

Case Study

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Note: The Case Study section of *Insulin* concludes with questions about this case. We encourage readers to visit our site, www.InsulinJournal.com, to respond to these questions. A summary of the responses we receive for each Case Study will appear in the next issue along with a new Case Study (and its accompanying questions).

Chief Complaint: A 25-year-old white woman with a history of polycystic ovary syndrome (PCOS) came to the diabetes mellitus (DM) clinic for a follow-up appointment after gestational DM (GDM) was diagnosed during a recent pregnancy.

History of Present Illness: The patient had been diagnosed with PCOS 3 years ago when she presented with hirsutism, oligomenorrhea, and infertility. Results of laboratory testing showed mildly increased serum concentrations of free testosterone and androstenedione. The luteinizing hormone/follicle-stimulating hormone ratio was 2:1. Congenital adrenal hyperplasia was ruled out based on the results of the adrenocorticotrophic hormone stimulation test. She was initially treated with birth control pills (BCPs), which produced regular vaginal bleeding. Her hirsutism improved after a course of therapy with spironolactone. She continued BCPs and spironolactone therapy for ~1 year, when she decided to conceive. At this time, BCPs and spironolactone were discontinued. Ovulation induction with clomiphene was prescribed, resulting in an ovulatory cycle and a successful pregnancy. The pregnancy was uncomplicated, except for the fact that GDM was diagnosed using a 100-g oral glucose tolerance test (OGTT) at 24 weeks of gestation. She was able to maintain good glycemic control throughout her pregnancy with diet and exercise, and she delivered a healthy 8-lb boy at term. However, she was told that she needed further testing “a few weeks” after delivery to confirm or exclude the presence of DM.

Medical History: She was otherwise healthy.

Social History: She is married and lives with her husband and newborn son. She has no other children. She finished college, majoring in business, but elected to stay at home for a few years to take care of her child. She exercises 3 to 4 times a week and does not smoke or drink alcohol.

Physical Exam: She was overweight with a body mass index of 29 kg/m² (height 61 in, weight 154 lb). Blood pressure was 130/80 mm Hg; the remaining vital signs were within normal limits. Her skin examination revealed mild hirsutism and acanthosis nigricans on the back of the neck. Her funduscopic examination showed no abnormalities, and there were no neurologic deficits.

Lab Results: The following are her lab results: fasting blood glucose, 99 mg/dL; total cholesterol, 200 mg/dL; glycosylated hemoglobin, 6.0%; high-density lipoprotein, 39 mg/dL; blood urea nitrogen, 18 mg/dL; triglycerides, 170 mg/dL; creatinine, 0.7 mg/dL; low-density lipoprotein, 110 mg/dL; and spot urine albumin/creatinine, 25 mg/g Cr. Results of the 75-g OGTT were as follows: plasma glucose, fasting, 99 mg/dL; plasma glucose, 1 hour, 240 mg/dL; and plasma glucose, 2 hours, 202 mg/dL.

QUESTIONS FOR DISCUSSION

1. All of the following are considered “high-risk” groups for the development of type 2 DM according to the American Diabetes Association (ADA), except:
 - a. Patient age ≥45 years.
 - b. Family history of type 2 DM in a first-degree relative.
 - c. PCOS.
 - d. Hispanic/Latino race.
 - e. History of stress hyperglycemia.

2. This patient meets the ADA criteria for the diagnosis of:
 - a. Impaired glucose tolerance.
 - b. DM.
 - c. Impaired fasting glucose.
 - d. None of the above.

3. In terms of this patient's glucose metabolism abnormality, what initial treatment option is most appropriate?
 - a. BCPs.
 - b. Spironolactone.
 - c. Nutritional counseling and exercise program for weight reduction.
 - d. Clomiphene.
 - e. Metformin.

4. Describe the abnormalities in insulin secretion and action that place patients with PCOS and GDM at risk for type 2 DM.

Please visit www.InsulinJournal.com to submit your responses to these questions. Responses to this Case Study are due no later than

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A diabetes expert will summarize the responses we receive, and this summary will appear in the next issue of *Insulin*.