Dr Stella Milsom

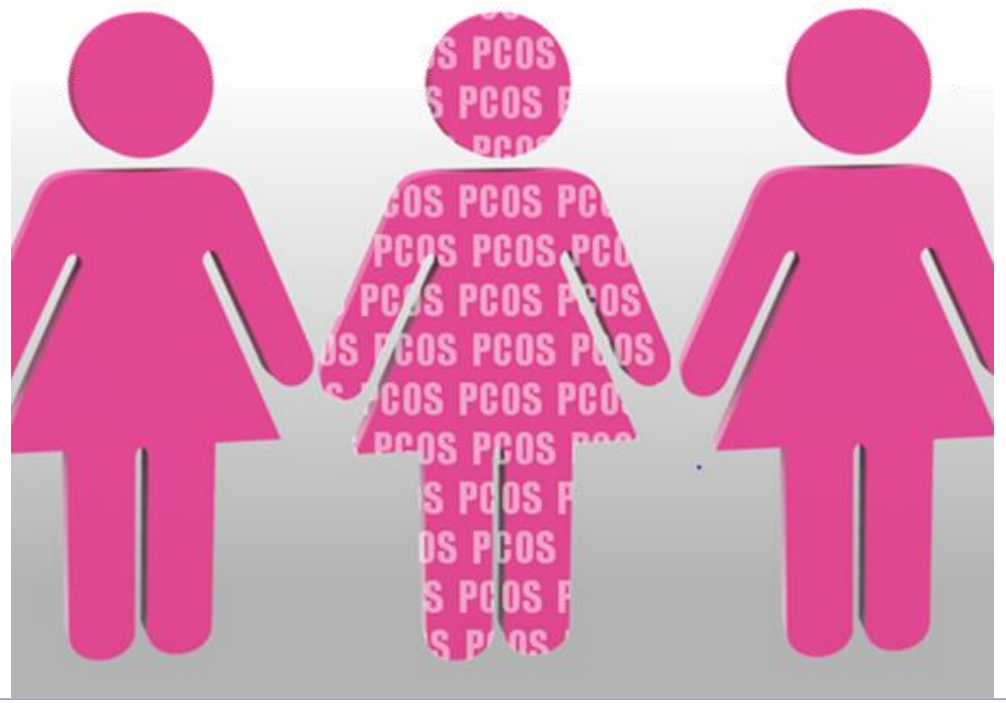
Endocrinologist

Fertility Associates

Auckland

Saturday, June 10, 2017

12:30 - 12:40 When Puberty is PCO



Puberty or Polycystic Ovary Syndrome ?

Stella Milsom

Endocrinologist

Auckland DHB, University of Auckland, Fertility Associates Auckland

Presentation will cover

- How to differentiate normal puberty from polycystic ovary syndrome (PCOS)
- Why does PCOS benefit from early diagnosis?
- Case based discussion
- Discussion and question time

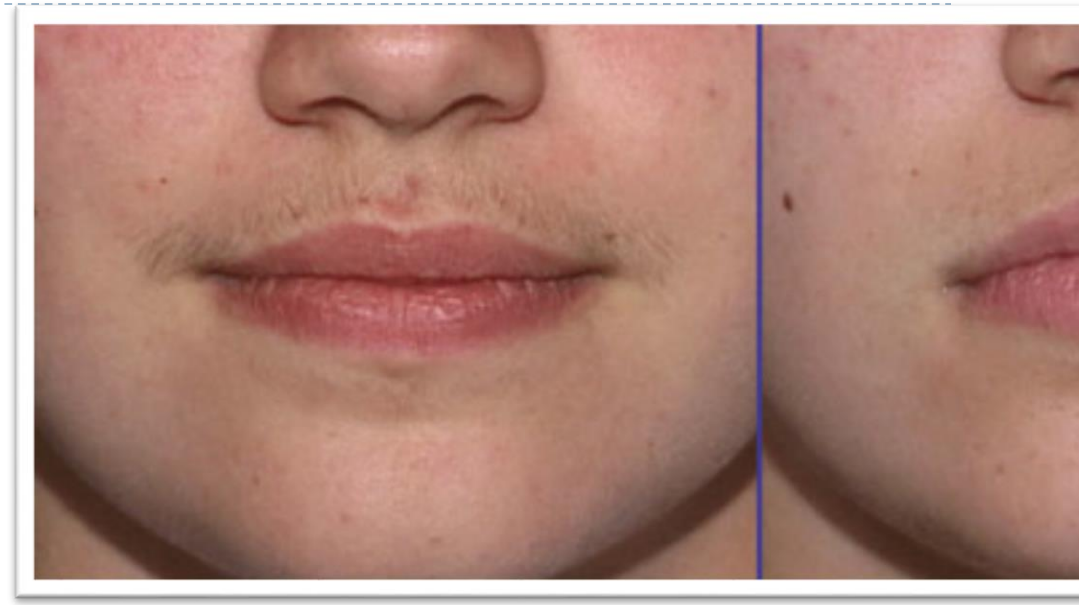
Alex, 16 yrs

- Complains of facial hair – teased at co-ed school, loss of confidence
- Menarche at 13 yrs, 1-2 periods per year since
- Sexually active ("assumes she can't get pregnant")

