


# Case Study:

## A Case Series of Neglected Pregnancies at the Time of Bariatric Surgery



Abdolreza Pazouki<sup>1</sup> , Somayeh Mokhber<sup>2</sup> , Seyed Mohammad Tabatabaee Jabali<sup>3</sup> , Fatemeh Sadat Hosseini-Baharanchi<sup>2\*</sup> , Fatemeh Saffari<sup>2\*</sup> 

1. Center of Excellence for Minimally Invasive Surgery Education, Center of Excellence of European Branch of International Federation for Surgery of Obesity, Tehran, Iran.

2. Minimally Invasive Surgery Research Center, Iran University of Medical Sciences, Tehran, Iran.

3. Department of Pediatrics, School of Public Health, Iran University of Medical Sciences, Tehran, Iran.



**Please cite this article as** Pazouki A, Mokhber S, Tabatabaee Jabali SM, Hosseini-Baharanchi FS, Saffari F. A Case Series of Neglected Pregnancies at the Time of Bariatric Surgery. *Annals of Bariatric Surgery*. 2021; 10(1):45-52. <http://dx.doi.org/10.32598/ABS.10.1.4>

 <http://dx.doi.org/10.32598/ABS.10.1.4>



### Article info:

Received: 10 Apr 2021

Accepted: 12 May 2021

Publish: 30 Jun 2021

### Keywords:

Bariatric surgery,  
Pregnancy,  $\beta$ HCG test

## ABSTRACT

This study aimed to describe three neglected pregnancies at the time of bariatric surgery. These women had negative pregnancy tests before surgery and underwent single-anastomosis gastric bypass surgery in the Obesity Clinic of Rasoul-e-Akram Hospital affiliated with Iran University of Medical Sciences, Tehran City, Iran. The first case was a 38-year-old woman with a BMI of 47.1 kg/m<sup>2</sup> suffering from nausea and vomiting one month after surgery whose medical treatment was unsuccessful. Her  $\beta$ -human Chorionic Gonadotrophin ( $\beta$ HCG) test was positive, and sonography revealed a 13W+6D fetus. The second case was a 30-year-old woman with a BMI of 46.2 kg/m<sup>2</sup> suffering from uterus bleeding four months after surgery. The third case was a 32-year-old woman with a BMI of 44.6 kg/m<sup>2</sup> suffering from resistant nausea and vomiting, epigastric pain, and delayed menses three months after surgery. These cases show the necessity of the  $\beta$ HCG test at the time of bariatric surgery in childbearing females. The three neglected cases in our clinic showed the necessity and importance of the preoperative pregnancy consultation and the  $\beta$ HCG test just before surgery.

## 1. Introduction

**B**ariatric surgery is the most successful treatment for morbid obesity. Despite the success of this therapy, there are particular concerns about pregnancy in childbearing females. One-Anastomosis Gastric Bypass (OAGB) is one of the common bariatric surgeries. Different guidelines recommend

pregnancy consultation for bariatric surgery candidates and avoiding conception before the operation and 12 to 24 months after it. However, in addition to consultation, Mechanick et al. mentioned the necessity of pregnancy test for childbearing women [1]. The first rationale for this recommendation is to prevent the complications of these surgeries, including anemia, intrauterine growth retardation, and various micronutrient deficiencies such

### \* Corresponding Author:

Fatemeh Saffari, MD, Pediatrician.

Address: Minimally Invasive Surgery Research Center, Iran University of Medical Sciences, Tehran, Iran.

E-mail: [dr:saffari01@gmail.com](mailto:dr:saffari01@gmail.com)

as vitamin A, vitamin B12, folic acid, iron, and fetal neural tube defects [1-3].

