POLYCYSTIC OVARY SYNDROME
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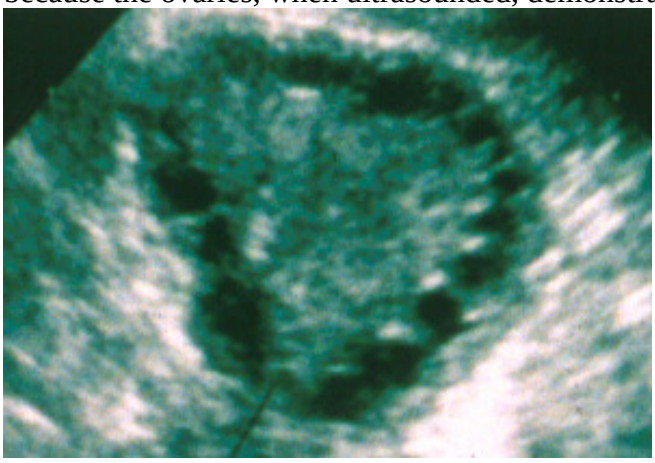
Many couples with infertility have been told that they have polycystic ovary syndrome (PCOS). Women with PCOS often have irregular or no periods, bothersome hair growth on the face and elsewhere, acne, and may be overweight. The condition is called PCOS because the ovaries, when ultrasounded, demonstrate many small cysts (see photograph).



These cysts are not bad, are not large, will not lead to cancer of the ovary, and do not require surgery.

But what is PCOS? Although physicians do not all agree on the fine points of diagnosis, we are in agreement that an excessive amount of male hormone production by the ovary is the main feature of PCOS, and leads to many of the findings that women with PCOS experience. Another important feature is that women with PCOS often have a pre-diabetic condition called insulin resistance, abnormal cholesterol and triglyceride levels, and even diabetes.

Most of us are aware that the ovary produces estrogen, which is traditionally thought of as “the female hormone”. Fewer people are aware that the ovary also makes testosterone, which is traditionally thought of as a “male hormone”, and progesterone. In fact, estrogen is produced from testosterone. If the ovary is not producing enough testosterone, estrogen levels will be low, eggs will not mature, and ovulation will not occur. If the ovary is making the right amount of testosterone, the right amount of estrogen can be made, the egg can mature, and ovulation will occur. However, if the ovary is making too much testosterone, even just a slightly excessive amount, eggs do not mature and ovulation does not occur. In other words, the amount of testosterone being produced in the ovary needs to be just right. Women with PCOS have ovaries that are producing too much testosterone. The amount of testosterone produced by PCOS ovaries is only slightly excessive, still only 1/5th that produced by the average man, but is high enough to prevent ovulation, and high enough to cause excessive hair growth and acne, which are common complaints of many women with PCOS.

The third hormone that ovaries produce, progesterone, is also important for two reasons. First, progesterone acts with estrogen to prepare the inner lining of the uterus, the endometrium, to support a pregnancy. Second, although estrogen is vitally important as the fundamental female hormone, too much estrogen can lead to irregular and heavy vaginal bleeding, and to cancer of the endometrium. Progesterone not only works with estrogen to support pregnancy, but counteracts, or cancels out, the cancer and irregular bleeding risks of estrogen. Progesterone is only made by the ovary after ovulation. Therefore, the ovaries of women who ovulate every 28-30 days and have regular periods are making progesterone half of the time. This is more than enough progesterone to cancel out the negative effects of estrogen. Since most women with PCOS do not ovulate,

their ovaries do not make progesterone, and they are at higher risk of getting cancer of the endometrium or heavy, irregular bleeding.

You and your provider should design the treatment of your PCOS to fit your goals. For example, if your goal is to get pregnant, then your treatment will require medications to help you ovulate. These medications will solve two problems. First, you will ovulate, which is required if you are going to get pregnant. Second, after you ovulate, your ovaries will produce progesterone, which will protect your endometrium.

On the other hand, if your goal is to treat bothersome excessive hair growth, you might want to consider the birth control pill. The birth control pill works to prevent pregnancy by turning off the signals from your brain to your ovaries. If the ovaries of women with PCOS do not receive a signal from the brain, they stop making excessive amounts of male hormone, and also stop making estrogen. Fortunately, the pill has estrogen in it to replace the estrogen that the ovary is no longer making, and also has a progestin (a type of progesterone) to protect the endometrium. With no male hormone coming from the ovaries after starting the birth control pill, bothersome hair growth will slow down. You may also want to consider adding a medicine called spironolactone, which works directly at the skin to inhibit the stimulating effects of male hormone on hair follicles. The birth control pill and spironolactone work very well together, and often work very well in conjunction with laser hair removal or electrolysis.

If you neither want to have a baby, nor consider excessive hair growth a problem, but have irregular periods, you might still want to consider the birth control pill because it contains a progestin, but many other progestin-containing medications are also options to protect against endometrial cancer.

The relationship between PCOS and diabetes is very important, since diabetes is a major health problem. Insulin resistance and diabetes are risk factors for cardiovascular and peripheral vascular disease, stroke, kidney disease, blindness, and other conditions. Women with PCOS, particularly if overweight, should be tested for diabetes. Diabetes drugs, such as metformin (glucophage), often help women with PCOS to ovulate, even if they are not diabetic. Metformin may also prevent women with insulin resistance from progressing to diabetes.

Although most of our patients are seeing us in order to get pregnant, all women with PCOS will spend most of their lives not being actively treated for infertility. It is important not to ignore PCOS once you move on (hopefully successfully) from infertility treatment. Diabetes is a serious health problem, but it is a preventable health problem most of the time. Exercise, nutrition, and lifestyle modifications should be tackled seriously. These are big changes that do not happen overnight, but they are the key to diabetes prevention. Furthermore, often a small 5%-10% weight loss will restore regular menstrual cycles, which is a big plus when trying to get pregnant and when trying to prevent endometrial cancer. Beyond infertility therapy, irregular periods should be addressed if they continue.

The good news is that lack of ovulation because of PCOS is treatable, and the chances of a successful pregnancy very good.