PCOS

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INTRODUCTION

- Heterogeneous, complex genetic trait
- Aetiology is unclear
- Common cause of menstrual irregularity
- Common cause of subfertility
- Also a cause of hyperandrogenism
  - Acne
  - Hirsutism

- First described by Stein and Leventhal in 1935

INTRODUCTION

- Polycystic ovaries- does not mean Polycystic Ovarian Syndrome
- 4-12% of population

- Diagnosis: 2003 Rotterdam criteria

  - 2 of the following 3 required
    - Oligo or anovulation (menstrual irregularity)
    - Hyperandrogenism
    - USS appearance of Polycystic ovaries

DIAGNOSIS

- Menstrual dysfunction
  - Typically begins in pripubertal period
  - Menarche may be delayed
  - Normally oligomenorrhoea
    - Less than 9 periods a year
  - Amenorrhoea
    - No periods for 3 or more consecutive months
  - Anovulation
  - Infertility

DIAGNOSIS

- Androgen excess
  - Clinical signs
  - Acne
  - Hirsutism
    - Excess thick pigmented body hair
    - Upper lip, chin, midsternum, lower abdomen
  - Male pattern hair loss
  - Less common virilisation
    - Clitoromegaly
    - Deepening of voice
    - More likely above due to androgen secreting tumour

DIAGNOSIS

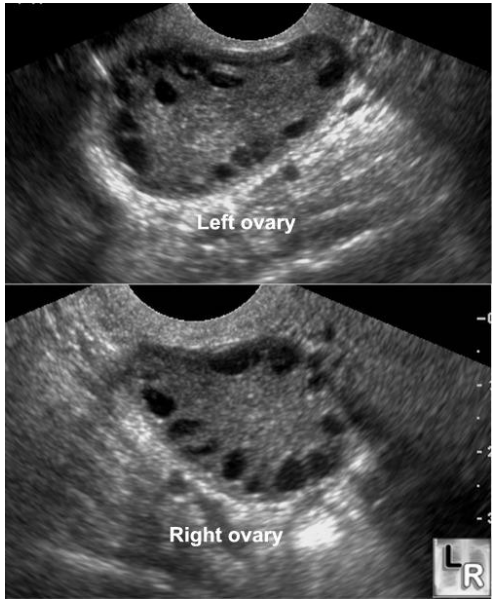
- Polycystic appearance of Ovaries
  - Multiple follicles
  - Thick stroma

