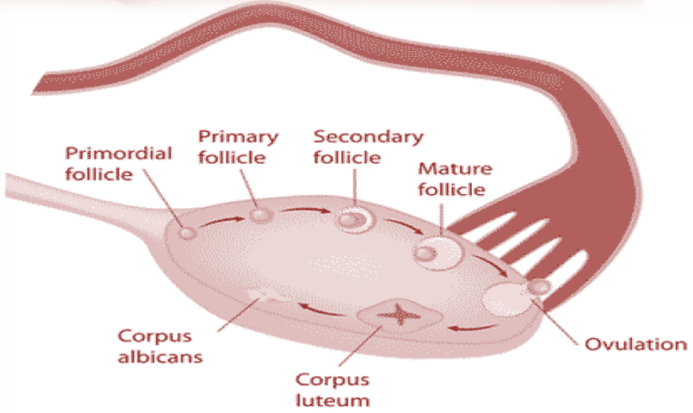
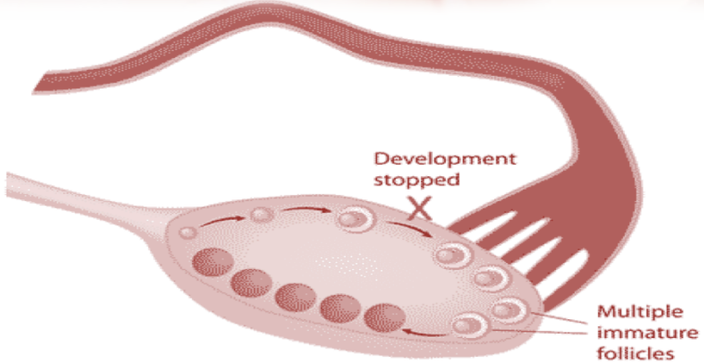
433 Teams

OBSTETRICS & GYNECOLOGY

Polycystic ovarian syndrome (PCO'S)



Normal Ovary



Polycystic Ovary

433OBGYNteam@gmail.com

جامعة الملك سعود
King Saud University

Learning objectives:

1. Describe the Pathogenesis of PCO.
2. Identify the clinical picture of PCO.
3. List the investigations required to diagnose PCO.
4. List the Health hazards associated with PCO.
5. Describe the management options to treat PCO.


Cardiovascular Problems
High Androgen Levels
Overweight
Excess Hair Production
Polycystic Ovaries Syndrome
High Insulin Levels Diabetes
Ovulation Problems
Irregular Menstual Cycles
Infertility

PCOS:

1.Its a chronic condition defined as anovulation or oligo-ovulation with clinical or laboratory evidence of hyperandrogenism and without evidence of any other underlying condition.

2.PCOS stands for PolyCystic Ovarian Syndrome.

3.Time of onset: usually at the time of puberty,(amongst women between 18-44 years old.)

4. Patient present to your clinic with one of the following complains: **A-** menstrual cycle problems. **B-** acne & hirsutism. **C-** infertility issues,

