

Outcome of Pregnancy after Bariatric Surgery at Latifa Hospital, DHA, Dubai, UAE

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Abstract

Background: Obesity is becoming increasingly prevalent in many populations and has become one of the most commonly occurring risk factors in obstetric practice. In nations of the Gulf Cooperation Council (GCC), the prevalence of overweight adults has been reported to be 35% amongst females, while the prevalence of obesity has been reported to be 40% amongst females. The study aimed to identify the rate and outcome of Pregnancy After Bariatric Surgery at Latifa Hospital (PABS). **Method:** This is a hospital based cross-sectional study including all patients seen at Latifa hospital at Dubai Health Authority (DHA), Dubai, UAE between January 2018 and December 2018. The data included demographic details, gestational age, the mode of delivery, medical history, clinical findings, weight before surgery, weight after at antenatal booking, type of performed surgery, type of pregnancy (spontaneous or after assisted reproductive techniques), pregnancy complications, mode of delivery, and neonatal weight. **Results:** The reported cases of pregnancy after Bariatric surgery are 18 cases that makes rate 0.45%. Half of the performed surgery among the study group is sleeve surgery. Most of them (83.3%) are multiparous women with spontaneous pregnancy. The mean interval of surgery to pregnancy is 5.3 months. The highest weight before surgery is 155 kg and the mean weight of the study cases is 114.5 kg before surgery. After surgery at booking visit the mean weight is 83.9 kg. The mean weight reduction for this group is 30.6 kg. Anemia is the most common antenatal complication among the study group. Lower segment Caesarean section (LSCS) and vaginal delivery (VD) distributed equally between the women. The study showed good expect neonatal outcome. **Conclusion:** Pregnancy After Bariatric Surgery (PABS) is high-risk pregnancy with many potential complications. Care of pregnancy after bariatric surgery should be organized in multilateral cooperation of various medical disciplines in specialized center.

Keywords

Obesity, Bariatric Surgery, Pregnancy, Comorbidity

1. Introduction

Obesity is becoming increasingly prevalent in many populations and has become one of the most commonly occurring risk factors in obstetric practice.

Overweight and obesity prevalence has continued to increase rapidly creating a true pandemic and now affecting younger age groups. Worldwide, the proportion of adults with a body-mass index (BMI) of 25 kg/m² or greater increase between 1980 and 2013 from 28.8% to 36.9% in males, and from 29.8% to 38.0% in females [1].

In 1997, The World Health Organization (WHO) Expert consultation on Obesity, warned that populations of most countries would be facing an obesity epidemic that will put them at risk of developing non-communicable diseases (NCDs) [2].

The World Health Organization classified adult population according to the body mass index seen in **Table 1**.

Obesity is associated with higher rates of cardiometabolic comorbidities and mortality. As the prevalence of obesity is growing worldwide, effective weight loss approaches are necessary to overcome the negative long-term effects of obesity. Among lifestyle modification, medical treatment and surgical interventions, bariatric surgery is a commonly used method in severely obese patients, which was demonstrated to result in good weight loss outcome [3].

In nations of the Gulf Cooperation Council (GCC), the prevalence of overweight adults has been reported to be 48% amongst males and 35% amongst females, while the prevalence of obesity has been reported to be 24% amongst males and 40% amongst females [4]. Most comparably, Sulaiman *et al.*, revealed a high prevalence of overweight and obesity (43.0% and 32.3%, respectively), by BMI in the United Arab Emirates (UAE) in 2013 where females were more likely to be obese than males [5].

Table 1. World Health Organization Classification of adults according to BMI.

Classification	BMI (kg/m ²)
Underweight	<18.50
Normal range	18.50 - 24.99
Overweight	≥25.00
Preobese	25.00 - 29.99
Obese class I	30.00 - 34.99
Obese class II	35.00 - 39.99
Obese class III	≥40.00

In reproductive women obesity and its related comorbidities impair fertility, maternal health during pregnancy, maternal obstetric outcomes, fetal outcomes, and long-term health of the offspring [6].

There is little evidence in various important fields and aspects around pregnant women who underwent bariatric surgery about ideal time of pregnancy after surgery, diagnostic criteria and best ways and methods to identify GDM, diabetes in pregnancy, and treatment goals after diagnosis. As well as for pregnant women after metabolic surgery, further information on optimal weight gain in pregnancy, potential lack of several nutrients and nutritional intake recommendations in pregnancy and lactation, effects of nutritional deficiencies on fetal development, and long-term consequences in offspring is urgently needed and is of high scientific and clinical interest facing growing surgery numbers in women of reproductive age [3].

The uncertainties and lack of studies in the GCC tackling this matter prompted the initiation of starting this study as an initial step in filling these gaps.