On the other hand, women's overweight results in menstrual abnormality, amenorrhea, and ovulation dysfunction. These hormonal dysfunctions respond to weight loss, and the ovulation process is activated [4]. Most scientific societies recommend preoperative weight loss for morbidly obese patients. This preoperative weight loss may predispose them to an increased chance of pregnancy. Moreover, the risk of pregnancy increases considerably for this group of patients because of discontinuing Oral Contraceptives (OCP) to avoid Deep Vein Thrombosis (DVT) and Pulmonary Embolism (PE) [5]. This paper aimed to report three neglected pregnancies for morbidly obese patients referred to the Obesity Clinic in Rasoul-e-Akram Hospital affiliated to Iran University of Medical Sciences, Tehran City, Iran, at the time of bariatric surgery. We intend to highlight the necessity of pregnancy test in addition to pregnancy consultation just before surgery for childbearing women candidates in all guidelines.

### Timeline

The timelines (Figures 1, 2 & 3) show the variables of age, Body Mass Index (BMI), primary complaints, diet therapy before surgery, lab tests at the first visit, patients follow-ups after surgery, date of first pregnancy's sonography, and  $\beta$ -Human Chorionic Gonadotrophin ( $\beta$ HCG) test results for the three cases.

### Case presentation

#### Case 1

##### Patients' information

The first case was a married 38-year-old woman with a 123 kg weight and BMI of 47.1 kg/m<sup>2</sup> who underwent MGB (mini-gastric bypass) surgery on July 25, 2016. She complained of persistent nausea and vomiting one month after surgery. She was referred to the obesity clinic on April 15, 2015, for the first visit reporting sleep apnea, asthma, impaired fasting glucose, hyperlipidemia, elevated liver enzymes, and fatty liver in sonography. She had a history of cesarean section, cholecystectomy, and appendectomy. Her fertility history included two live children (16 and 6 years old), seven years of infertility after the first child, and spotting in both pregnancies. Her second child was born prematurely with a weight of 1200 g because of Premature Rupture of Membranes (PROM). In addition, her  $\beta$ HCG test was negative three months before surgery. She had a history of psychiatric

problem, i.e., Obsessive-Compulsive Disorder (OCD), that received medical treatment (sertraline and tab prednisolone) and occasionally electroconvulsive therapy since 20 years ago. She was smoking (16 pack-year) and had a history of opioid abuse. The patient had received a combination of sport, nutrition, psychologist, and psychiatrist consultation resulting in a 17-kg weight loss before MGB surgery. The patient had a weight loss of 13 kg and persistent nausea and vomiting one month after surgery despite nutritional intervention for her diet and eating habits. Moreover, she suffered from epigastric pain and delayed menses.

##### Diagnostic assessment

Her abdominopelvic sonography revealed a fetus of 13W+6D old one month after surgery with a positive  $\beta$ HCG++++ test.

#### Case 2

##### Patients' information

The second case was a married 30-year-old woman with a weight of 119 kg and a BMI of 46.2 kg/m<sup>2</sup>. She had three children (15, 8, and 2 years old) and underwent MGB surgery on June 22, 2015. She was referred to the clinic suffering from uterus bleeding four months after surgery. Her first exam revealed intertrigo, hirsutism, impaired fasting glucose, hyperlipidemia, and fatty liver grade II in sonography. She had 4 kg weight loss following the bariatric surgery protocol and before the operation. During three months post-operatively, her weight loss was 32 kg.

##### Diagnostic assessment

Pelvic sonography four months after surgery revealed a fetus with an age of 16W+4D and a  $\beta$ HCG++++ pregnancy test.

#### Case 3

##### Patients' information

The third case was a married 32-year-old woman with a weight of 118.5 kg and BMI of 44.6 kg/m<sup>2</sup> who underwent Single-Anastomosis Gastric Bypass (SAGB) surgery on November 07, 2016. She complained of persistent nausea and vomiting, epigastric pain, and delay menses three months after surgery.

