

# Management of Polycystic Ovary Syndrome with Obesity in Pregnancy

**Syeda Amina Hanif and Saleha Sadeeqa\***

Institute of Pharmacy, Lahore College for Women University, Pakistan

**\*Corresponding author:** Saleha Sadeeqa, Institute of Pharmacy, Lahore College for Women University, Lahore, Pakistan, Email: salehasadeeqa@gmail.com

## Case Report

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## Abstract

Polycystic ovary syndrome (PCOS) is condition in which ovaries produce increase level of androgen that is a male hormone. PCOS is characterized by oligomenorrhoea, anovulation, infertility, hirsutism, and obesity in young women with enlarged and cystic ovaries. It is common metabolic abnormality in young women causing infertility. It affects 6-15% of women which are of reproductive age worldwide. It can lead to increased risks of miscarriages, gestational diabetes mellitus, hypertensive disorders of pregnancy and preterm delivery. There are specific diagnostic and treatment guidelines by Endocrine Society for PCOS diagnosis and management. If PCOS is left untreated it can cause infertility in women. In this report the referred case study will be the scenario of 28 years old obese female suffered from the PCOS during pregnancy. She was treated pharmacologically and also given the non-pharmacological therapy, which finally stabilized her pregnancy

**Keywords:** Polycystic Ovary Syndrome; Oligomenorrhoea; Infertility; Hirsutism; Miscarriage

## Introduction

PCOS is a condition in which ovaries produce higher levels of androgens. PCOS is characterized by oligomenorrhoea, anovulation, infertility, hirsutism, and obesity in young women with enlarged and cystic ovaries. This can cause infertility in women's. Symptoms of PCOS include irregular menstrual periods, cysts on the ovaries, infertility, weight gain, acne, excessive face and body hair, thinning or balding head hair, insulin resistance [1].

Obesity is the abnormal growth of adipose tissue or fat cells that can be increase fat cell size (Hypertrophic obesity) or increase in fat cell number (Hyperplasic obesity). A person is considered obese if body weight is at least 20% higher than normal and having a body mass

index of 30 or greater. Obesity can be categorized at three levels that shows the increasing health risks with increasing BMI that are lowest risk BMI of 30-34.9, medium risk BMI of 35.0-39.9, highest risk BMI of 40 or greater [2].

There is a possible but complicated relation between obesity and PCOS. It starts for some females soon after beginning of their periods. Women having PCOS either produce too much insulin, or the insulin they produce does not work. The abnormality in function of insulin is one of the reasons that women with PCOS tend to gain weight or have difficulty in losing weight. For some females, PCOS develops later on after weight gain. So obese women have a greater risk for PCOS and women with PCOS have a greater risk for obesity [3].

In 2013 Endocrine society released the guidelines for diagnosis and treatment of PCOS that includes Rotterdam criteria for diagnosing PCOS which is confirmed by the presence of 2 of the following: androgen excess, ovulatory dysfunction, or presence of 12 or more follicles in at least one ovary and hyperinsulinemia. Other tests to identify PCOS include serum prolactin and dehydroepiandrosterone levels [4].

During normal pregnancy, initiation of insulin resistance is associated with hyperinsulinemia which happen in second and third trimesters. This insulin resistance is a physiologically advantageous because it restrict maternal glucose uptake and fend of nutrients to the growing fetus. It causes increases in levels of estradiol, progesterone, prolactin, cortisol, human chorionic gonadotropin, placental growth hormone (PGH), and human placental lactogen (HPL). Main hormones responsible for insulin resistance in pregnancy are placental growth hormone and human placental lactogen. Metabolic hallmarks for PCOS women are formed by hyperandrogenism and insulin resistance. Women who are obese have additional insulin resistance due to presence of the excess adipose tissue [5].