2. Methods

This is a hospital based cross-sectional study. All patients seen at Latifa hospital at Dubai Health Authority (DHA), Dubai, UAE between January 2018 and December 2018 were included in the study. We aimed to determine the rate of pregnancy cases after Bariatric surgery at Latifa Hospital (PABS@LH) and to identify the out of that pregnancy.

Latifa hospital is the leading and largest maternity hospital Dubai, UAE Latifa hospital was established in 1986, continued to provide obstetrics and gynecology services and training medical, nursing and other allied health specialties in this and related field. Latifa hospital registered 3974 deliveries in the year 2018.

Ethical approval was obtained from the Latifa hospital administration and from Obstetrics & Gynecology department and the approval was countersigned by CEO of Latifa hospital as a standard procedure. Informed consent was obtained from all patients and/or their guardians where appropriate. Confidentiality of these patients was maintained throughout and after the study, with only anonymous data sets being used with no patients' identifying details. All patients participating in this study were treated, as they would normally be according to clinical practice standards used at Latifa hospital. The hospital care started at hospital outpatient department for routine antenatal care after booking at primary health care facilities followed by referral to the hospital. On their arrival in labor or at their planned appointment for delivery process, the data collection was completed using purpose-designed structured data collection sheets. The sheet included demographic details, gestational age, the mode of delivery, medical history, clinical findings, weight before surgery, weight after at antenatal booking, type of performed surgery, type of pregnancy (spontaneous or after assisted reproductive techniques), pregnancy complications, mode of delivery, neonatal weight.

All the data obtained was entered in a master flow chart and was analyzed using statistical package program for social science (SPSS) version 21.

3. Results

The total number of hospital registered deliveries during the study period is 3974 deliveries and the study group are 18 cases this makes pregnancy after Bariatric surgery (PABS@LH) rate 0.45% (18/3974). The commonest age group of PABS@LH is 31 - 35 years (38.8%) (**Figure 1**). Most of them (83.3%) are multiparous women. The rate of spontaneous pregnancy is very high among the study group (83.3%) and only three (16.7%) cases needed assisted reproductive techniques. Regarding mode of delivery (**Table 2**), nine cases (50%) delivered through spontaneous vaginal delivery three of them needed instrumental delivery. Nine cases (50%) delivered via caesarean section, six cases underwent emergency caesarean section for different indications none of them has clinical nor statistical value. No significant postpartum complication reported.

The highest weight before surgery is 155 kg and the mean weight of the study cases is 114.5 kg before surgery. After surgery at booking visit the mean weight is 83.9 kg. The mean weight reduction for this group is 30.6 kg. The mean interval of surgery to pregnancy period is 5.3 months which clinically is significant finding (**Figure 2**).

Half of the performed surgery among the study group is sleeve surgery One third is gastric bypass and the rest are distributed as seen in **Table 3**.

Clinically observed finding in term of gastrointestinal symptoms which were confusing between early pregnancy symptoms and some post-surgery reported

Table 2. The mode of delivery among the study group (N = 18).

Mode of delivery	Number of cases	Percentage
Spontaneous NVD	6	33.3%
Instrumental vaginal	3	16.7%
Elective caesarean section	3	16.7%
Emergency caesarean section	6	33.3%

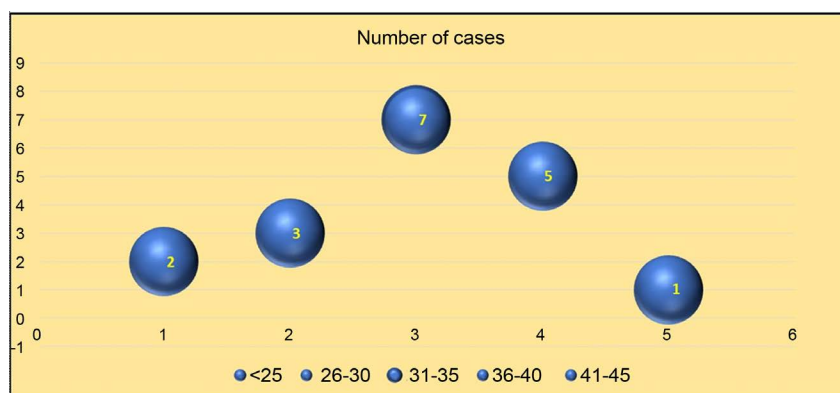
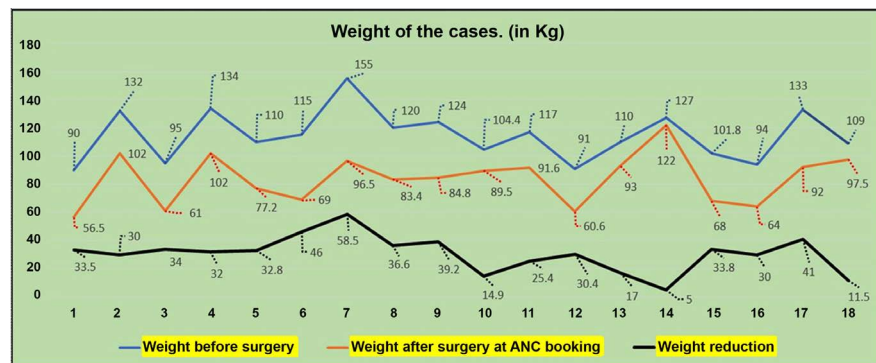


Figure 1. The age distribution for the study cases (N = 18).

