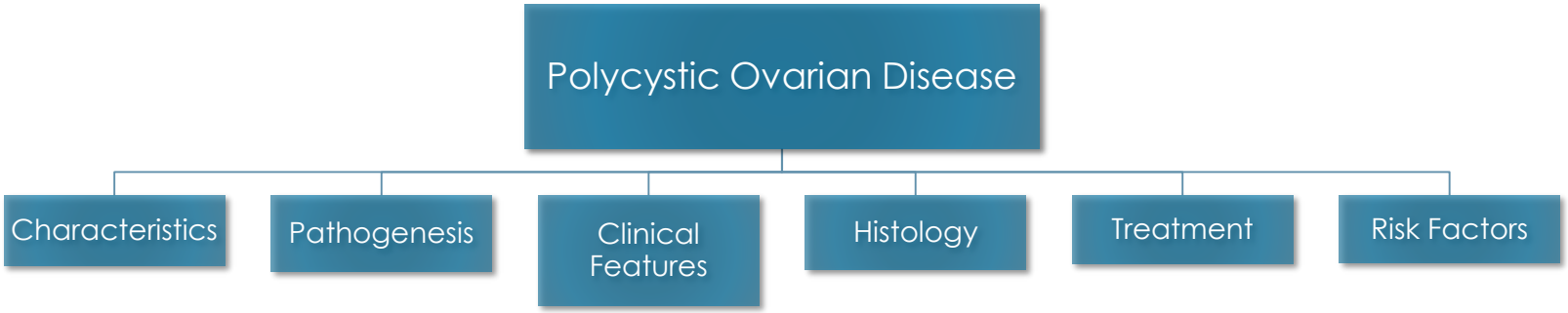
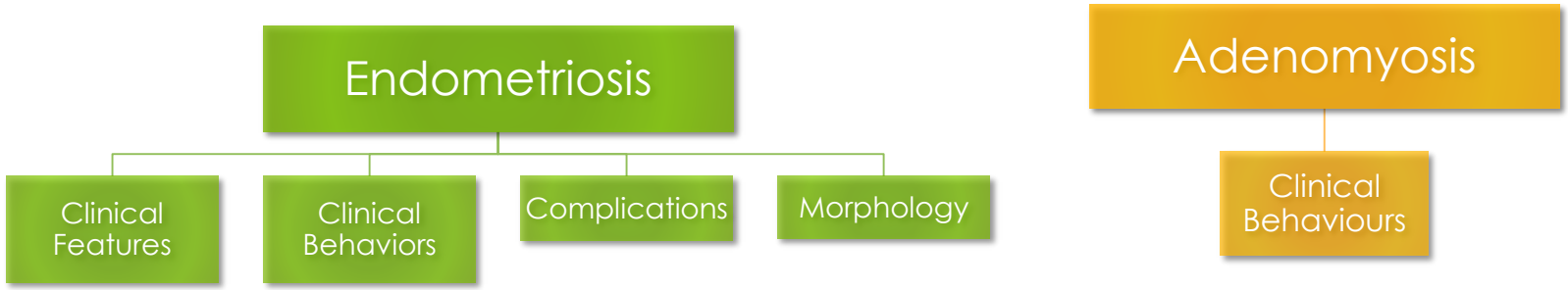
Lecture 7:
Polycystic Ovarian Disease and Endometriosis

▫ Important ▫ Notes ▫ Explanation

Ovarian Disease



Endometrial Disorders



Polycystic Ovarian Disease (PCOD)

- Other names for this syndrome include polycystic ovarian syndrome and Stein-Leventhal syndrome.

Characterized by :

- Bilateral enlargement of ovaries by multiple small cysts.
- Chronic anovulation.
- Clinical manifestations secondary to excessive production of estrogens and androgens, mainly androgens.

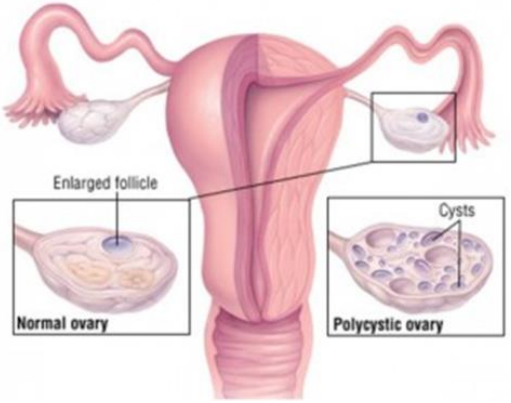
Pathogenesis :

- The initial abnormality resulting in the syndrome is not known but is believed to be related to hypothalamus-pituitary dysfunction leading to **oversecretion of luteinizing hormone (LH)**.
- LH in turn stimulates the ovary to produce **excess androgens**. Secretion of follicle stimulating hormone (FSH) is inhibited resulting in **suppression of ovulation** with **follicle cyst formation**.
- **High level of LH** and **low FSH**.

