

# The long term outcome of sleeve gastrectomy in managing obstructive sleep apnea in Prader Willi Syndrome patients: A case series

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## Background

Prader Willi syndrome (PWS) is a genetic disorder with multisystem involvement. Bariatric laparoscopic sleeve gastrectomy surgery (SG) has been proposed as a means of weight control in PWS patients. There is some controversy around sleeve gastrectomy as a management strategy in PWS to control obstructive sleep apnea (OSA).

## Methods

Therefore, we followed up four patients in our Center with PWS who had SG and evaluated their growth parameters along with symptoms of sleep disordered breathing over the period of five to nine years.

## Objectives

In this case series we aimed at analyzing the effectiveness of bariatric gastric sleeve surgery as a long-term solution for weight control and successfully alleviating obesity related OSA.

## Results

The median age of patients in this group was 7.5 years. There were three males and one female. The average Body Mass Index (BMI) prior to SG was 40.5. The average BMI after SG, at 5–7 years, was 40.8. This shows an insignificant effect of SG on BMI and control of OSA on follow-up.



Figure 1 Trend of patient's weight.

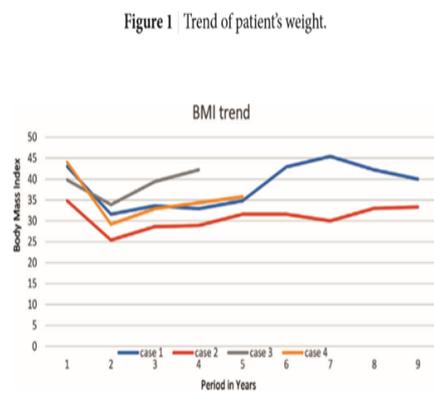


Figure 2 Trend of patient's body mass index.

Table 1 Post-SG trend of BMI, OSA severity, and outcomes

Cases	At SG		Follow-up after SG						
	Age (years)	BMI	BMI	Age at PSG (years)	AHI	Type of NIV	Pressure (cmH <sub>2</sub> O)	Age at ECHO (years)	Echo findings
1	9	43.8	Year 1, 31.63	13	7.0	CPAP	9	NA	No clinical indication to be repeated
			Year 3, 32.96						
			Year 5, 42.88						
2	6	34.6	Year 1, 25.41	12	55.1	CPAP	8	NA	Lost to follow-up
			Year 3, 28.92						
			Year 5, 31.60						
3	9.5	39.7	Year 1, -33.94	14	13.6	BPAP	24/13	13	Pulmonary hypertension
			Year 3, 39.62						
			Year 5, 44.31						
4	5.7	44	Year 1, 29.23	9	50.9	CPAP	9	10	Pulmonary hypertension
			Year 3, 34.26						
			Year 5, 40.92						

## Discussion

Prader Willi syndrome (PWS) is one of the most common syndromic obesities. Sleep related Disorder of Breathing (SRDB)--related cardiopulmonary complications is the most common cause of morbidity and mortality in these patients. In our cohort, all the patients had obstructive sleep apnea complicated with pulmonary hypertension in varying severity. Two patients further progressed into congestive heart failure and cardiac arrest. So, a decision was made to proceed with laparoscopic gastric sleeve surgery (LGS) to manage their morbid obesity, which had good results in the form of weight loss, improving symptoms of SRDB and its related complications, particularly in the first year post--gastric sleeve surgery. Unfortunately, these results were temporary, as our patients started to regain weight (Figures 1,2). All cases eventually exhibited symptoms of obstructive sleep apnea which was later confirmed by a Polysomnography (PSG) that mandated an intervention by non-invasive ventilation at home. Two patients were further complicated by pulmonary hypertension (Table 1). There are conflicting reports about the effectiveness of bariatric sleeve surgery in managing the weight of patients with PWS. This does not justify subjecting PWS patients to surgical interventions and their potential complications, that resulting in temporary and short term improvement..

## How to improve ?

Weight control in PWS patients is better achieved by strict dietary restriction of caloric intake with macronutrient supplementation, behavioral therapy, and a daily exercise regimen.

## Conclusions

We believe that SG has limited and transient success for obesity management in PWS patients, especially in the absence of a multidisciplinary team that can provide behavioral therapy, nutritional plan, and psychosocial support. Further studies are needed to compare the long-term outcome sleeve gastrectomy with behavioral and strict nutritional therapy.

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