

Polycystic Ovary Syndrome

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Clinical presentation and management

Common clinical presentations of PCOS are outlined in Table 2. Management of patients with PCOS is complex and requires a multidisciplinary approach involving gynaecology, endocrinology, reproductive medicine, dermatology, dieticians, psychology, nursing and other allied healthcare professionals.

Management of PCOS can adopt a conservative, medical or surgical approach based on the presentation and the patient's wishes.

Lifestyle modifications, including regular physical exercise and dietary optimisation, form the basis of the initial management and can help achieve optimal body mass index (BMI), regulate hormonal imbalances, and improve quality of life⁵⁻⁷. Counselling can play an extremely important role in the management of women with PCOS. Other conservative measures include cosmetic treatments for hirsutism.

Hormonal treatment with a combined oral contraceptive pill (COCP) is recommended to regulate hormonal imbalances and thus regulate menstrual cycles and improve hirsutism. When commencing hormonal therapy, phenotypic features of PCOS, which may be a relative or absolute contraindication to treatment with these modalities, should be taken into consideration. Some international guidelines recommend that in cases where lifestyle and the COCP have failed to achieve an adequate response or in women with high risk of metabolic disease, consideration can be given to the addition of Metformin⁴. However, there is conflicting evidence that the use of Metformin in PCOS confers any long term benefit⁸.

The negative effects on the quality of life for women who suffer with PCOS can often be underestimated. Symptoms

Introduction

Polycystic Ovary Syndrome, or PCOS, is the most common endocrinopathy in women of reproductive age. There can often be a delay in definitive diagnosis due to significant variation in phenotypic presentation.

The incidence of PCOS in women of reproductive age is estimated to be between 8 and 13% depending on the population studied. The prevalence in Ireland is 128 per 100,000 women of reproductive age. There is marked variation across Europe, with a prevalence ranging from 34 to 461 in 100,000 women of reproductive age in recently published data¹. This variation can be explained by the differences in diagnostic

criteria used, the heterogenous nature of the condition and the difference in the number of cases diagnosed in a region. Additionally, certain ethnic groups, including South Asian and Australian Aboriginal populations have a higher incidence of PCOS². Although there have been no definitive monogenic causes of PCOS identified to date, it is hypothesised that PCOS may be polygenic in nature, with almost 50% of female first degree relatives of women with PCOS also affected³.

Diagnosis

The Rotterdam Criteria, defined by the European Society of Human Reproduction and Embryology (ESHRE) and the American Society

for Reproductive Medicine (ASRM) in 2003, continue to be widely utilised internationally for the diagnosis of PCOS in women of reproductive age. A minimum of two criteria are required to make the diagnosis, after the exclusion of other aetiologies (Table 1). These aetiologies include thyroid disease, hyperprolactinemia, Cushing syndrome, androgen secreting tumours or congenital adrenal hyperplasia. It has been suggested that the diagnosis of PCOS should be approached with caution during puberty as symptoms, which are often transitional during this time, can be mistaken for PCOS and in some cases lead to an overdiagnosis. As a result, it has been recommended that ultrasonographic assessment should not be included in the diagnostic criteria for up to eight years following menarche. Rather, adolescents with symptoms and signs suggestive of PCOS should be followed up and reassessed to establish progression of symptoms before making a definitive diagnosis⁴.

Table 1: Rotterdam Criteria (2003) for diagnosis of PCOS*

1. *Ovulatory dysfunction*
2. *Polycystic ovaries on ultrasound (≥12 follicles 2-9mm per ovary and/or a volume >10ml)***
3. *Clinical or biochemical hyperandrogenism*

*A minimum of 2 out of 3 criteria are required for a diagnosis of PCOS following the exclusion of phenotypically similar androgen excess disorders such as congenital adrenal hyperplasia, androgen-secreting tumours, Cushing syndrome, thyroid dysfunction, and hyperprolactinemia ** Using transvaginal ultrasound transducers with a frequency bandwidth of ≥ 8MHz, the threshold for polycystic ovarian morphology should be on either ovary, a follicle number per ovary of ≥20 and/or an ovarian volume ≥ 10ml, ensuring no corpora lutea, cysts or dominant follicles are present

Table 2: Common clinical presentations of PCOS

• <i>Acne</i>	• <i>Alopecia</i>
• <i>Hirsutism</i>	• <i>Irregular menstrual cycles</i>
• <i>Infertility</i>	• <i>Increased body mass index</i>
• <i>Mood disturbance</i>	• <i>Pelvic pain</i>

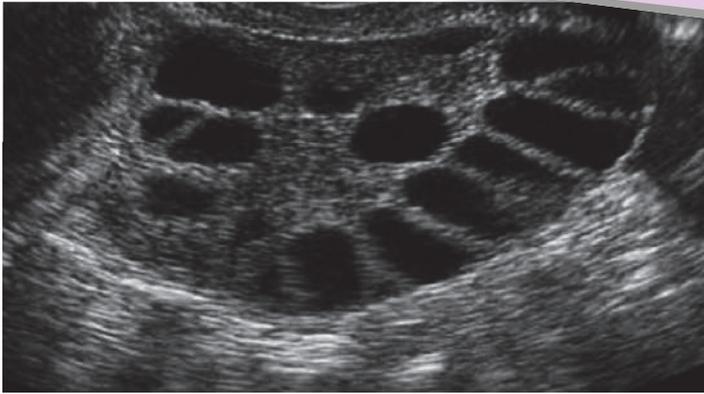


Figure 1 : Typical sonographic appearance of a polycystic ovary with multiple peripheral follicles

such as hirsutism, obesity and acne can lead to unnecessary embarrassment and suffering and these should be addressed and managed, where possible. Healthcare professionals must be cognisant of the symptoms of anxiety and depression that women with PCOS may present with and where needed, onward referral for further management should be employed⁹.