Complications increase in pregnant women with PCOS. Some complications are pre-eclampsia as pregnancy induced hypertension risk increases three to four folds in women with PCOS [6]. Gestational diabetes mellitus is the most common pregnancy complication in these women. Early diagnosis of gestational diabetes mellitus is crucial and its careful management significantly reduces the chances of associated maternal and neonatal complications [7]. The risk of gestational diabetes mellitus is about three times more in women with PCOS. Women are at risk of miscarriage defined as first trimester miscarriage. This type of miscarriage occurs in 30 to 50% of PCOS women compared with 10 to 15% of normal women. Babies born to women with PCOS have a greater risk of dying around the time of delivery and of being admitted to a newborn intensive care unit [8].

PCOS can be managed by lifestyle modifications, weight reduction, diet management, and hormone therapy. Ovulation induction is achieved through first line treatment with clomiphene citrate when fertility is desired. To stimulate ovulation alternative therapy is letrozole. When clomiphene citrate fails second-line therapy is exogenous gonadotropins or laparoscopic ovarian surgery. Gonadotropin therapy is expensive and can cause increased risk of multiple pregnancy and ovarian hyper stimulation syndrome. In vitro fertilization procedure also use as therapy in women with PCOS.

Drugs used in management of polycystic ovary syndrome associated complications are metformin, spironolactone, eflornithine for hirsutism and oral contraceptives [9].

### Case Presentation

A 28 years old obese woman attended antenatal care unit with complain of minor p/v bleeding and it's her third pregnancy due to previous history of PCOS, she had triplets in first pregnancy and one miscarriage. The main reason for which was PCOS which then result in being obese. All other findings were normal. She was 11 weeks pregnant and need pregnancy stabilization with PCOS. Patient had a family history of Diabetes and obesity.

### Past Medical History

Patient had history of hypertension and PCOS and also had one miscarriage in past.

### Medication Therapy

Sr. No	Brand Name	Generic Name	Frequency
1	Tab Duphaston 10mg	Dydrogesterone	Twice a day
2	LadyFol tablet	Folic acid	Once a day
3	Gravibinon injection	Estradiol and Progesterone	Once a week
4	Zantac 150mg tab	Ranitidine	Twice a day

**Table 1:** Medication Therapy.

### Interventions

Three types of the interventions were made by the pharmacist after reviewing the patient history and physician prescription.

### Drug-Related Interventions

- Recommend Transamin capsule thrice a day for at least three days to stop abnormal vaginal bleeding
- Use supplements like vitamin D, omega-3 and inositol to reduce miscarriage risk and to stabilize pregnancy

### Behavioral Modifications

Women with PCOS are mostly obese so adding healthy diet, increasing physical activity and to remove negative thought patterns are important factors and also helpful in losing weight. So, behaviors and usual patterns are changed by three component interventions which are cognitive behavioral therapy, dietician and physical therapist [10].

## Dietary Changes

Foods rich in fiber like vegetables, lean protein like fish and anti-inflammatory foods and spices such as turmeric and tomatoes should be added in diet. High refined carbohydrates, sugary snacks and drinks and processed or red meat should be avoided [11]. Most of dieticians recommend keto diet but some researchers suggest avoiding keto diet as it on its own is not specific about sources of dietary fat, so some researchers consider it harmful for fertility [12,13].

## Outcomes

Patient condition was improved and after using Transamin capsules vaginal bleeding was stopped and use of supplements stabilized her pregnancy as she was able to complete her pregnancy by managing the complications.

## Discussion

The Rotterdam 2004 Consensus Workshop suggested that PCOS is a condition of ovarian dysfunction, and recommended that these two criteria should be present to establish a diagnosis: Oligomenorrhea or anovulation and polycystic ovaries. Other problems that depict the PCOS phenotype should not be included [14]. This patient was already facing this problem as she already had one miscarriage because of PCOS and she conceived after in vitro fertilization so patient was concerned about her condition. 95% of adolescents with irregular menses has been detected with PCOS and most of them are treated with contraceptive pill which only helps until pregnancy. In this case patient was already diagnosed with PCOS and had faced complications in past as she conceived through in vitro fertilization and her main concern was pregnancy stabilization as she was also obese. Patient was also getting depressed over vaginal bleeding so proper care was required.