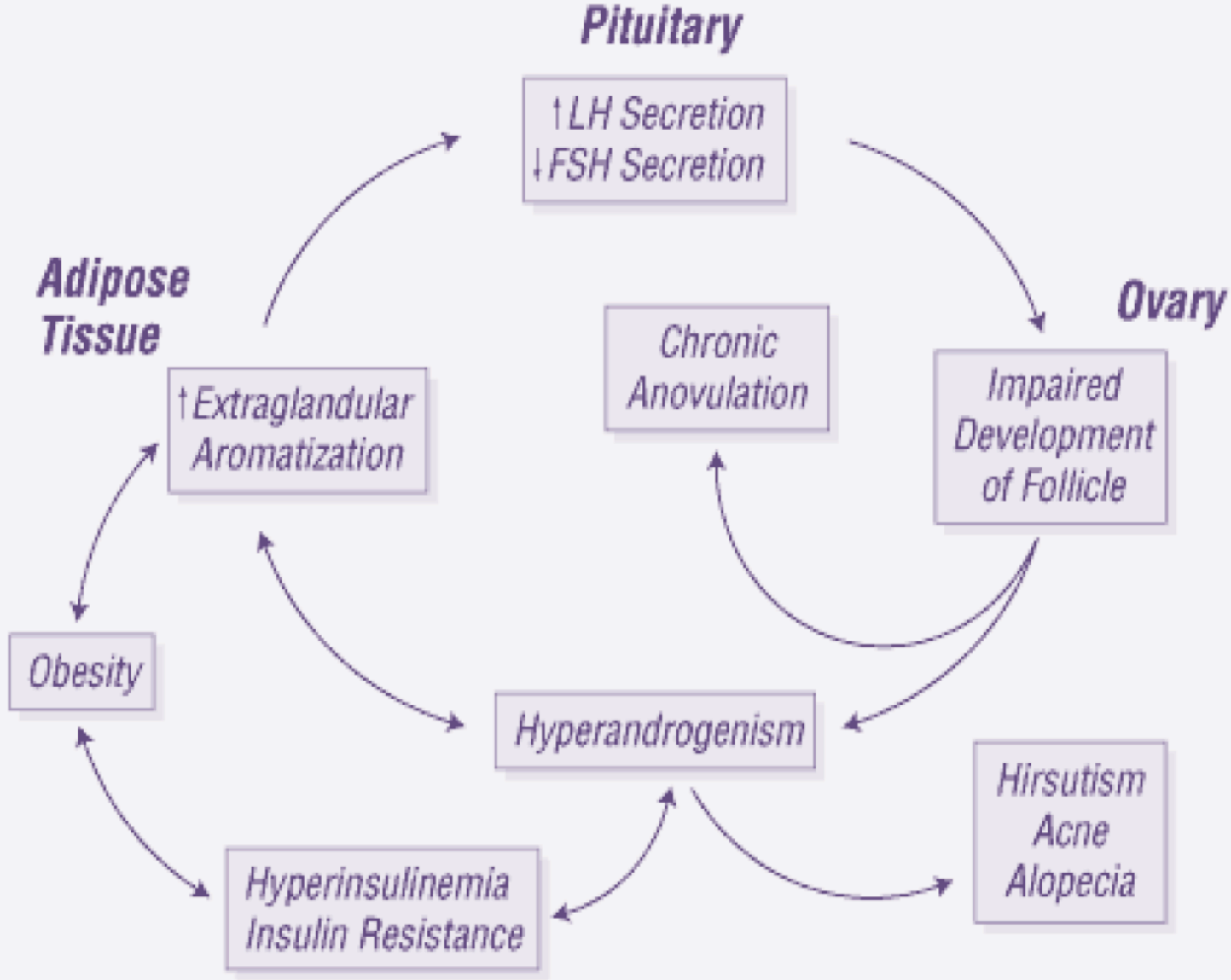
5.Ovaries appearance: in most patients with PCO's the ovaries contain **A-**multiple follicular cysts that are inactive, they are located peripherally in the cortex of the ovary. **B-** the ovarian stroma is hyperplastic and contains nests of luteinized theca cells (produce androgens).

6. PCOS is an abnormality in metabolism.(it's a functional disorder, most common endocrine disorder)

7. there's a heritable aspect to PCOS with an increased chance that 1st degree female relatives are affected.

Figure 1

Pathophysiology of Polycystic Ovary Syndrome



Source: Rasgon NL (2001)

Pathogenesis of PCOS:

1. Hyperandrogenism of PCOS results from overproduction of male hormones by the ovaries and often adrenal glands. Its not clear what the underlying pathophysiology of PCOS is.
2. Patients with PCOS exhibits increased LH pulse frequency → in higher circulating levels of LH. And these are due to increased GnRH secretion from the hypothalamus and increased pituitary sensitivity to GnRH.
3. The increased LH level promotes androgen secretion from the ovarian theca cells → elevated levels of ovarian-derived androstenedione and testosterone.
4. Some PCOS have excessive androgen production from the adrenal glands as well as the ovaries

Cont.