PCOS and infertility

PCOS is found to be the cause of anovulatory cycles in 80-90% of women with menstrual irregularities and is also a common diagnosis seen in approximately a third of couples attending fertility clinics³. Once again, a multimodal approach is necessary, including lifestyle and diet adjustments for those with higher body mass indices, possibly followed by ovulation induction once other causes of infertility have been excluded. Prior to embarking on fertility treatment in women with PCOS, optimisation of health should be achieved. Women should be advised to take folic acid at a dose of 400mcg daily. In women who are obese (BMI \geq 30kg/m²), 5mg of folic acid supplementation should be recommended daily. A comprehensive infertility workup should be performed prior to fertility treatment. Investigations to assess ovarian reserve, confirm tubal patency and assess semen analysis if applicable should also be considered prior to fertility treatment to guide the most appropriate individualised management.

One management approach is ovulation induction. This can be achieved through oral agents, including selective oestrogen receptor modulators or aromatase inhibitors, or subcutaneous gonadotropins. Initially, all cycles of ovulation induction should be monitored with ultrasonographic follicular tracking. Women with polycystic ovaries are at a higher risk of ovarian hyperstimulation syndrome (OHSS) and multiple pregnancy, and therefore may require even closer monitoring during ovulation induction. If ovulation induction treatment

is unsuccessful, a second line approach is laparoscopic ovarian drilling or puncture. Women with PCOS may have ovaries with a thick outer layer. Ovarian drilling works by breaking through the thick outer surface and lowering the amount of testosterone made by the ovaries. This procedure can result in ovulation in up to 50% of women that were unresponsive to initial therapy.

Body mass index can also affect ovarian function and therefore contribute to infertility. Fertility treatment is challenging in women with higher body mass indices and monitoring of ovarian response with ultrasound can be limited as a result. Complications and adverse outcomes in those with higher body mass indices are however, not just limited to fertility treatments. The incidence of pregnancy complications such as miscarriage and congenital anomalies are also increased in women in the obese category. The British Fertility Society have recommended that fertility treatment should be deferred until a BMI under 35 kg/m² is achieved, and that in women where treatment is less time sensitive, a BMI of less than 30 kg/m² is preferable¹⁰.

Long term prognosis

Although data on long term outcomes in women with PCOS are conflicting, symptoms associated with PCOS such as obesity, dyslipidaemia and anovulation may result in long term complications including type II diabetes, cardiovascular disease and endometrial hyperplasia. The prevalence of gestational diabetes, impaired glucose tolerance and type II diabetes have been found to be significantly increased in women with PCOS^{11,12}. International guidelines suggest that glycaemic control should be assessed at diagnosis in this population and one to three yearly thereafter⁴.

Although an increased risk of cardiovascular disease in women with PCOS has not been quantified to date, women with PCOS often carry additional risk factors for cardiovascular disease such as increased BMI, increased waist

circumference, dyslipidaemia and hypertension. It is recommended that these risk factors be screened for, assessed and monitored on an ongoing basis in this population.

Although the relative incidence still remains low, women with PCOS have a two to six-fold increased risk of endometrial cancer¹³. It is crucial for women with amenorrhoea to shed their endometrium at least every three months in order to reduce the risk of endometrial hyperplasia, a pre-cancerous condition which can lead to endometrial cancer over time. This occurs as a result of chronic exposure to oestrogen that is unopposed by progesterone. Healthcare professionals need to be aware of this increased risk and have a low threshold for investigation of abnormal uterine bleeding in women with PCOS.

Conclusion

Polycystic Ovary Syndrome is a common condition in women of reproductive age. It is often undiagnosed due to its heterogeneous phenotype. Early recognition is crucial to allow appropriate management of symptoms and sequelae, which can have major implications on a woman's quality of life.

A multidisciplinary, individualised approach to care can provide optimisation of women's health and prevent short and long term complications including type II diabetes, cardiovascular disease, endometrial cancer and infertility in women with PCOS.

Further Reading:

- HSE PCOS Overview: <https://www2.hse.ie/conditions/polycystic-ovary-syndrome/>
- International evidence-based guideline for the assessment and management of polycystic ovary syndrome (PCOS) S : <https://www.eshre.eu/Guidelines-and-Legal/Guidelines/Polycystic-Ovary-Syndrome>
- RCOG Patient Information Leaflet PCOS : <https://www.rcog.org.uk/en/patients/patient-leaflets/polycystic-ovary-syndrome-pcos-what-it-means-for-your-long-term-health/>

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