Diagnosis and Treatment of Polycystic Ovary Syndrome (PCOS)

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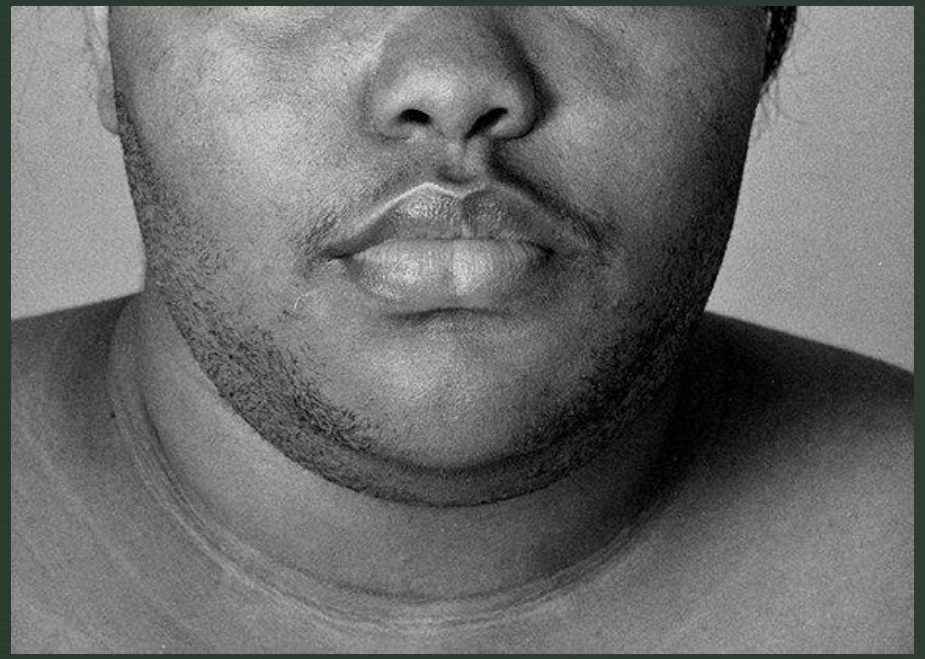
What is PCOS:

- Most common endocrine disorder in women
- Major cause of menstrual irregularities and hirsutism
- Classic features: amenorrhea, hyperandrogenism, polycystic ovarian morphology

Clinical Features:



•Menstrual dysfunction

•Hyperandrogenism:
hirsutism, acne, male-pattern hair loss

- Poly cyctic ovary in TVUS

•Obesity and insulin resistance
Increased risk of type 2 diabetes and cardiovascular issues

Laboratory Evaluation:

- Women with normal cycle and hyperandrogenism:
  - ✓ **total testosterone**

    Normal range for women : 45 to 60 ng/dL (1.6 to 2.1 nmol/L)

    with a serum testosterone >150 ng/dL require evaluation for the most serious causes of hyperandrogenism (ovarian and adrenal androgen-secreting)

  - ✓ **Serum 17-hydroxyprogesterone**

    in the early follicular phase in all women with possible PCOS to rule out nonclassic congenital

    adrenal hyperplasia (NCCAH) due to 21-hydroxylase deficiency

❑ Free testosterone , DHEAS , Androstenedione not requerded

Laboratory Evaluation:

- Women with oligomenorrhea and hyperandrogenism:

  Total testosterone , **Serum 17-hydroxyprogesterone**

  TSH, FSH, PRL, AMH

  - LH/FSH not requerd

women with features of severe hyperandrogenism:

(virilization and/or hirsutism of recent onset that is rapidly progressive), we suggest measuring :

- ✓ Serum total testosterone
- ✓ serum DHEAS
- These women usually have an androgen-secreting tumor (ovarian or adrenal) or ovarian hyperthecosis

Transvaginal ultrasound:

- the presence of 12 or more follicles in either ovary measuring 2 to 9 mm in diameter and/or increased ovarian volume (>10 mL). One ovary fitting this definition is sufficient to define PCOM
- In 2018, an international evidence-based medicine group recommended a threshold of ≥20 follicles in each ovary