Alex, 16 yrs

Examination

- Androgen dependent hair on chin, upper lip, lower abdomen, thighs (Ferriman Gallwey score 12, N< 8)
- BMI 26, Blood pressure 110/70
- Tanner 4 breast development
- Not virilised and no features of Cushing's syndrome



Results

- βHCG -ve
- LH 8.0, FSH 5.2, E2 250, Prolactin 254
- TSH 2.3

- Androgens
  - Testosterone 2.9 (N< 2.5)

  - Androstenedione 14 (N 2-8)
  - DHEAS 7.8 (N 1-10)
  - 17 OH progesterone 3.2 (N<10)

- TV/TA pelvic ultrasound
  - Right ovary 13mls, left ovary 16mls, > 12 follicles in both ovaries

Alex-normal puberty or something more…?

- Oligomenorrhea 3 years after menarche
- Significant hirsutism
- Raised testosterone
- PCO morphology and enlarged ovaries

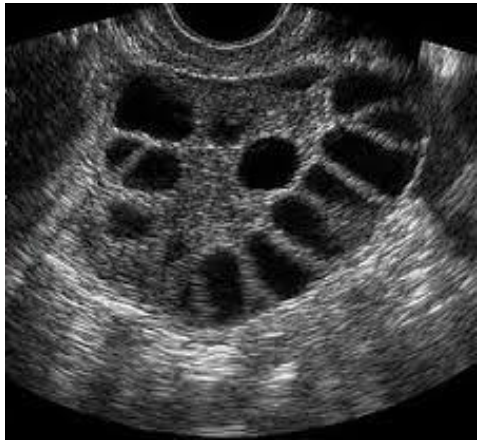
What signs or symptoms might suggest PCOS in adolescence from normal puberty?

- Menstrual cycle
  - is regular within 12 months of menarche in 65 % and in 90 % by 24 months post menarche
  - oligomenorrhea at 15 yrs is strong predictor of continued oligomenorrhea
- Raised androgens +/- androgen excess symptoms
  - acne is common in puberty with 90% of 18 yrs old having some form of acne; androgenic alopecia-no information in adolescence
  - However
    - biochemical androgen excess not a feature of normal puberty
    - hirsutism is less common, however assessment is subjective (FG score) and not standardised for adolescence

Is ultrasound helpful in distinguishing normal puberty and PCOS?

Definition of Polycystic Ovary

- 12 follicles in one or both ovaries
- and/or volume ≥10cm^3



- PCO morphology is sensitive but non specific for PCOS as 10-40% normal adolescents also have PCO morphology
- Ovaries may be enlarged early in adolescence and later normalise
- Imaging in obese or non SA girls may be challenging

- Conclusion : US changes not sufficient to make diagnosis of PCOS
- Ovaries enlarged and with PCO morphology more likely to be associated with PCOS

Mortenson 2006, Blank 2008, Hickey 2011

Diagnosis of PCOS in adolescence

- Given overlap of symptoms and frequency of PCO morphology, stricter diagnostic criteria are suggested in adolescents so as not to over diagnose PCOS

Rotterdam consensus

- PCO morphology
- clinical or biochemical hyperandrogenism
- anovulatory menses

- Adult- PCOS if 2 of 3 criteria present
- Adolescent-PCOS if all 3 criteria present

Carmina et al, 2010

Alex, 16 yrs

What is her diagnosis?

- Primary PCOS

How do we know this isn't secondary PCOS ?

- modest T elevation makes CAH or tumour most unlikely
- normal prolactin excludes hyperprolactinaemia
- clinical exam doesn't support Cushings syndrome

Could she have another endocrine diagnosis?

- Hypothalamic amenorrhea is common in adolescence, but unlikely in girl with raised androgen levels, normal LH and measurable estrogen (plus we ask her about exercise pattern, nutrition and weight changes)

Why diagnose PCOS early or at all… ?

- Androgen excess symptoms (acne and excessive body hair) are likely to be persistent and cause distress
- PCOS (especially hyperandrogenic PCOS) increases risk of metabolic syndrome-IGT, gestational and type 2 diabetes, dyslipidemia and hypertension
- PCOS is associated with other morbidities: endometrial cancer; low mood and anxiety; infertility; pregnancy complications and overall impaired quality of life

Wild, JCEM, 2010, Consensus from AE-PCOS society

Conclusions

- Distinguishing PCOS from puberty in adolescence is challenging and requires stricter criteria than in adults
- If in doubt, i.e patient who meets 2 but not 3 Rotterdam criteria, review diagnosis later on
- Be aware of the risk of metabolic syndrome and other comorbidities associated with PCOS; primary care has the opportunity to educate and manage girls with PCOS so as to minimize these risks later in life

Thank you