Clinical Appearances

The usual clinical presentation is a young woman (between 15 and 30 years) with :

- Secondary amenorrhea with anovulation
- Oligomenorrhea or irregular menses
- Virilism due to excessive amounts or effects of androgenic (masculinizing) hormones.
- Infertility
- Hirsutism
- Obesity
- Acne



Histology :

Ovaries :

- 2 times the normal size with many subcortical cysts measuring 0.5 to 1.5 cm in diameter.
- Microscopically, the outer portion of the cortex is thickened and fibrotic (cortical stromal fibrosis) with multiple cysts underneath. The follicular cysts usually have a prominent theca interna layer.
- Corpora lutea are frequently absent due to the anovulation.

Endometrium :

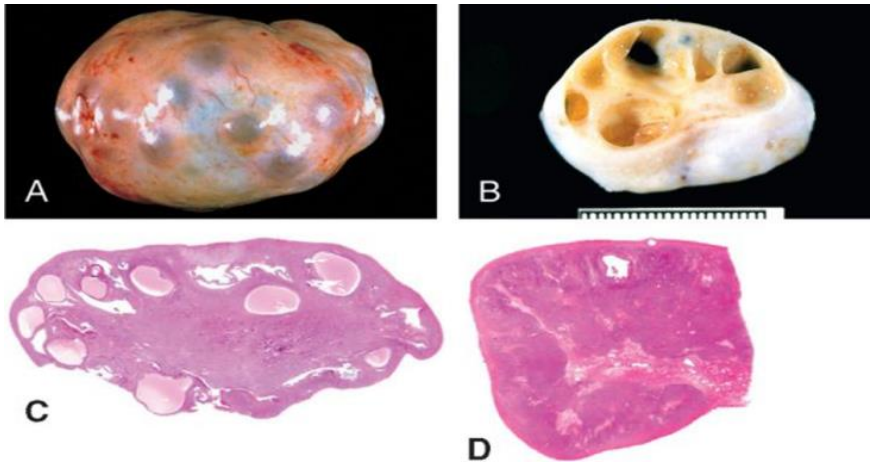
- The unopposed estrogenic effect due to chronic anovulation leads to a hyper estrogenic state. As a result endometrium may show a variety of appearances **ranging** from mild hyperplasia to complex hyperplasia to atypia to endometrial adenocarcinoma.

Treatment :

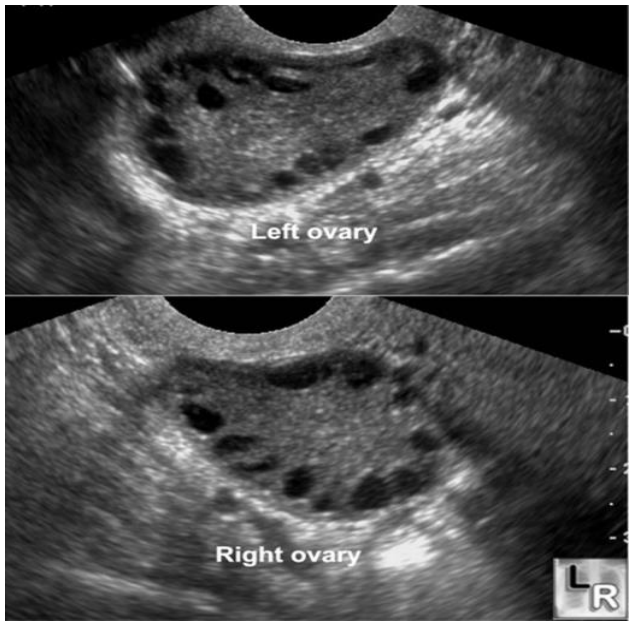
- Treatment with drugs that either induce ovulation (clomiphene or hCG) or regulate the menstrual cycle restores fertility.
- Reduction of ovarian volume by wedge resection of the ovaries is also successful in initiating ovulation and restoring fertility.
- The endometrial changes usually **regress** once ovulation is achieved.