- However this may also be seen

In normal cycling women

- Isolated finding is of no

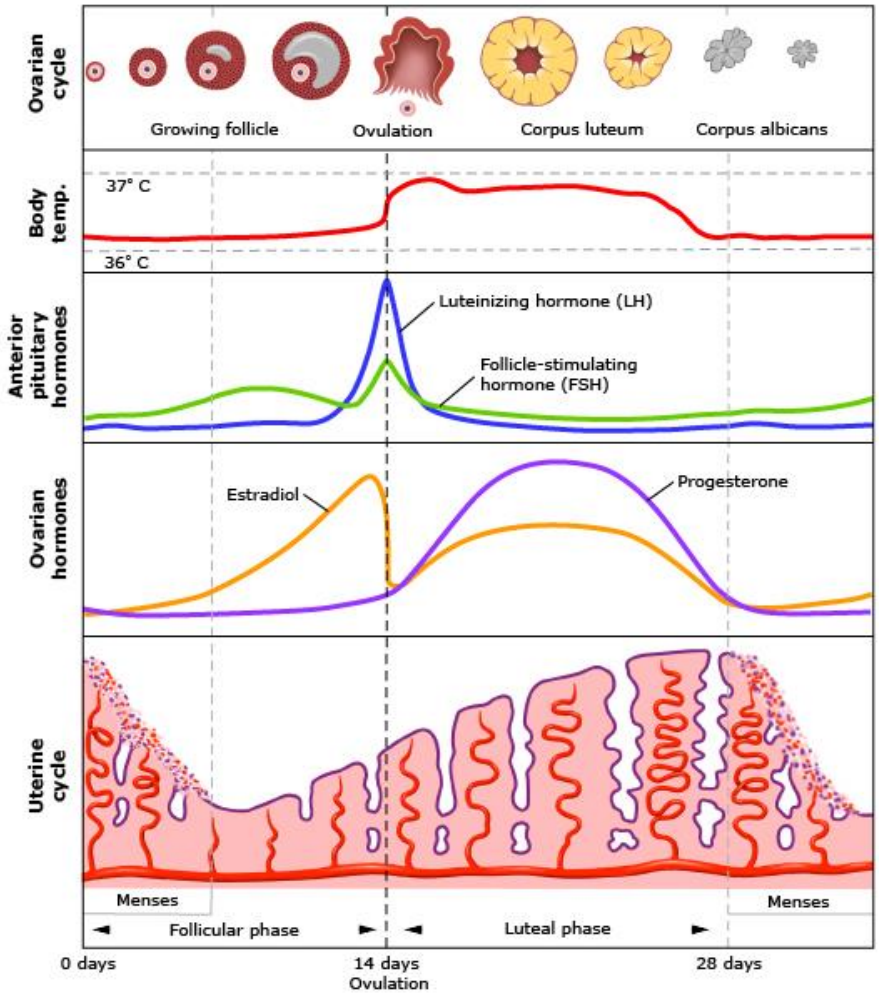
clinical significance



CLINICAL MANIFESTATIONS

- 40-85% of women with PCOS are overweight
- Not a diagnostic criteria
- Insulin resistance is present
  - 30% of lean
  - 70% of overweight
- Increased risk of type 2 Diabetes
- Increased risk of CHD
- Sleep apneoa
- Metabolic syndrome
- Mood disorder- anxiety, depression, binge eating

Menstrual cycle



CLINICAL MANIFESTATION

- Ovulation leads to progesterone secretion and menstruation
- Chronic anovulation results in lack of progesterone and increased estrogen
- Obesity contributes to hyperestrogenic state
- Chronic stimulation of endometrium with lack of menstruation can lead to endometrial hyperplasia
- If untreated, this can lead to cancer

EVALUATION

- Clinical picture
  - BMI measurement
  - Glucose intolerance
  - Dyslipidaemia
  - Fatty liver
  - Obstructive sleep apneoa

- Based on Rotterdam criteria, history and examination should be enough in most women

EVALUATION

- Hirsutism
  - Beware ethnic variation
  - East asian women least hairy
  - White european and black women intermediate
  - Middle eastern, south asian and mediterranean most hairy

- Diagnosis of exclusion
  - Exclude other cases of amenorrhoea
  - Menopause
  - Pregnancy
  - Thyroid disorder, hyperprolactinoma

OTHER CONDITIONS

- Androgen excess
  - Tumours
  - Ovarian hyperthecosis
  - Congenital adrenal hyperplasia