PCOS is treated symptomatically and lifestyle changes with combination of medicine are a first-line intervention in women with obesity and PCOS. The patient was treated with the combination of pharmacotherapy, dietary changes and lifestyle modifications. Diet and exercise can manage the glucose intolerance with proper weight control and metformin improves glucose metabolism and insulin sensitivity but in this case metformin was not prescribed. In this case primary concern was to stop minor vaginal bleeding and to stabilize pregnancy with other minor problems. So, she was prescribed duphaston, gravibinon injection.

Pharmacist suggested to add transamin capsules in therapy as it is safe in pregnancy and also suggested other supplements like vitamin D, omega-3 and inositol to maintain pregnancy.

It seems that PCOS is a lifelong condition. So, patients should be carefully monitored during adolescence and if pregnancy happens [15].

## Conclusion

In this case patient was suffering from PCOS and obesity and having problems in pregnancy as most women are having this problem so goal was to manage PCOS with obesity and pregnancy and to complete the gestational period safely. She was treated with supplements, medicines and by applying dietary and lifestyle changes. Patient vaginal bleeding was stopped and she successfully completed her pregnancy.

## References

1. (2018) Polycystic Ovary Syndrome (PCOS): Symptoms, Causes, and Treatment.
2. WHO (2014) Obesity. World Health Organization.
3. William Hignett, Ted Kyle Polycystic (2019) Ovarian Syndrome (PCOS) and Obesity-Obesity Action Coalition.
4. Barbour LA, Shao J, Qiao L, Pulawa LK, Jensen DR, et al. (2002) Human placental growth hormone causes severe insulin resistance in transgenic mice. *Am J Obstet Gynecol* 186(3): 512-517.
5. Roos N, Kieler H, Sahlin L, Ekman Ordeberg G, Falconer H, et al. (2011) Risk of adverse pregnancy outcomes in women with polycystic ovary syndrome: Population based cohort study. *BMJ* 343: d6309.
6. Boomsma CM, Eijkemans MJ, Hughes EG, Visser GH, Fauser BC, et al. (2006) A meta-analysis of pregnancy outcomes in women with polycystic ovary syndrome. *Hum Reprod Update* 12(6): 673-683.
7. Jakubowicz DJ, Iuorno MJ, Jakubowicz S, Roberts KA, Nestler JE (2002) Effects of metformin on early pregnancy loss in the polycystic ovary syndrome. *J Clin Endocrinol Metab* 87(2): 524-529.
8. (2018) Polycystic Ovarian Syndrome Medication: Hypoglycemic Agents, Antiandrogens, Topical Hair-

- Removal Agents, Oral Contraceptives, Selective Estrogen Receptor Modulators, Acne Agents, Topical.
9. Jiskoot G, Benneheij S, Beerthuisen A, Niet JD, Klerk CD, et al. (2017) A three-component cognitive behavioural lifestyle program for preconceptional weight-loss in women with polycystic ovary syndrome (PCOS): A protocol for a randomized controlled trial. *Reproductive Health* 14(1): 34.
  10. (2018) Polycystic Ovary Syndrome (PCOS): Diet Do's and Don't's.
  11. Campbell K (2018) How To Do A PCOS Diet Correctly- The 13 Things You Need To Know.
  12. Kulak D, Polotsky A (2013) Should the ketogenic diet be considered for enhancing fertility? *Maturitas* 74(1): 10-13.
  13. Rotterdam GR (2004) Revised 2003 consensus on diagnostic criteria and long-term health risks related to polycystic ovary syndrome. *Fertil Steril* 81(1): 19-25.
  14. Fernandes AR, De Sa Rosa E Silva AC, Romao GS, Pata MC, dos Reis RM (2005) Insulin resistance in adolescents with menstrual irregularities. *Journal of Pediatric and Adolescent Gynecology* 18(4): 269-274.
  15. Ojaniemi M, Pugeat M (2006) An adolescent with polycystic ovary syndrome. *Eur J Endocrinol* 155(1): 149-152.

