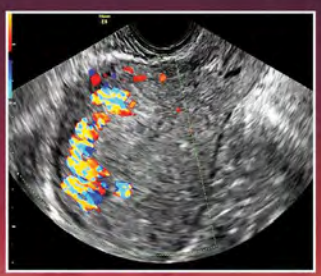
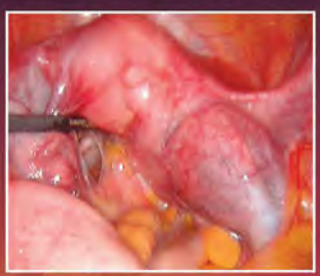
Illustrated Obstetrics and Gynecology Problems





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CLINICAL CASE

SC is a 28-year-old oligomenorrheic and hirsute female who failed to conceive despite two years of normal sexual activity. Her family history is significant for type 2 diabetes mellitus. Her pregnancy test is negative. Elevated testosterone and decreased progesterone levels were detected. Her FSH was normal, but her LH was elevated. Her TSH, prolactin, chemistry panel, cholesterol, triglycerides, HDL, and LDL were all within normal limits. Her fasting insulin level and fasting glucose were elevated (38 IU/mL and 140 mg/dL respectively) and the 2-hour value on glucose tolerance test was 250 mg/dL. Results of her transvaginal ultrasound examination are presented on Figures 3.1 to 3.4.

Menarche: Age 13.

Menses: 45–90 days/5–7 days.

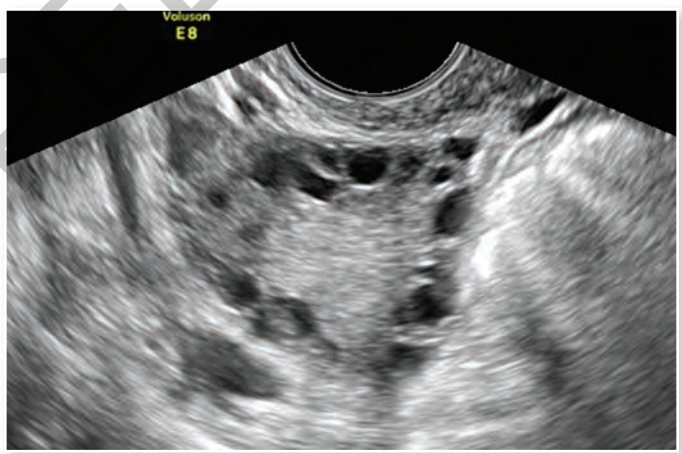

Figure 3.1: Transvaginal ultrasound demonstrates bilaterally enlarged ovaries (right ovary 12 cm^3 and left ovary 15 cm^3), multiple small peripheral cysts measuring between 2 and 10 mm (15 cysts on the right, and 18 cysts on the left ovary), around a dense core of stroma

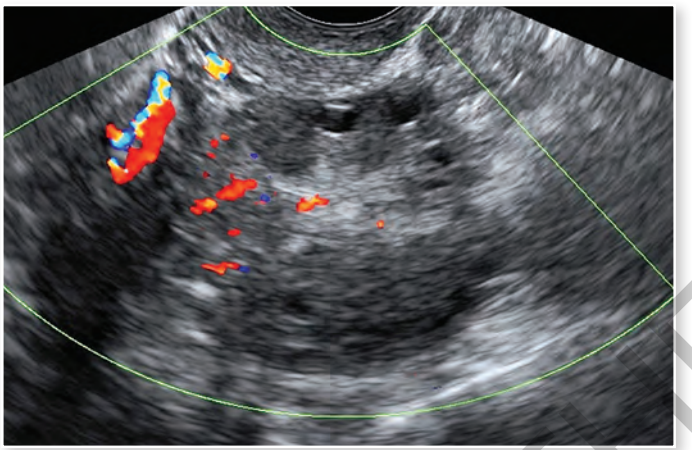

Figure 3.2: Transvaginal color Doppler imaging shows increased intraovarian vascularity

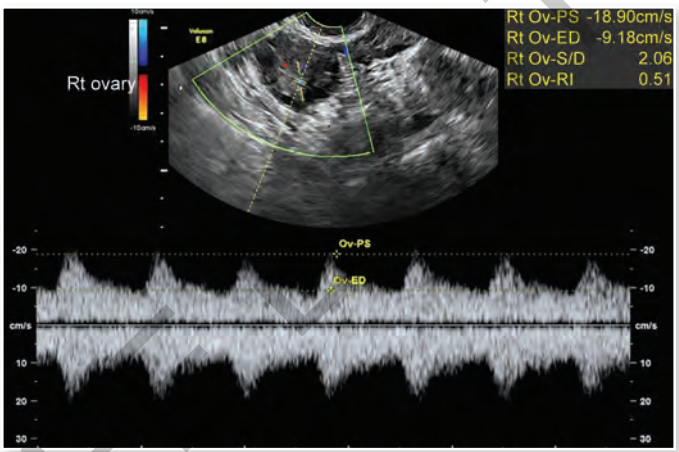

Figure 3.3: Pulsed Doppler waveform analysis reveals moderate vascular impedance (RI 0.51) in the ovarian stromal vessels

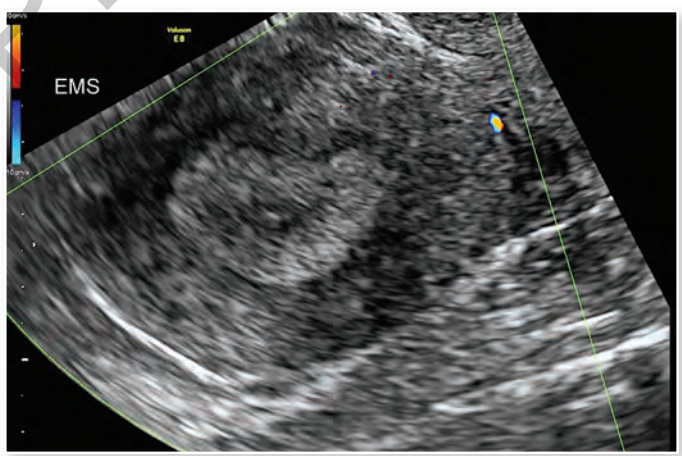

Figure 3.4: Transvaginal color Doppler image of the uterus demonstrates thick avascular endometrium (maximal thickness of 16 mm)

LMP: 4 months ago.

