortion, obstructed labor, postpartum hemorrhage etc.

Leiomyoma

Morphology

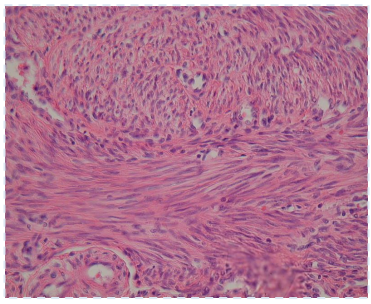
Grossly

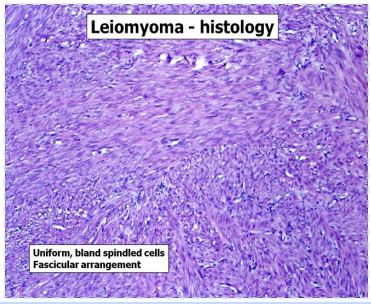
- Typically sharply well circumscribed, spherical, dense and firm-hard gray (tan)-white masses with a characteristic **whorled** cut surface
- They may occur singly, but more often occur as multiple tumors that are scattered within the uterus, ranging from small nodules to large tumors that may dwarf the uterus



Microscopically

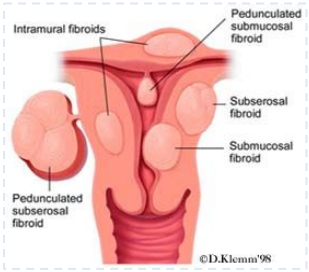
- There are interlacing bundles of smooth muscle cells with collagenous stroma between bundles.
- The individual muscle cells are uniform in size & shape
- They have the characteristic oval-elongated nucleus
- Mitotic figures are scarce.

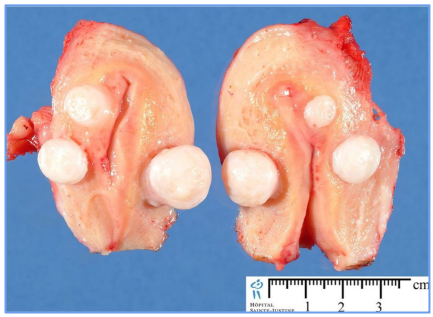




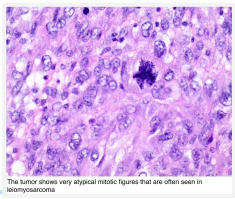
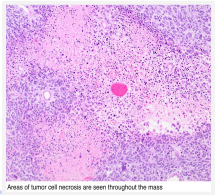
Location

- **Intramural**: embedded within the myometrium most common
- **Submucosal:** lie immediately beneath the endometrium
- **Serosa / Subserosal** fibroids lie beneath the serosal surface of the uterus or are pedunculated and attached to the serosa.
- **Parasitic leiomyomas:** a type is subserosal where tumor extend out on attenuated stalk and even become attached to surrounding organs, from which they may develop a blood supply (Pedunculated ones lose their connection to the uterus)





Leiomyosarcoma

Overview	○ Leiomyosarcomas of the uterus virtually always arise de novo from the mesenchymal cells of the myometrium. ○ Recurrence after surgery is common with these cancers, and many metastasize, typically to the lungs. ○ It is the malignant tumor of the smooth muscle with increased mitosis and **necrosis**. ○ It is rare & Sites include the uterus and soft tissue ○ Poor prognosis.
Morphology Females Slides	○ They are **almost always solitary** and most often occur in postmenopausal women, in contradistinction to leiomyomas, which frequently are multiple & usually arise premenopausal. ○ The diagnostic feature of leiomyosarcoma include: ‣ **tumor necrosis** ‣ **cytologic atypia** ‣ **mitotic activity** ○ Because 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 diagnosis of malignancy.  The tumor shows very atypical mitotic figures that are often seen in leiomyosarcoma  Areas of tumor cell necrosis are seen throughout the mass

Summary

Endometrial hyperplasia results from excess endogenous or exogenous estrogen.