5. In women with PCOS there's an association between abnormal androgen and insulin resistance with hyperinsulinism.
6. Elevated androgens and insulin levels reduce the hepatic production and secretion of SHBG(sex-hormone-binding globulin), when SHBG is suppressed the amount of free testosterone may dramatically increase even thought the total amount maybe moderate or small thus the physical manifestation of hyperandrogenism may seem dramatic in relation to the level of total testosterone.
7. Insulin resistance associated with PCOS → increase risk for metabolic syndrome (DM & heart disease).
8.Unopposed estrogen in PCOS women → hyperplasia of the endometrium & occasionally endometrial carcinoma.

Clinical picture:

1. Signs of hyperandrogenism (Hirsutism, acne, hair fall 90%)
2. Menstrual irregularity (90%)
3. Infertility (75%)
4. Abdominal obesity.
5. Acanthosis nigricans.
6. Obstructive and sleep apnea
7. Anovulation

Evaluation of patient:

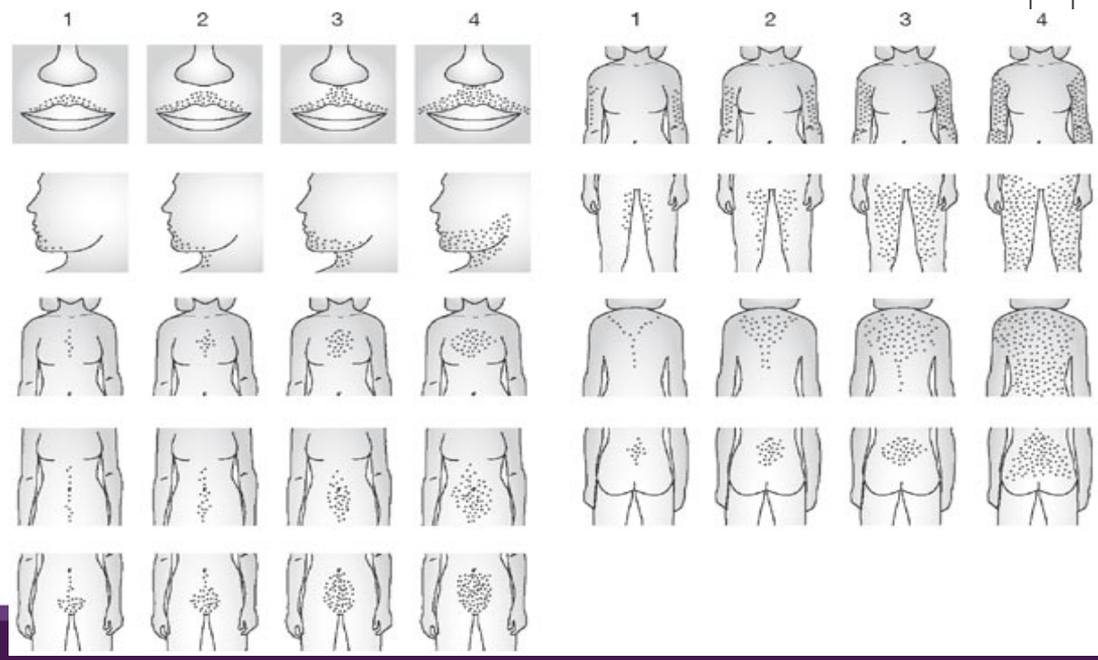
1. **Start with detailed history:** since it often appear during puberty and tend to progress slowly.
2. **Physical examination:** the degree of hirsutism, acne, or androgenic alopecia should be assessed & thyroid should be palpated for enlargement. Pt's should be asked about facial hair because they may be concealed by waxing or maybe too embarrassed to volunteer the information.
3. **Laboratory:** measurement of serum levels of total and free testosterone (in excess 200 ng/dl confirmed value highly suspicious) and DHEA-S (if confirmed value of 7000ng/ml highly suspicious)maybe helpful.
4. **Pelvic ultrasound:** bilateral enlarged ovaries and multiple follicles at ovary (at least 12)
5. **Evaluation of metabolic status** should be preformed: optimal screening should include 2-hour oral glucose tolerance test(measuring both glucose & insulin) also lipid levels in pt. over 35 years old.