Diagnostic Criteria (Rotterdam) :

NIH consensus criteria 1990 [1] (all required)	Rotterdam criteria 2003* [2] (two out of three required)	AES definition 2008 [3] (all required)
Menstrual irregularity due to oligo- or anovulation	Oligo- or anovulation	Clinical and/or biochemical signs of hyperandrogenism
Clinical and/or biochemical signs of hyperandrogenism	Clinical and/or biochemical signs of hyperandrogenism	Ovarian dysfunction – oligo/anovulation and/or polycystic ovaries on ultrasound
Exclusion of other disorders: NCCAH, androgen-secreting tumors	Polycystic ovaries (by ultrasound)	Exclusion of other androgen excess or ovulatory disorders

DIFFERENTIAL DIAGNOSIS:

- NCCAH
  - The clinical presentation of nonclassic congenital adrenal hyperplasia (NCCAH) is similar or identical to that of PCOS (hyperandrogenism, oligomenorrhea,and polycystic ovaries).
  - NCCAH is less common than PCOS but should be ruled out because there are risks that offspring could be affected with the more severe classic 21-hydroxylase deficiency .
  - suggest testing for NCCAH deficiency by measuring 17-hydroxyprogesterone at 8 AM

  If < 200 → R/O

  If>200 → check high-dose (250 mcg) corticotropin (ACTH) 1-24 (cosyntropin) stimulation test

DIFFERENTIAL DIAGNOSIS:

Androgen-secreting tumors/ovarian hyperthecosis

- Women with androgen-secreting ovarian or adrenal tumors or ovarian hyperthecosis typically present with recent onset of severe hirsutism, sudden progressive worsening of hirsutism, and symptoms or signs of virilization, including severe acne, clitoromegaly, increased muscle mass, or deepening of the voice.

- Their serum testosterone concentrations are almost always **greater than 150** ng/dL (5.2 nmol/L) and those with adrenal tumors typically have serum dehydroepiandrosterone sulfate (DHEAS) concentrations higher **than 800** mcg/dL (21.6 micromol/L)..

FURTHER EVALUATION AFTER DIAGNOSIS:

- Blood pressure and body mass index (BMI)
- Fasting lipid profile
- A two-hour oral glucose tolerance test (OGTT)
- Sleep apnea

goals of therapy of women with PCOS:

- Amelioration of hyperandrogenic features (hirsutism, acne, scalp hair loss)
- Management of underlying metabolic abnormalities and reduction of risk factors for type 2 diabetes and cardiovascular disease
- Prevention of endometrial hyperplasia and carcinoma, which may occur as a result of chronic anovulation
- Contraception for those not pursuing pregnancy, as women with oligomenorrhea ovulate intermittently and unwanted pregnancy may occur
- Ovulation induction for those pursuing pregnancy

Lifestyle changes:

- exercise for weight reduction as the first step for overweight and obese women with PCOS
- weight-loss strategies using calorie-restricted diets combined with exercise for women with PCOS and obesity
- Low-carbohydrate diets have become very popular for women with PCOS, based upon the notion that less carbohydrate leads to less hyperinsulinemia and therefore less insulin resistance

WOMEN NOT PURSUING PREGNANCY:

- (COCs) as **first-line** therapy for menstrual dysfunction and endometrial protection
  - Daily exposure to progestin, which antagonizes the endometrial proliferative effect of estrogen
  - Contraception in those not pursuing pregnancy, as women with oligomenorrhea ovulate intermittently and unwanted pregnancy may occur
  - Cutaneous benefits for hyperandrogenic manifestations
- Metformin is a potential alternative to restore menstrual cyclicity as it restores ovulatory menses in approximately 30 to 50 percent of women with PCOS

Hirsutism:

- COCs for 6 months (first line)
- if the patient is not satisfied with the clinical response to COC monotherapy:

  Add spironolactone 50 to 100 mg twice daily

WOMEN PURSUING PREGNANCY:

- Weight loss
- Ovulation induction medications
- Metformin
- Inositol, in particular myo-inositol

با تشکر از توجه شما