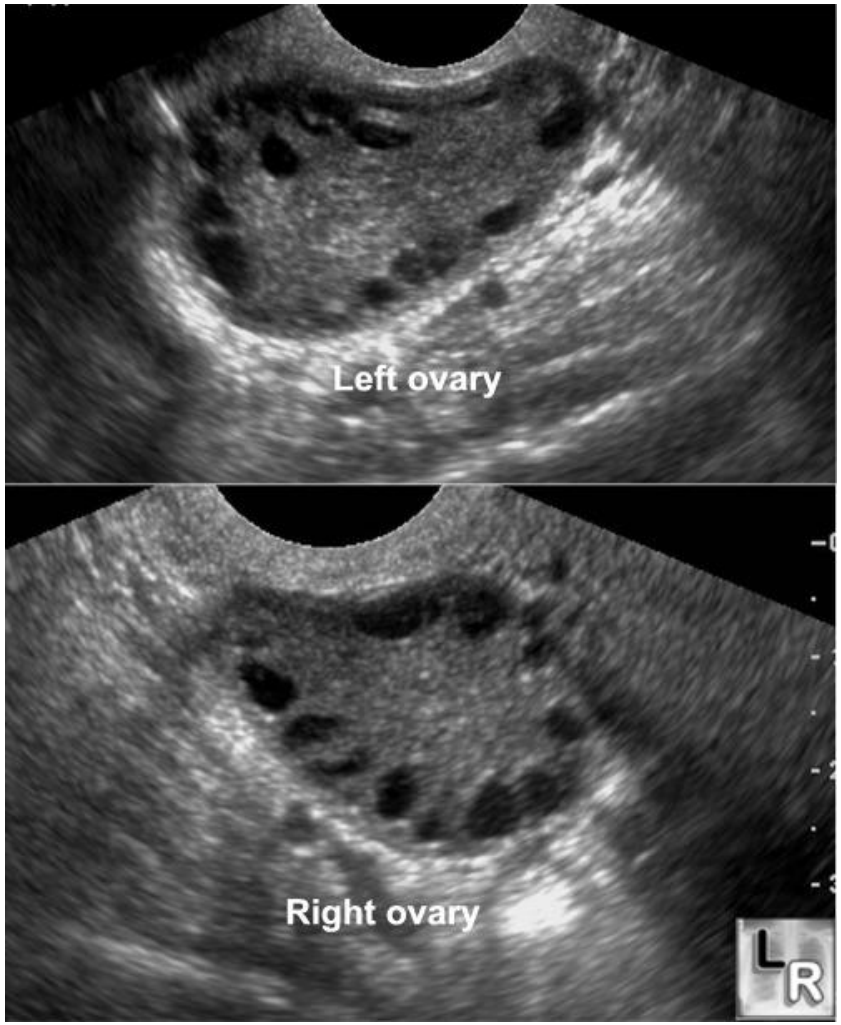
INVESTIGATIONS

- Biochemistry
  - TFT
  - Prolactin
  - FSH- to rule out menopause
  - LH/FSH ratio- can be helpful but not diagnostic criteria
  - Must be >2 to 3:1
  - Must be done in follicular phase but most women are oligomenorrhoeic
  - Serum totalTestosterone levels if very raised may be due to other causes
  - Possibly SHBG- if low then confirms diagnosis

INVESTIGATIONS

- Ultrasound
  - Perfomed as part of diagnosis
  - However not always needed
  - Absence of Poly cystic morphology does not exclude
  - Useful if only one either criteria present
  - If scan is to be done then must be Transvaginal
  - Remember these are follicles and not cysts
  - 12 or more follicles witth large ovaries
  - Unilateral PCO is sufficient
  - Can also check for endometrial thickness

IGNORE INCIDENTAL FINDING



MANAGEMENT

- Management depends on goals
- Goals are
  - Amelioration of hyperandrogenic symptoms
  - Metabolic disorders
    - Obesity
    - Type 2 diabetes
    - Cardiovascular disease
  - Prevention of Endometrial hyperplasia
    - Due to chronic anovulation and estrogen excess
  - Contraception
  - Ovulation induction

MANAGEMENT

- Lifestyle changes
  - Diet and exercise for weight reduction inObeste women
    - Improves insulin resistance and hyperandrogenism
    - Fertility improves
  - Multidisciplinary management
    - Gynaecology
    - Dietician
    - Endocrinologist
    - Clinical psychologist

MANAGEMENT

- Oral Contraceptive Pill
  - Mainstay of treatment
  - Treats hyperandrogenism
    - Increases SHBG which mops up excess testosterone
    - Yasmin- contains drospirenone or Dianette which has cyproterone acetate- anti androgenic
  - Regulates Menses
  - Endometrial protection
  - Improve insulin sensitivity
- However, not useful if goal is to peruse a pregnancy

MANAGEMENT

- Oral Contraceptive Pill- risks
  - Increased risk of VTE particularly if obese
  - Risk assessment important
    - BMI <30
    - Age
    - Smoking status
    - Family history of VTE
- Can use Progesterone only pill
  - Mini pill ie cerazette
- Or cyclical progestogen therapy to induce menstruation

MANAGEMENT

- Goals- endometrial protection
  - Progestagen therapy ie Norethisterone of Provera cyclically
  - Mirena IUCD

- Goals- Hirsutism
  - OCP
  - Antiandrogens
    - Spironolactone
    - Cyproternone acetate
    - Finasterite
    - Flutamide- hepatotoxicity
    - Laser hair removal/ waxing
    - Vaniqa – Topical antiandrogen that prevents hair growth but must be used indefinitely

