

Around one in five women of reproductive age have small cysts on their ovaries. These will cause few problems to the majority but in some cases will be accompanied by further troublesome symptoms and even infertility. The condition is then known as polycystic ovary syndrome and may require specialist treatment.

Polycystic ovaries (PCO) describes the appearance of the ovaries when they are seen on an ultrasound scan. Not all women with polycystic ovaries have polycystic ovary syndrome (PCOS) but all women with PCOS do have polycystic ovaries and they have one or more additional symptoms.

Normal Ovaries

Women have two ovaries; they are located in the pelvis alongside the uterus (womb). Their main functions are to release eggs and produce hormones.

At birth, the ovaries are provided with thousands of eggs, each surrounded by cells which develop into a small fluid-filled blister known as a follicle. Each month, in women with regular periods who are ovulating normally, one of the follicles will grow to about 20 millimetres in diameter and release an egg in the fallopian tube. Here fertilisation takes place. The fertilised egg (embryo) moves from the tube to the uterus to implant in the lining (endometrium) and develop as a pregnancy. If no egg fertilises, the endometrium is shed as a menstrual period around 14 days after ovulation.

Three important groups of hormones - oestrogens, androgens and progesterone - are produced in the ovary. These in turn are regulated by the release of two further additional hormones from the pituitary gland at the base of the brain - follicle stimulating hormone (FSH) and luteinizing hormone (LH). These two reproductive hormones influence the development of the follicle and the timing of ovulation.

Polycystic ovaries

Polycystic ovaries contain many small cysts - at least ten. Some of these cysts contain eggs, some are dormant and others might secrete hormones. The cysts are quite small, usually no bigger than 8 millimetres but they are clearly seen on ultrasound to allow an accurate diagnosis. Blood tests might also reveal changes in hormone

levels which are characteristic of polycystic ovaries but these levels vary considerably from one woman to another.

Doctors are still not entirely clear why some women have polycystic ovaries. There may be a hereditary link and they are present in women of all ages, many of whom show no symptoms of PCOS. In other words, ovaries do not suddenly become polycystic; but women who have always had polycystic ovaries can develop symptoms at any time.

The cause of polycystic ovaries is believed to involve an inability of the ovaries to produce hormones in the correct proportions so that ovulation often does not take place.

The symptoms of PCOS

1. Menstrual irregularities

This imbalance of hormone production may result in either irregular ovulation or no ovulation at all (known as anovulation). Menstrual periods may therefore become irregular - perhaps heavier than usual, perhaps occurring after long gaps (oligomenorrhoe) or perhaps not at all (amenorrhoea). Some women notice pelvic pain, which may be related to the effect of hormones on the flow of blood through the pelvic veins.

2. Fertility

Irregular ovulation usually means that pregnancy is more difficult to achieve. Similarly, if ovulation is not taking place, it is just not possible to conceive without treatment. So women with irregular cycles hoping to get pregnant, will have a better chance once her monthly cycles have returned to normal.

3. Miscarriage

While miscarriage seems an unfortunate chance event for most couples, it is now known that women with PCOS who have high circulating levels of one hormone (luteinizing hormone) may be at risk. The explanation is probably that too high a level of LH in the bloodstream makes it more difficult for the egg to develop within the follicle and for an embryo to implant within the uterus.

4. Skin problems

One of the hormones which may be released in unusually high amounts from the ovary is

testosterone. This hormone circulates in both men and women. Excessive testosterone levels in women may be a cause of acne on the face and back, or unwanted hair on the face, chest, arms and legs. However, levels of testosterone in women with PCOS are still much lower than found in men.

The everyday problems of PCOS may only be amenable to medical treatment but there are also some lifestyle changes which can improve symptoms.

For example doctors know that the body's hormone balance can be upset by excessive body weight and certainly PCOS is more common in obese women than in those with a correct weight to height ratio.

Equally some women with polycystic ovaries only develop symptoms when they put on weight. So a correct weight-to-height ratio will help and this can be measured by an equation called "body mass index" (BMI). Your BMI is your weight in kilograms divided by your height in metres and then squared - or as mathematicians would write, kg/m^2 . A normal BMI is between 20-25.

A danger to health?

The small cysts detected in polycystic ovaries do not get any bigger, in fact, they usually disappear only to be replaced by other similar cysts. They remain small (no bigger than 8 millimetres) and do not require removal by surgery. Sometimes, larger cysts (over 20 millimetres) might release an egg and only very large cysts (over 50 millimetres) require surgery.

There is no link between the cysts of polycystic ovaries and ovarian cancer. However although the risk is still very rare, women with few or absent periods are at increased risk of endometrial cancer. This can happen when the regular shedding in the form of a period prevents this. Sometimes a hysteroscopy and curettage (scrape) is advised to sample the endometrium. Obese women with polycystic ovaries are also at greater risk of heart disease - simply because excess weight is linked to high blood pressure and excessive levels of cholesterol in the bloodstream, both known risk factors for heart disease. A high fibre, low fat and low sugar diet at a young age may help reduce these risks in later life - as will stopping smoking. Diabetes in later life, in which the body becomes unable to use sugar efficiently, is also associated with excess weight. Medication might be needed, but weight loss and a lower intake of carbohydrates will also help.

Being overweight is probably the cause of the greatest and most frequent problems to women with PCOS.

Diagnosis

Polycystic ovaries are diagnosed by pelvic vaginal ultrasound or laparoscopy. Abnormal hormone levels are also recorded in those women with PCOS.

Management of PCOS

All women with polycystic ovaries should try to maintain a normal weight and to have regular periods. Medical treatment is usually confined to those with the troublesome symptoms of PCOS.

