Pathology of the Endometrium

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Endometrium

Most common diseases:

- Abnormal uterine bleeding
- Inflammatory conditions
- Benign neoplasms
- Endometrial cancer

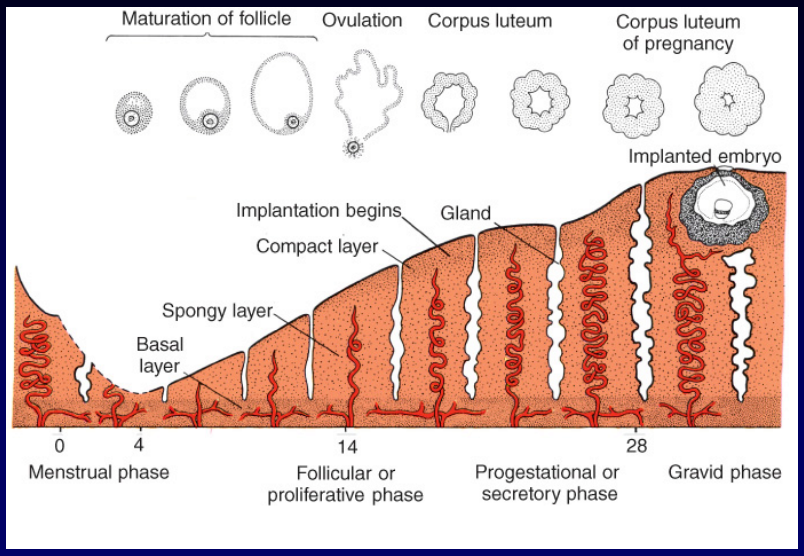
Anatomical Regions

Corpus:	Responsive to hormones Thickness changes with cycle
LUS:	Thinner than corpus Less hormonally responsive Hybrid between endocervix and endometrium

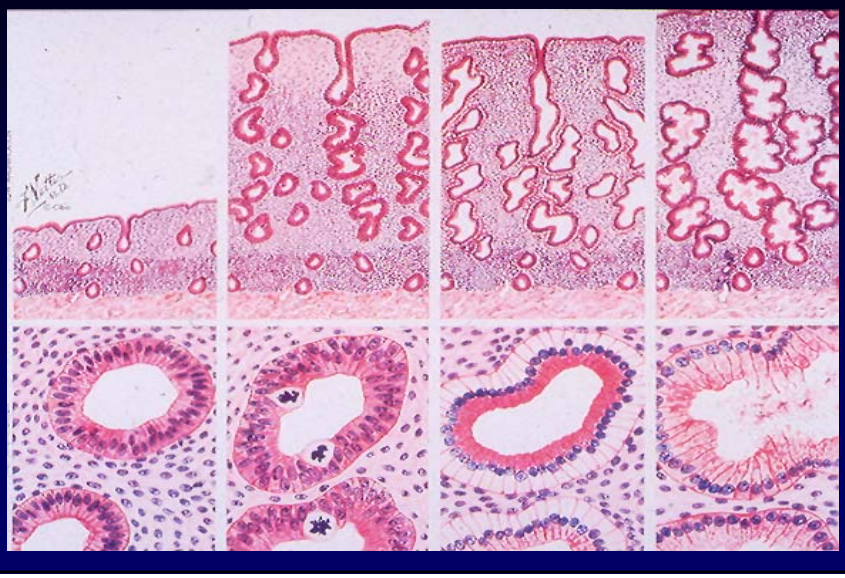
Cellular Components

Epithelium:	Basalis-type cell Secretory cells Ciliated cells
Stroma:	Stromal cells Stromal granulocytes

Cyclical Changes in the Endometrium



Cyclical Changes in the Endometrium



Dysfunctional Bleeding

Definition:

- Abnormal bleeding - Dx of exclusion
- Most patients are anovulatory or short duration cycles
- Most common in postpubertal period and perimenopausal period
- Can be associated with PCO, stress

Dysfunctional Bleeding

Endometrium:

- Weakly proliferative endometrium
- Normal proliferative endometrium
- Disordered proliferative
- Endometrial hyperplasia
- Asynchronously developed endometrium

Persistent Proliferative	*Irregularly Developed*	*Progestational Agents*
Dilated proliferative type glands, with pseudostratification	Secretory type glands co-exist with proliferative glands.	Marked pseudo-decidualization of stroma.
Focal breakdown common	This pattern is sometimes seen in women with dysfunctional bleeding	Glands are small with secretory exhaustion
Due to unopposed estrogen		

Non-neoplastic Disorders

Iatrogenic endometrium

- Exogenous hormones
- Tamoxifin
- IUD's

Endometritis

Metaplasias

Hyperplasia

Metaplasias

Tubal metaplasia occurs in setting of estrogen excess or postmenopausal.

Squamous metaplasia frequently occurs in hyperplasia, neoplasia, CEMI.

Mucinous, papillary and eosinophic types are less common

Tubal Metaplasia

The endometrium looks very much like the epithelium of the fallopian tube. Cilia are present.

Post-menopausal women with estrogen excess

Squamous Metaplasia

A morule of squamous differentiation is present in the center of a group of glands with atypical hyperplasia

Endometritis

Acute:	Microabcesses - stroma / glands Classically postabortal Strep., Staphy., GC
Stroma:	Stromal cells Stromal granulocytes

Chronic Endometritis

Multiple plasma cells are identified. These are not normally seen in the endometrium and when present indicate chronic endometritis

Tubercular Endometritis

A caseating granuloma is present with giant cells. TB of the endometrium is uncommon in the U.S. but is seen not infrequently in many areas of the world

Endometrial Hyperplasia

Abnormal proliferation of endometrial glandular epithelium (and often stroma) that lacks stromal invasion.