The risk of developing carcinoma is predominantly related to cytologic atypia.

On the basis of clinical and molecular data, two major types of endometrial carcinoma are recognized:

1. Endometrioid carcinoma is associated with estrogen excess and endometrial hyperplasia. Early molecular changes include inactivation of DNA mismatch repair genes and the PTEN gene.
2. Serous carcinoma of the endometrium arises in older women and usually is associated with endometrial atrophy. Mutations in the TP53 gene are an early event.

Deep Focus Question

Which of the following can be a presenting complaint if a woman has a small fibroid located right underneath the peritoneum covering the fundus of the uterus?

A. Compression of the urinary bladder leading to increased frequency of urination
B. Severe, recurrent pelvic pain
C. Compression of uterine arteries leading to myometrial ischemia
D. Compression of the fallopian tube opening leading to ectopic pregnancy

Answer: A

Keywords

Endometrial hyperplasia		• increased gland:stroma ratio • high levels of estrogen eg : theca tumors , PCOS , contraceptive • Anovulatory menstrual cycles • polycystic ovary syndrome • Nulliparous obese women or DM • granulosa cell tumors of the ovary • cortical stromal hyperplasia • usually present with abnormal uterine bleeding. • Simple without atypia : cystically dilated, abundant stroma and gives a SWISS CHEESE APPEARANCE . • Complex without atypia : Crowded glands: are “back-to-back” , papillary infoldings irregular shapes
Endometrial carcinoma		• Patients have abnormal vaginal bleeding and excessive leukorrhea • Elderly women present with postmenopausal bleeding.
	Type 1	• Premenopausal & perimenopausal • associated with estrogen excess and endometrial hyperplasia • Slow growing • superficial Myometrial invasion • Genes : PTEN, microsatellite instability • Nulliparity
	Type 2	• Postmenopausal • no association with hyperestrinism or preexisting hyperplasia • Endometrial intraepithelial carcinoma Is Precursor lesion • Deep Myometrial invasion • P53 mutations
Leiomyoma		• Benign tumors that arise from smooth muscle cells • Growth stimulated by Estrogens and possibly oral contraceptives • increase in size during pregnancy or taking contraceptives. • Decrease In size after menopause. • Mutation in the MED12 gene • Menorrhagia • Cut surface: whorled, grey-white • interlacing bundles of smooth muscle cells
Leiomyosarcoma		• malignant tumor • arises de novo from the mesenchymal cells of the myometrium • Show Tumor necrosis , Cytological atypia , Mitotic activity

IF YOU WANT A SUMMARY CLICK HERE

YOU vs MCQs

Question 1

What is the most common neoplasm arising in the female genital tract?

- Ovarian carcinoma
- Cervical carcinoma
- Uterine leiomyoma (fibroid)
- Endometrial carcinoma

Question 2

What is the characteristic appearance of simple hyperplasia on histology?

- Back-to-back irregular glands
- Cystically dilated glands with abundant stroma
- Crowded glands with papillary infoldings
- Loss of polarity and vesicular nuclei

Question 3

Which type of endometrial hyperplasia has the highest risk of progression to adenocarcinoma?

- Simple hyperplasia without atypia
- Simple hyperplasia with atypia
- Complex hyperplasia without atypia
- Complex hyperplasia with atypia

Question 4

Which genetic alteration is commonly associated with endometrioid carcinoma?

- BRCA1 mutation
- PTEN gene mutation
- P53 mutation
- Microsatellite instability

1- C / 2-B / 3- D / 4-B

YOU VS MCQs

Question 5

49 y/o female with menorrhagia and lower abdominal pain. Uterine hysterectomy showed multiple pale nodules containing smooth muscle cells with no mitotic figures?

- Low grade leiomyosarcoma
- Leiomyoma
- Rhabdomyoma
- Angiosarcoma

Question 6

Which of the following diseases is associated with endometrial hyperplasia?