There was no special finding in her physical examination. Her lab tests and imaging at first visit on August 10,

## Relevant Past Medical History

Female, Age: 38, married, two live children, smoker 16 pack-year, opioid abuse

History of sleep apnea and asthma, obsessive-compulsive disorder and depression, menstrual abnormality, secondary infertility (7 y) and premature delivery because of premature rupture of membranes (PROM), hyperlipidemia

Surgery history: cesarean section, cholecystectomy, and appendectomy; drug history: sertraline, prednisolone

**Current Illness**

Vomiting one month after bariatric surgery

**Physical examination at the first month**

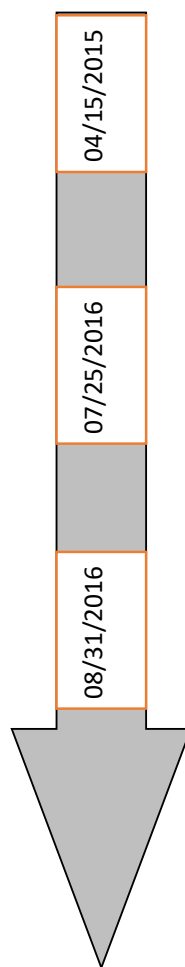
Weight: 123 kg, height: 161.5 cm, BMI: 47.1 kg/m<sup>2</sup>, waist circumference: 123 cm, hip circumference: 133 cm, BP: 120/80 mm Hg, RR: 15 breaths/min, PR: 82 beat/min, T: 36.8°C, Examination of head and neck: NL. Heart and lung: NL. Edema-, Organomegally-, Fatty abdomen

**Diagnostic evaluation**

Abdominopelvic sonography: fatty liver, Pap smear: NL, mammography: NL, Endoscopy: SSHH, H-pylori, Abnormal Lab data: FBS:116, HbA1c:6/6, AST: 33, ALT: 58, Chol: 249, LDL: 150, TG: 246, VitD: 10/6, Zn: 60