Endometrial Hyperplasia

Wide spectrum of patients

Associated with prolonged, unopposed exposure to estrogen

Therapy depends on type / patient / setting

Endometrial Hyperplasia

Current Terminology:

Simple hyperplasia

Complex hyperplasia *(adenomatous)*

Simple atypical hyperplasia

Complex atypical hyperplasia

Simple Hyperplasia	*Complex Hyperplasia*	*Atypical Hyperplasia*
Dilated proliferative type glands, with pseudostratification Increased gland:stroma ratio and some "budding" *Due to unopposed estrogen*	The volume of glands is increased and the glands are "crowded" Glands are dilated and have irregular outlines	There is both cytological and architectural atypia present. The architectural atypia is demonstrated by the cribiforming.

Endometrial Hyperplasia

Understanding its impact:

Early studies had lots of problems
Endometrium is histologically complex
Cytologic changes are difficult to judge
Can't follow without biopsy

*Progression of Hyperplasia**

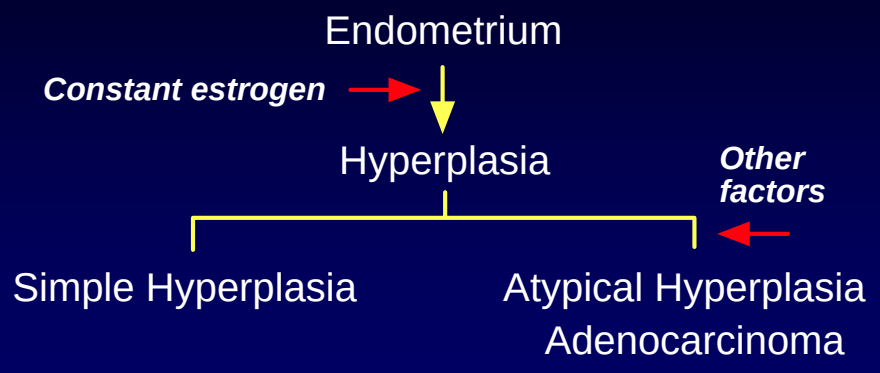
Type of Hyperplasia	*% to CA*
Simple ("Cystic")	13%
Complex ("Adenomatous")	27%
Atypical	75%
AdenoCA in situ	100%

Wentz, AJOG, 1984

Progression of Hyperplasia

Type	*Regress*	*Persist*	*CA*
Simple	80%	19%	1%
Complex	80%	17%	3%
Simple atypical	69%	23%	8%
Complex atyp.	57%	14%	29%

Progression of Hyperplasia



Neoplastic Disorders

Endometrial polyps
Endometrial stromal lesions
Endometrial carcinomas
Mesenchymal tumors
Mixed tumors

Endometrial Polyps

Are quite common, especially 40 - 50 yrs.

Develop as focal hyperplasia of basalis.

Four classic features:

Fibrotic stroma

Prominent vascularity

Glands out of phase

Irregular gland architecture

Uterine Leiomyoma

Proliferation of smooth muscle cells

Lesion of reproductive years

20 - 30% of women 30 years and older

More common in blacks

Present with bleeding, pain, pressure

Uterine Leiomyomas

Pathogenesis:

In reproductive yrs - rare after menopause

Contain estrogen / progesterone receptors

Hormones thought to play a role

Gonadotropin releasing hormone agonists cause regression

Uterine Leiomyomas

Pathogenesis:

- Lesions are monoclonal - *G6PD or PCR*
- Non-random chromosomal abnormalities quite common (40% of cases)
- 30% of abnormal karotypes involve region 12q14-15 (same area as involved in lipomas and rhabdosarcomas)

Endometrial Carcinomas

Clinical features:

- Most common genital tract cancer
- High incidence in North America / Europe
- Associated with ERT, obesity, diabetes, hypertension, nulliparity, tamoxifin
- Two clinico-pathologic forms

WHO Classification

Endometrioid carcinoma
Serous carcinoma
Clear cell adenocarcinoma
Mucinous adenocarcinoma
Squamous cell carcinoma
Mixed carcinoma
Undifferentiated carcinoma

Endometrial Cancer - Types

	Type I	*Type II*
Age	Young	Old
Unopposed estrogen	Yes	No
Diabetes / obesity	Yes	No
Grade / stage	Low	High
Survival	Good	Poor

Endometrial Cancer

Histological grading:

Based predominantly on architecture:

< 5% solid	*well-differentiated*
5 - 50% solid	*moderately diff*
> 50% solid	*poorly differentiated*

High nuclear grade can increase the grade

Endometrial Cancer

Prognostic features:

Age	Depth of invasion
Stage	Peritoneal cytology
Race	Vascular invasion
Grade	

FIGO Staging - Corpus Cancer

IA	Tumor limited to endometrium
IB	Invasion to <1/2 of myometrium
IC	Invasion to > 1/2 myometrium
II	Involvement of corpus and cervix
III	Extension outside of uterus, but not outside of true pelvis
IV	Extends outside true pelvis or involves mucosa of bladder or rectum

FIGO Stage: 5 Year Survival

	No.	*% Survival*
Stage 1	11,035	73%
Stage 2	2,014	56%
Stage 3	921	32%
Stage 4	409	11%