- Stein-Leventhal syndrome
- Krukenberg tumor
- Choriocarcinoma
- Sertoli- leydig cell tumors

Question 7

A woman presented with a mass in the myometrium with whorled appearance, which of the following is most likely the diagnosis?

- Leiomyoma
- Endometrial hyperplasia
- Adenocarcinoma
- Granuloma

Question 8

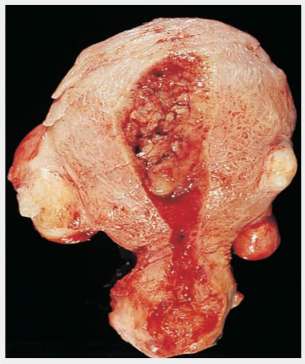
A patient with uterine cancer and p53 mutation. What does she have?

- Serous endometrial carcinoma
- Leiomyoma
- Leiomyosarcoma
- Endometrial hyperplasia

5- B / 6- A / 7- A / 8-A

Cases

1.A 50-year-old nulliparous woman with a history of diabetes complains that her menstrual blood flow is more abundant than usual. During the last two menstrual cycles, she noticed spotting throughout the entire cycle. The patient is obese (BMI = 32 kg/m2), and her blood pressure is 160/100 mm Hg. An ultrasound examination reveals a thickened endometrial stripe with a polypoid mass in the uterine fundus. The patient undergoes a hysterectomy. The uterus is opened to reveal a partially necrotic mass (shown in the image). A biopsy of the mass shows moderately differentiated adenocarcinoma. Which of the following represents the most likely precursor of this patient's malignant disease?

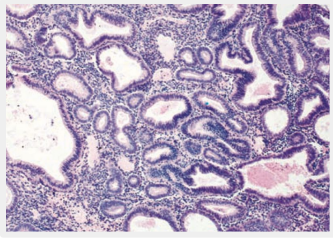


A.Adenomyosis	B.Atypical hyperplasia	C.Chronic endometritis	D.Complex hyperplasia

2.Neoplastic cells obtained from the patient described in Question 1 would most likely show loss of function of which of the following cell cycle control proteins?

A.p53	B.PTEN	C.Rb	D.RET

3.A 45-year-old obese woman (BMI = 32 kg/m2) with a history of diabetes and poorly controlled hypertension complains of increased menstrual blood flow of 3 months in duration. An endometrial biopsy is shown in the image. Which of the following most likely accounts for the pathogenesis of endometrial hyperplasia in this patient?

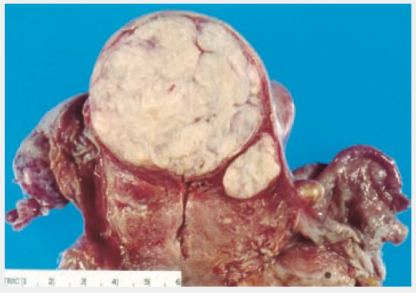


A.Excess estrogen stimulation	B.Exposure to exogenous progestational agents	C.History of chronic endometritis	D.History of oral contraceptive use

4.A 52-year-old woman presents with chronic pelvic discomfort. A CT scan of the pelvis shows a 10-cm, well-circumscribed uterine mass. A hysterectomy is performed. On gross examination, the mass is soft with areas of necrosis and irregular borders extending into the myometrium. Histologic examination demonstrates large zones of necrosis surrounded by a rim of disorganized spindle cells that display numerous mitoses. Immunohistochemical staining for smooth muscle actin is positive. Which of the following is the most likely diagnosis?

A.Adenomyosis	B.Carcinosarcoma	C.Endometrial stromal sarcoma	D.Leiomyosarcoma

5.A 33-year-old woman with a history of menorrhagia presents with a 6-month history of increasing fatigue. A CBC reveals a hypochromic, microcytic anemia (hemoglobin = 8 g/dL). Bimanual pelvic examination reveals an enlarged uterus with multiple, irregular masses. A hysterectomy is performed, and a sharply circumscribed fleshy tumor is found within the uterine wall (shown in the image). Which of the following is the most likely cause of vaginal bleeding and anemia in this patient?