1. Menstrual irregularities

Irregular periods are a nuisance - as well as a suggestion of some hormonal disorder or risk of endometrial thickening. For women who have no wish to become pregnant the contraceptive pill offers the easiest solution. This will produce a regular (though artificial) cycle and regular withdrawal bleeding during the Pill-free week. Today, most gynaecologists would recommend a low dose variety for women with polycystic ovaries.

Women who cannot take the Pill might find improvement from a progestogen-only treatment, usually taken for 12 days every one to three months. This will induce bleeding, without any of the side effects associated with the oestrogen in the Pill. Any irregular bleeding if you are taking the Pill should be checked by a doctor.

2. Difficulty in conceiving

While failure to ovulate is the usual reason for infertility in women with polycystic ovaries, it might be worthwhile ensuring that other important factors - like your own fallopian tubes or your partner's semen - are also OK before starting drugs.

* monitoring ovulation. In normal cycles ovulation takes place 14 days before a period starts - so only if your cycle is 28 days will ovulation take place on day 14. If your cycle is 27 days, for example, ovulation will be on day 13; if it is 35 days, ovulation will be on day 21. However, it is unnecessary to time sexual intercourse to coincide with ovulation. The sperm can live for seven days. Therefore if you have intercourse once a week you do not need to time intercourse. Twice a week is more than enough for conception. If you have intercourse less than once a week you may want to predict when you ovulate.

The most reliable way to predict ovulation is with an over-the-counter urinary test kit. This measures the surge of LH which occurs around the time of ovulation. Testing should begin a day or so before you expect to ovulate, while intercourse should take place on the day there is a colour change on the test and on the day after. Temperature charts can indicate hormonal changes in the cycle but are not accurate predictors.

Ovulation can be monitored by ultrasound but this requires frequent visits to hospital and so is usually reserved for women having more complicated treatments and those who have difficulties with the urine tests.

A blood test seven days after presumed ovulation allows doctors to measure hormone levels and to check if ovulation did in fact take place.

Many patients report that intensive monitoring can remove much of the spontaneity from their sex lives. A short break from treatment - perhaps a month or two - might relieve the pressure and allow more relaxed lovemaking.

* Drugs to induce ovulation. In cases where ovulation is irregular or non-existent, drugs can be used. The most common is Clomiphene citrate, which is taken as a tablet for five days from the fifth day of menstruation. Results show that four out of five women given Clomiphene do ovulate but only about one in three actually become pregnant. The starting dose is usually 25 milligrams, which may be increased to 50 or 100 milligrams. Clomiphene can cause thickening of mucus in the cervix, so a post-coital test can tell doctors how well the sperms are surviving in the genital tract.

Side effects with Clomiphene have been reported, notably tummy and bowel upsets, bloating, headache, dizziness, depression and breast discomfort. Multiple pregnancy is a risk whenever ovulation is induced with fertility drugs - in natural conception the risk is about one in eighty, in induced ovulation about one in twenty. There is no increased risk of birth defects from fertility drugs. You cannot take Clomiphene for more than a year because of the long term effect on the ovaries associated with prolonged use.

* More complicated treatments. If tablets fail, injectable hormones might stimulate the ovaries more directly. The most common injections involve a group of hormones known as gonadotrophins. However, small cysts (follicles)

on the ovary are very sensitive to stimulation by these hormones. In view of this, courses of treatment begin with low doses and the growth of the follicles is carefully monitored by ultrasound. These scans may be supported by measurements of oestrogen released from the ovary into the bloodstream (or in urine). If monitoring shows that too many follicles are developing and the risk of multiple pregnancy is high, doctors will usually suspend treatment and cancel that cycle. A second gonadotrophin - human chorionic gonadotrophin (HCG) - is given to stimulate release of the egg from the follicle in cases where ovulation does not occur despite normal follicular growth.

Women with PCOS given gonadotrophin are at an increased risk of a rare but dangerous condition known as ovarian hyperstimulation syndrome - so careful monitoring is essential. The condition occurs if many follicles are stimulated and results in abdominal distension and nausea, hence if there are many follicles conception is not advised.

* Laparoscopic ovarian diathermy. Laparoscopic ovarian diathermy burns away parts of the ovary to correct any hormonal abnormalities and thus make ovulation possible and may be indicated in some individuals.

* In vitro fertilisation (IVF). IVF, the "test-tube baby" technique in which a woman's eggs are fertilised with her partner's sperm in the laboratory, is usually recommended to women who have blocked Fallopian tubes, or men with poor sperm. IVF is sometimes offered to women with PCOS who want to conceive when other treatments have failed. However, PCOS on its own is not an indication for IVF. Women with PCOS who do undertake IVF are at greater risk of the ovarian hyperstimulation syndrome and must be carefully monitored.

3. Skin problems

PCOS is caused by a hormone abnormality and the logical solution is to suppress your hormones and replace them with balanced hormones. The best way to do this is to use the contraceptive pill. The ordinary pill works well but pills called Marvelon and Dianette have specific antiandrogen activity. It may be six months before they effect hair growth but they do work. The usual specific therapies for acne and unwanted hair are a combination of oestrogen (as found in the contraceptive pill) and a high dose "anti-androgen" hormone like cyproterone acetate. The cyproterone is taken for the first ten

days of the cycle and the Pill for the first 21 days. This therapy, of course, has a contraceptive effect - and so is of little use to those trying to conceive. There are alternative treatments without any contraceptive effect, so this important issue should be discussed with your doctor. Waxing and electrolysis can be helpful, especially while waiting the several months for hormonal treatments to work. However, they should only be performed by trained therapists, as scarring can result from unskilled treatment. If PCOS is diagnosed as the cause of the problem, correction of the hormonal abnormality is the logical solution.