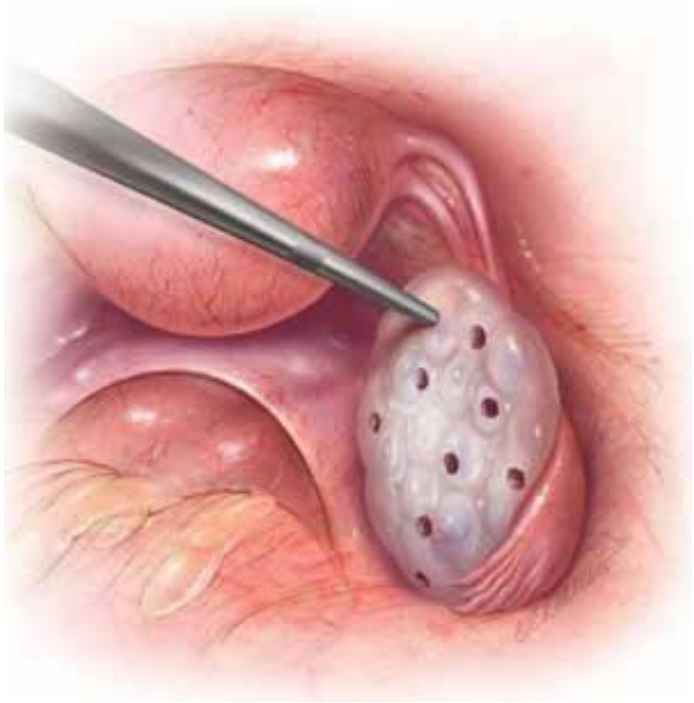
MANAGEMENT

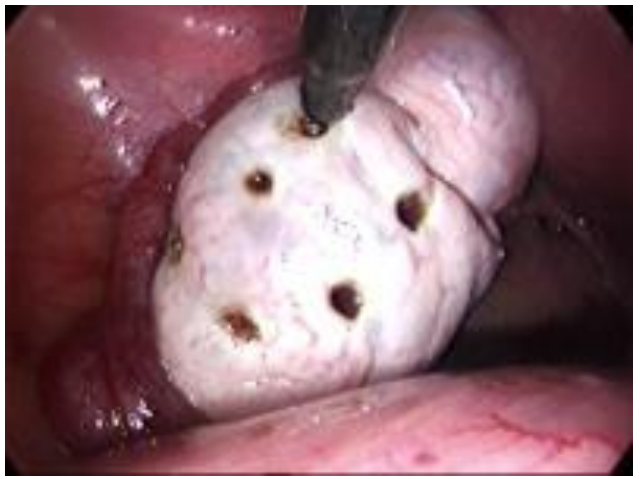
- Goals- Weight loss
  - Lifestyle changes
    - Even 5-10% weight loss can result in ovulation
  - No diet superior to other
  - Low carb diets however very popular
  - Bariatric surgery
- Goals – Metabolic disorders
  - Weight loss
  - Metformin
  - Statins

MANAGEMENT

- Goals- Anovulatory infertility
  - Weight loss
  - Ovulation induction
    - Clomiphene citrate from D2-D6 of cycle
    - Ensure semenalysis normal
    - Letrozole
    - Metformin
    - Exogenous gonadotrophins (IVF/IUI)
  - Laparoscopic Ovarian drilling
    - Too invasive but effective if all else fails

OVARIAN DRILLING





METFORMIN

- Inhibits production of hepatic glucose
- Increases fatty acid oxidation
- Enhances Insulin sensitivity
- Observational studies
  - Reducing serum androgens and menstrual cycle
  - Effective in achieving ovulation
- Randomised studies had conflicting results
  - No consensus on dose and duration in the latest Cochrane review

METFORMIN

- Body Weight
  - May achieve weight loss
  - Randomised control trials failed to confirm this
  - Combined with lifestyle changes may work

- Ovulation Induction
  - One study found higher live birth rates with Metformin- but only just reached statistical significance

RCOG SCIENTIFIC PAPER

- August 2017
- Conclusion

‘ Metformin appears to have limited role in improving reproductive outcomes in PCOS but in patient specific groups- ie obesity or those with higher impaired glucose tolerance or type 2 diabetes’

CONCLUSION

- Common problem
- Long term sequelae
- Treatment depends on goal
- Mainstay is weight loss and lifestyle changes
- Remember psychological impact
- Avoid labelling