A.Adenomyosis	B.Endometrial carcinoma	C.Endometriosis	D.Uterine leiomyoma

1-B / 2-B / 3-A / 4-D / 5-D

NEED EXPLANATION ? CLICK HERE

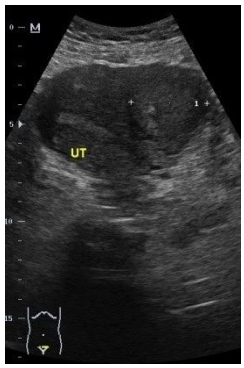
Cases

EXTRA CASES MAY REQUIRE EXTRA INFO

1.A 23-year-old nulliparous woman comes to the office because of chronic episodic pelvic pain. The pain begins 2-3 days before menses and continues throughout the menses, after which it subsides. Menarche was at age 14. She has a regular menstrual cycle of 25 days with 5-6 days of moderate bleeding. Medical history is significant for recurrent migraine headaches with aura. She is not sexually active. Physical examination shows a fixed anteverted uterus and nodularity in the posterior cul-de-sac. The patient is provided with a medication that acts to inhibit the growth of endometrial tissue. Which of the following medications was most likely provided?

A.Paroxetine	B.Danazol	C.Clomiphene	D.Progestin-only contraceptive pills

2.A 31-year-old woman, gravida 1 para 1, presents to the office because of heavy and painful menstrual bleeding for the last 2 months. She reports soaking 12-15 sanitary pads during her last menses. Her menstrual cycle is regular, with 5-6 days of heavy bleeding. Menarche was at age 12. She is sexually active with one male partner and denies any pain during intercourse. Past medical and surgical history is unremarkable. Temperature is 37° C (98.6°F), pulse is 102/min, respirations are 19/min, and blood pressure is 100/60 mmHg. Physical examination shows an enlarged uterus with irregular contour. The remainder of the examination is unremarkable. Urine pregnancy test is negative. Complete blood count is as follows: Which of the following is the most likely origin of this patient's ultrasound finding?



Laboratory value	Result
Complete blood count	
Hemoglobin (Hb)	9 g/dL
Mean corpuscular volume (MCV)	75 fL
Hematocrit	32%
Leukocyte count	9,100/mm3
Platelet count	400,000/mm3
Neutrophils, segmented	54%
Eosinophils	1%
Basophils	0%
Lymphocytes	25%
Monocytes	4%

A.Placental epithelium	B.Smooth muscle cell	C.Germ cell	D.Transitional epithelium

1-D / 2-B : uterine leiomyoma

Pathology Team

Leader
زياد العتيبي

- هياء العجمي
- رغد المصلح
- ريماز المحمود
- ألين الكلية
- لؤي الحديثي
- مريم الغنام
- فيصل الشويعر
- محمد العرفج
- محمد السلامة
- رند ابا الخيل
- عبدالمحسن الدايل
- وجد المطيري
- أريج القريني
- ريوف الأحمري
- عبدالله الزامل
- سلطان البقمي
- رزان السطيحي
- شوق الخليفة
- عروب المحمود

Leader
لمى العتيبي

- الجوهرة الوهيبي
- سديم اليحيى
- ريناد صالح الشهري
- عائشة إبراهيم
- دانه المحيسن
- شادن الهزاني
- الدانه عبدالله
- ساره الدوسري
- ساره الشهراني
- هدى الجدعان
- أفنان الأحمري
- ليان الرويلي
- هيا الزير
- ساره العجاجي
- محمد معشي
- رغد الحامد
- يزيد المطيري
- مشعل الدخيل
- ريما القرني
- سلمى السعدون