Women with PCOS are at risk for the following :

- Endometrial hyperplasia and endometrial cancer.
- Insulin resistance/Type II diabetes.
- High blood pressure.
- Depression/Anxiety.
- Dyslipidemia.
- Cardiovascular disease.
- Strokes.
- Weight gain.
- Miscarriage.
- Acanthosis nigricans (patches of darkened skin under the arms, in the groin area, on the back of the neck).
- Autoimmune thyroiditis.



A, The ovarian cortex reveals numerous clear cysts.
B, Sectioning of the cortex reveals several subcortical cystic follicles.
C, Cystic follicles seen in a low-power microphotograph.



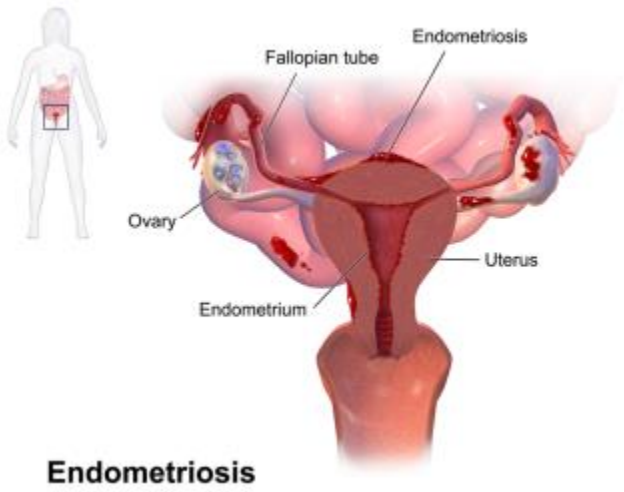
on ultrasound: the cysts in the ovries → necklace appearnce.

Endometriosis

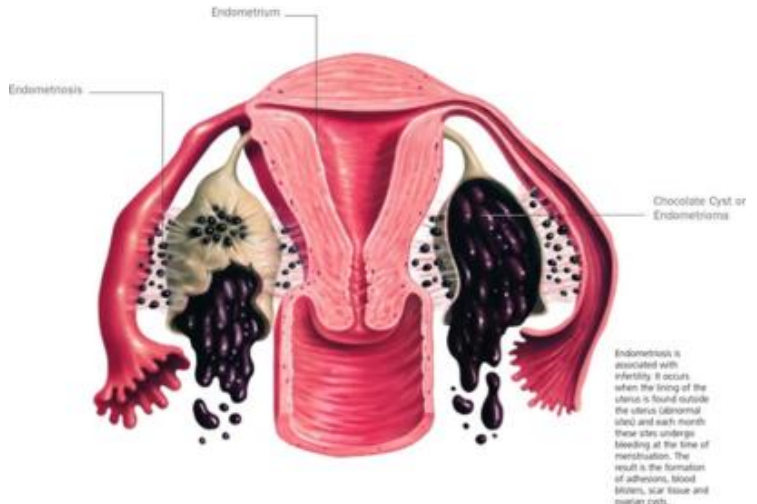
- Normally endometrial glands and endometrial stroma are found in the endometrium of the uterus.
- Endometriosis is the presence of ectopic endometrial glands and stroma **outside** the uterus.

- They are usually found on the peritoneal surfaces of the reproductive organs and adjacent pelvic organs.
- The most frequent location is the **ovary** (approx. 50%) followed by the pouch of Douglas, uterine ligaments.
- Occasionally involve cervix, vagina, perineum, bladder, large bowel and the umbilicus.
- Rare lesions are seen as far as small bowel, kidneys, lungs, nose and brain.
- It has been reported in men. The sites involved have been the bladder, scrotum and prostate.

- It is **non-neoplastic**.
- Like the uterine endometrium it is responsive to the hormonal variations of the menstrual cycle, and bleeds during menstruation.
- Therefore in endometriosis there is menstrual type bleeding at the site of the ectopic endometrium, resulting in blood filled areas (e.g. chocolate cysts).



Endometriosis



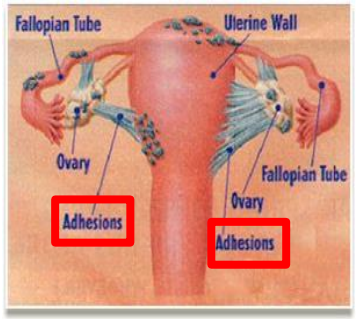
Clinical features :

Clinical features depends on the site of endometriosis.