Age_____ Height_____ Weight_____ Body Mass Index_____ Blood Pressure_____

Caucasian ☐ African American ☐ Asian ☐ N. American Indian ☐ Mediterranean ☐

Upper Lip	Sideburn Area	Chin	Lower Jaw & Neck	Upper Back	Lower Back	← Subtotal
Small number of terminal hairs over upper lip & outer lip border 1	Sparse terminal hairs 1	Sparse terminal hairs on chin 1	Sparse terminal hairs over lower jaw & upper neck 1	Sparse terminal hairs over upper back 1	Sacral area with hair coverage less than 4 cm wide 1	
Thin moustache covering less than 50% of upper lip or at the outer border 2	Sparse terminal hairs with small thickened areas 2	Sparse terminal hairs with small thickened areas 2	Sparse terminal hairs with small thickened areas 2	Increased number of spread terminal hairs 2	Increased sides coverage 2	
Moustache covering 50% from outer margin of the lip or 50% the lip height 3	Light hair growth over sideburn area 3	Entire chin covered with light growth 3	Entire area covered with light growth 3	Entire area covered with light growth 3	75% of lower back covered with terminal hairs 3	
Moustache covering most of upper lip & crossing the midline lip 4	Thick growth over sideburn area 4	Entire chin covered with heavy growth 4	Entire area covered with heavy growth 4	Entire area covered with heavy growth 4	Entire area covered with heavy growth 4	

Upper Arm	Thigh	Chest	Upper Abdomen	Lower Abdomen	Perineum	← Subtotal
Scattered terminal hairs over less than 25% of upper arm 1	Scattered terminal hairs over less than 25% of the thigh 1	Circumareolar or midline terminal hairs 1	Scattered midline terminal hairs 1	Small number of scattered midline terminal hairs the length of linea alba 1	Scattered perianal terminal hairs 1	
Increased but incomplete coverage 2	Increased but incomplete coverage 2	Circumareolar and midline terminal hairs 2	More terminal hairs, still midline 2	Midline concentration of terminal hair the length of the linea alba 2	Spread of terminal hair to the gluteal cleft 2	
Entire area covered with light growth 3	Entire area covered with light growth 3	75% of chest covered with terminal hairs 3	50% of upper abdomen covered 3	A midline thickened band of terminal hair less than ½ width of pubic hair at base 3	75% of perineum covered with terminal hairs 3	
Entire area covered with heavy growth 4	Entire area covered with heavy growth 4	Entire area covered with terminal hair growth 4	Entire area covered with terminal hair growth 4	An inverted V-Shaped coverage ½ width of pubic hair at base 4	Entire area covered with terminal hair growth 4	



Health hazards:

1. Hyperplasia of the endometrium.
2. Occasionally endometrial carcinoma.
3. At higher risk of developing type 2 DM
4. Are at increased risk of developing hypertension.
5. Increased risk for cardiovascular and cerebrovascular disease.

Management options to treat PCOs:

1. **Management depends on the patients presentation and desire .**
2. **Life style modifications(first-line treatment)** Diet, Exercise, Weight loss.
3. **Pharmacotherapy(treat metabolic derangments: anovulation, hirsutism, and menstrual irregularities)**

- induce regular menses →First-line medical therapy is oral contraceptive pills(eg ethinyl estradiol, medroxyprogesterone.)
- For menstrual disorders in a single woman → cyclic progesterone
- treat hirsutism→ Androgen blocking agent (eg spironolactone, leuprolide, finasteride)
- for ovulation induction→ Clomiphene citrate or letrozole(selective estrogen receptor modulators)as a first-line treatment
- Hypoglycemic agents→(metformin, insulin)

4.Surgery (aim to restore ovulation) Method by Laparoscopically:

- Electrocautery
- Laser drilling
- Multiple biopsy

Done by:

Zhour ALHedyan

Revised by:

Razan AlDhahri