



Impact of Bariatric Surgery on Clinical, Biochemical, and Hormonal Parameters in Women with Polycystic Ovary Syndrome (PCOS)

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Abstract

There is limited data on the impact of bariatric surgery on polycystic ovarian syndrome (PCOS) especially in the Indian population. **Background** To study the impact of bariatric surgery in women with PCOS in terms of clinical, hormonal, and radiological aspects of polycystic ovarian syndrome.

Methods A prospective observational study of 50 women who underwent bariatric surgery at our tertiary care center. Evaluation of anthropometric data and menstrual cyclicity as well as markers of hyperandrogenism was done preoperatively and at 3- and 6-month and 1-year follow-up.

Results Eighteen (36%) women were diagnosed to have PCOS. % EWL at 3-months ($n = 14$), 6-month ($n = 14$), and 1-year ($n = 11$) follow-up was 31%, 49%, and 63% respectively among women with PCOS. All females regained their normal menstrual cycle at 3 months of follow-up. Hirsutism resolved completely among 44% (5/11) with a decline in median hirsutism score from 11 to 9 at 1-year follow-up. Mean serum testosterone decreased from 0.83 ± 0.38 ng/ml preoperatively to 0.421 ± 0.25 ng/ml at 1-year follow-up ($p < 0.01$), whereas changes in levels of serum LH and FSH were not significant. Seventy-seven percent of females (14/18) had polycystic ovaries preoperatively on USG; out of which, 55% (i.e., 4/7) showed complete resolution at 1-year follow-up. Metabolic syndrome resolved completely at 1-year follow-up in both PCOS and non PCOS group.

Conclusions Bariatric surgery results in an effective and sustained weight loss with improvement in clinical, hormonal, and radiological parameters associated with PCOS.

Keywords Bariatric surgery · PCOS · Polycystic ovaries

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Introduction

Polycystic ovary syndrome (PCOS) is a common endocrinopathy of adolescents and reproductive age group females with a prevalence ranging from 5 to 18% [1]. It is characterized by oligomenorrhea, clinical signs of hyperandrogenism such as hirsutism, temporal balding, infertility, psychological symptoms such as anxiety, depression, metabolic syndrome features such as dyslipidemia, diabetes, increased cardiovascular disorders, and increased risk of ovarian and endometrial cancer [2]. PCOS refers to a female subtype of metabolic syndrome known as syndrome XX and is characterized by metabolic syndrome in addition to hyperandrogenemia and anovulation in a premenopausal female [3]. Exact etiology of PCOS is still unknown, and the proposed mechanism includes insulin resistance leading to hyperinsulinemia which stimulates ovarian thecal cells for androgen production. The incidence of PCOS in obese women ranges up to 50% [4]. Obesity accounts for the increased insulin resistance in these patients and also contributes to a high