- Dysmenorrhea, cyclic abdominal pain and dyspareunia are common symptoms. Usually there is severe menstrual-related pain.
- Often results in infertility.
- Endometriosis usually appears as multiple red or brown (due to hemosiderin) 1mm to 5mm nodules (some may form larger masses or cysts). Dense fibrous adhesions may surround the foci.

Clinical behavior :

- Benign with no malignant potential. May recur after surgical excision but the risk is **low**.



Complications :

- Infertility.
- Adhesions.

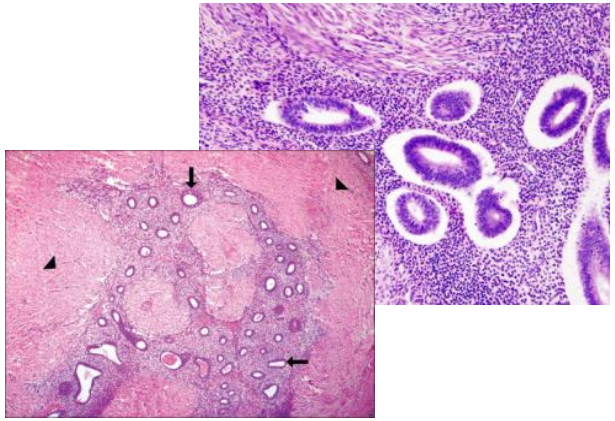
Morphology

Gross :

- Repeated hemorrhage into foci in the ovary with each menstrual cycle produces cysts, which contain inspissated, chocolate-brown material, called "**chocolate cysts**" in which the ovaries turn into large cystic masses filled with brown fluid.

Microscopy :

- Ectopic endometrial glands and endometrial stroma are present.
- Denatured blood from previous bleeding is present.
- Macrophages containing hemosiderin (siderophages)are present.
- When endometriosis develops in a muscular organ, the smooth muscle around it is often hyperplastic.



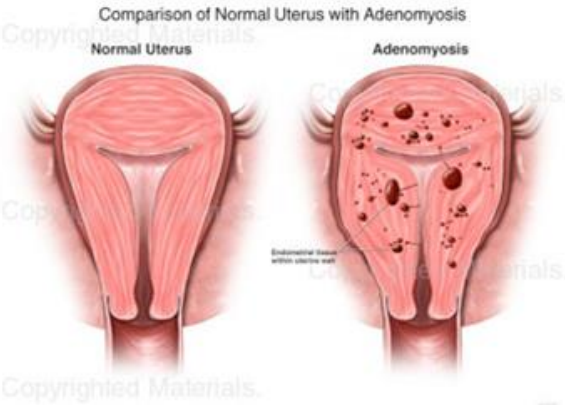
The histologic diagnosis at all sites depends on finding TWO of the following THREE features within the lesions :
endometrial glands, endometrial stroma, and hemosiderin pigment.

Adenomyosis

- This is defined as the presence of endometrial glands and endometrial stroma in the myometrium of the uterus. The condition involves the posterior wall more often than the anterior wall but it may affect both walls in the same uterus.
- The disease is primarily a disorder of parous women and is uncommon in the nullipara. It is associated with menorrhagia and severe dysmenorrhea.
- In about a third of patients there are **no symptoms** and the lesions are discovered accidentally.
- When extensive, the lesions produce myometrial thickening with small yellow or brown cystic spaces containing fluid or blood.
- Occasionally, proliferation of smooth muscle around a focus of adenomyosis produces a tumor called adenomyoma, which resembles uterine leiomyoma.

Clinical behavior :

This is a **benign** condition with no known malignant potential that regresses after the menopause.



Summary (from Robbin's basic pathology)

SUMMARY

Non-neoplastic Disorders of Endometrium

- Endometriosis refers to endometrial glands and stroma located outside the uterus and may involve the pelvic or abdominal peritoneum. Rarely, distant sites like the lymph nodes and the lungs also are involved.
- The ectopic endometrium in endometriosis undergoes cyclic bleeding, and the condition is a common cause of dysmenorrhea and pelvic pain.
- Adenomyosis refers to growth of endometrium into the myometrium with uterine enlargement. Unlike with endometriosis, there is no cyclic bleeding.

Thank You!

We hope you found this helpful and informative.

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