Table 3. The type of surgery performed among the study group (N = 18).

Type of surgery	Number of cases	Percentage
Sleeve gastrectomy	9	50%
Gastric bypass	6	33.3%
Gastroplasty	1	5.5%
Roux-Y gastric bypass	1	5.5%
Gastric banding	1	5.5%

**Figure 2.** The weight of the case before surgery (blue), after surgery (red) and the weight reduction (black) for the study cases (N = 18).

symptoms as the interval of surgery to pregnancy is somehow short interval is not in term of frank features of hyperemesis gravidarum rather than discomfort and because of most of cases are multiparous and the number of the study group these symptoms finding is not of statistical significant but clinically is well observed and a suggestion of large study to the finding should be considered.

The noticed complications like other normal pregnancy apart from the anemia which is expected is more in patients have some iron absorption dysfunction although all the cases were well supplied by Iron proteinsuccinylate which has highest absorption rate and well tolerated along with folic acid (Table 4).

The short interval between surgery and pregnancy makes interfere with performance Glucose tolerance test (GTT) as the fasting and hypoglycemia is a challenging risk. GTT is a well-recommend practice in our guidelines. We depend on serial blood sugar profile to exclude or state diabetes on their antenatal care visits where 15 cases (83.3%) showed normal range and only three (16.7%) have high sugar profiles needed intervention with diet and low doses of insulin and later evaluated after puerperium still has evidence of diabetes.

4. Discussion

Bariatric surgery is effective treatment option for reduction in women during reproductive age. The rate of pregnancy after Bariatric surgery (PABS) is 0.45% which bring the management of pregnancy after Bariatric surgery to board of care as its labeled as high-risk pregnancy. Majority of the cases and their demographic characters are like low risk cases regards their age, parity, type of pregnancy, mode of delivery and neonatal outcome.

Table 4. The complications seen among the study group (N = 18).

Complications	Number of cases	Percentage
Hyperemesis gravidarum	3	17%
Anemia	11	61%
Preeclampsia	3	17%
Diabetes	3	17%
Antepartum hemorrhage	1	5.6%
Preterm labor	2	11%
Depression	1	5.6%

The most significant finding is presence of anemia which represents as most common complication seen study. This is well overcome by good vitamins and nutrition advice preconception throughout and during lactation period as such cases are well follow and care in multidisciplinary centers as per international guidelines in our study part of this care is missed this likely because the cases landed for booking and antenatal care and none of them has preconception visit even only three planned pregnancy with ART.

Women in reproductive age after bariatric surgery need to be informed that the probability to get pregnant without enough contraception is increased. So far, guidelines suggest conceiving after losing maximum weight and thus recommend conception at least 12 - 24 months after surgery [3]. Here we observed short interval between the surgery and pregnancy is documented finding although all cases received good education and information of family planning for their coming pregnancy inspite pregnancy came earlier than expected.

Rapid weight loss after bariatric surgery may reduce symptoms such as anovulation or cycle irregularities and improves the fertility as here is seen in all success pregnancy either spontaneous or with ART although it seems this surgery is for cosmetic rather than fertility as almost all are multiparous women (94.4%).

The maternal complications are almost same as other pregnancies no specific notable issue seen for the study group. Anemia is highly expected complication specially with short surgery—a pregnancy interval because still the malabsorption gastrointestinal tract function doesn't back to normal yet along with early pregnancy symptoms keep the minerals, vitamins and nutrient in at the low if not deficient level. With respect of fetal outcome and neonatal weight it seems no clinical or statistical difference from the normal population as seen in most of the available publication concerned.

5. Conclusion

The lesson from management of pregnancy after bariatric surgery is still not well studied but consists mostly of data derived from retrospective studies or derived from case reports describing complications. Pregnancies after bariatric surgery

need to be considered as high-risk pregnancies with potential complications like anemia. Care of pregnancy after bariatric surgery needs to be organized in an individual setting with multilateral cooperation of various medical disciplines in specialized centers.

Study Constrains

The main constrain is small number of reported cases probably because of underreporting, some patients preferred to keep this surgery confidential and not reported at all in their history.

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Disclosure

Nothing to disclose.

Conflicts of Interest

The authors declare that there are no conflicts of interest regarding the publication of this article.

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