Pregnancies: None.

Sexual history: Two male partners over her lifetime. *Chlamydia* test and Pap smear were performed 4 months ago; both were normal.

Contraception: None.

Review of Systems

- No headaches, no problems with vision
- No history of blood clots DVT or PE
- No heart palpitations, no shortness of breath
- No abdominal/pelvic pain
- No nausea, vomiting, constipation and/or diarrhea
- Normal urination; no symptoms of UTI.

Past medical history: None; no hospitalizations.

Past surgical history: None.

Vaccines: Up to date.
Medications: None.

Allergies: None known drug allergies.

Social history: SC is a librarian. She drinks alcohol occasionally and in moderation. She does not smoke, and reports no history of substance abuse.

Family history: Mother: 64 years; history of type 2 diabetes mellitus. Father: 68 years, history of hypertension and type 2 diabetes mellitus. No family history of uterine, breast, ovarian or colon cancer.

Physical Examination

- *Vital signs:* T 36.7°C; BP 140/90; P 72; BMI 32.
- Coarse hair was noticed on the face, chest, upper arms and legs. Acne noted over face, chest, and back. Evidence of thinning hair. Darkened skin was noted on the neck, in the armpits and inner thighs. Skin tags were visualized in the armpits.
- Normal heart, lungs and thyroid examination.
- Pelvic examination was unremarkable, including no evidence of clitoromegaly. Uterus and adnexa were very difficult to assess secondary to the patient's obesity.
- Because the patient has amenorrhea for 4 months, an endometrial aspiration was performed. The uterus sounded to 7 cm and there was a good amount of tissue retrieved, that was sent for histologic evaluation. The endometrial aspirate showed proliferative endometrium without hyperplasia or neoplasia.

CLINICAL QUESTIONS

1. What is the most likely diagnosis?

Ans. The clinical, laboratory, and imaging results are consistent with PCOS.

2. What is the most appropriate therapeutic choice for this patient?

Ans. Because SC desires a pregnancy, she is a good candidate for metformin, not only for the control of her blood sugar, but also for regulation of her menstrual cycle.[1] 1,500–2,000 mg of metformin per day, divided in two to three doses should be prescribed to stimulate resumption of normal menses and ovulation. The patient also requires change of her lifestyle, including low caloric diet and exercise program for weight loss. At the time of her follow up visit in three months the blood sugar needs to be reassessed.[2]

3. The patient comes for follow-up examination 3 months later and you find that she lost 5 kg and that her blood sugars responded well. What is the next step in the management of this patient?

Ans. Ovulation induction with clomiphene citrate. [2]

4. What should be done if the patient conceives?

Ans. Once the patient conceives, metformin should be discontinued, because its use is not FDA approved during pregnancy.

TAKE-HOME MESSAGES

- PCOS is one of the most common female endocrinopathies, with an incidence of 5–10% in women of reproductive age.[1,2]
- Polycystic ovaries are characterized with enlarged ovarian volumes (>10 cm^3), presence of multiple small follicles measuring less than 10 mm. Because these small follicles are incapable to ovulate, the hormonal levels became imbalanced: estrogen, androgen and LH levels are typically elevated, while progesterone level is decreased.[1,3]
- Women with PCOS have less than 6–8 menstrual periods per year (oligomenorrhea). Irregular or absent menstrual periods increase their risk of endometrial overgrowth or even endometrial cancer.[3,4]
- Most, but not all patients with PCOS are overweight or obese, with insulin resistance and at increased risk of developing diabetes, heart disease and sleep apnea.[5]
- A significant proportion of PCOS patients are infertile and infertility evaluation is recommended after 12 months of trying to get pregnant.[1,2]
- OCPs are the first treatment option for patients who do not want to conceive. OCPs protect from endometrial overgrowth, and alleviate acne and hirsutism symptoms.[6]
- Lifestyle changes consisting of low calories diet, weight loss and exercises improve body composition, hyperandrogenism, and insulin resistance in women with PCOS.[7]
- In women with PCOS metformin treatment reduces hyperinsulinemia and hyperandrogenemia, independently of changes in body weight. In a large number of subjects these changes are associated with striking, sustained improvements in menstrual abnormalities and resumption of ovulation.[8]
- There are many controversies regarding the treatment of infertile women with PCSOS. The first line treatment for ovulation induction of PCOS patients is the antiestrogen, clomiphene citrate (CC). Should CC fail, the second line intervention is administration of exogenous gonadotropins and laparoscopic ovarian surgery.[9] The use of gonadotropins is associated with increased chances for multiple pregnancy, and therefore, intense sonographic monitoring of ovarian response is required. Recommended third line treatment is in vitro fertilization and embryo transfer (IVF/ET).[9]
- Laparoscopic ovarian drilling (LOD) may reduce the need for gonadotropins or may facilitate their use. The procedure is performed on an outpatient basis, and reports from the literature indicate a high rate of spontaneous ovulation and conception.[10] Major advantage of LOD is reduction in multiple pregnancy rates. The major ongoing concern of LOD is a possible negative effect on the ovarian reserve.

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Illustrated
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