**Diagnostic evaluation**

βHCG++++, sonography: pregnant with a 13W+6D old fetus



**Initial treatment**

Diet, exercise, medical and mental consultation

**Ongoing intervention and follow-up**

One anastomosis gastric bypass surgery

**Ongoing intervention and follow-up**

Weight loss evaluation, lab test results

**Ongoing intervention and follow-up**

Sonography

## Resolution of this Episode of Care

The necessity of testing βHCG one week before bariatric surgery

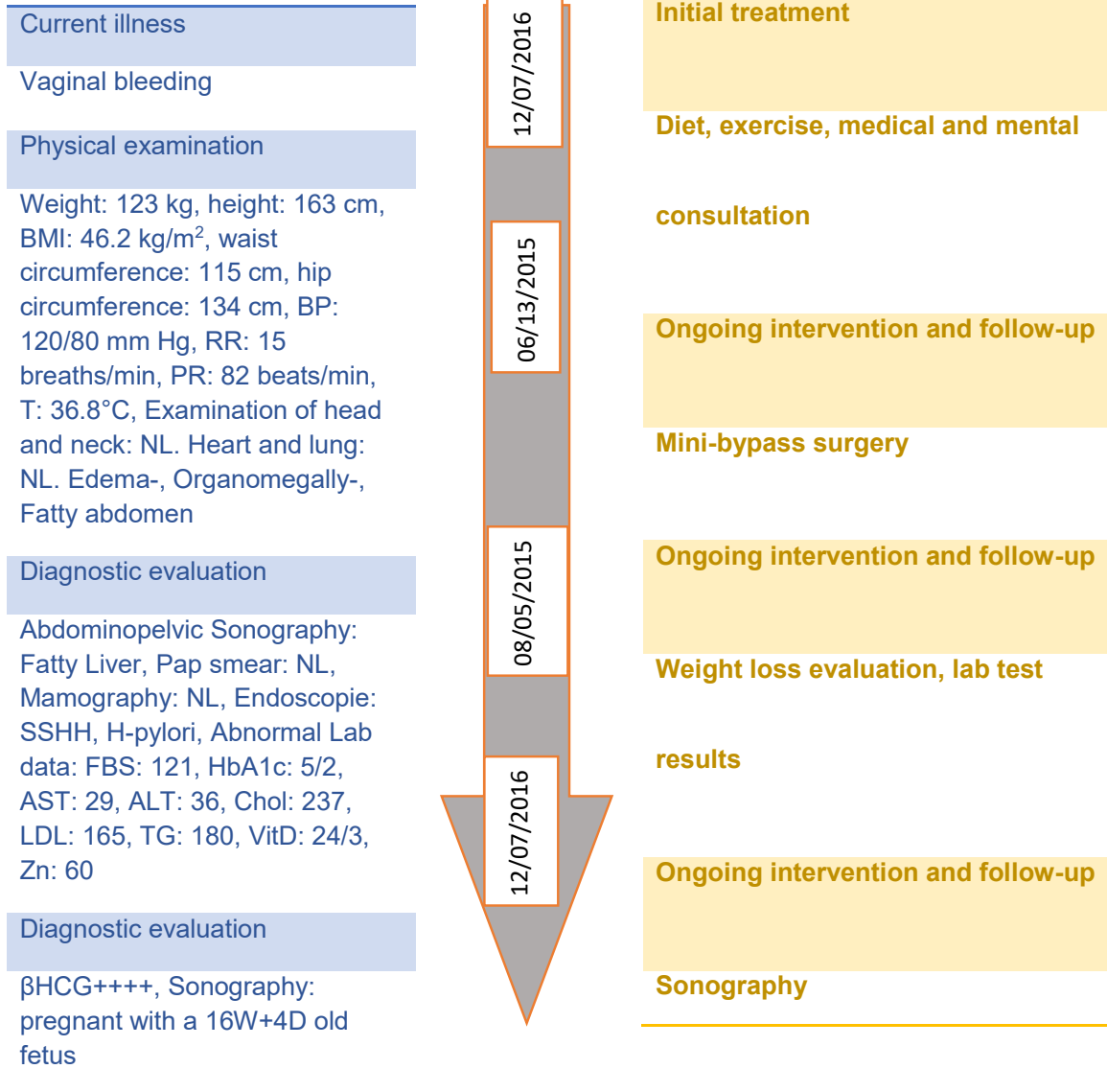
**Figure 1.** The timeline of the first case



BMI: Body Mass Index; BP: Blood Pressure; RR: Respiratory Rate, PR: Pulse Rate; T: Temperature; NL: Normal; FBS: Fast Blood Sugar; Unit: mg/dL HbA1c: Hemoglobin Unit: % . AST: Aspartate Aminotransferase; Unit: U/L. ALT: Alanine aminotransferase, Unit: U/L. Chol: Cholesterol, Unit: mg/dL. LDL: Low Density Lipoprotein, Unit: mg/dL. TG: Triglyceride, Unit: mg/dL. VitD: Vitamin D, Unit: ng/ml Zn: Zinc, microgr/dL.

### Relevant Past Medical History

Female, Age: 30, married, has three children, low back pain, emotional eater, snacker, surgery history: cesarean section, cholecystectomy



### Resolution of this Episode of Care

The necessity of testing βHCG at the time of Bariatric surgery

**Figure 2.** Timeline of the second case



BMI: Body Mass Index; BP: Blood Pressure; RR: Respiratory Rate; PR: Pulse Rate; T: Temperature; NL: Normal. FBS: Fast Blood Sugar, Unit: mg/dL HbA1c: Hemoglobin Unit: %. AST: Aspartate Aminotransferase, Unit: U/L. ALT: Alanine Aminotransferase, Unit: U/L. Chol: Cholesterol, Unit: mg/dL. LDL: Low Density Lipoprotein, Unit: mg/dL. TG: Triglyceride, Unit: mg/dL. VitD: Vitamin D, Unit: ng/ml Zn: Zinc, microgr/dL.

## Relevant Past Medical History

Female, Age: 32 y, married, Smoker 4 pack-year,

History of infertility (6 y), Surgery history: Caesarean section, cholecystectomy

### Current Illness

Vomiting and delay menstruation three months after bariatric surgery

Physical examination at the first month

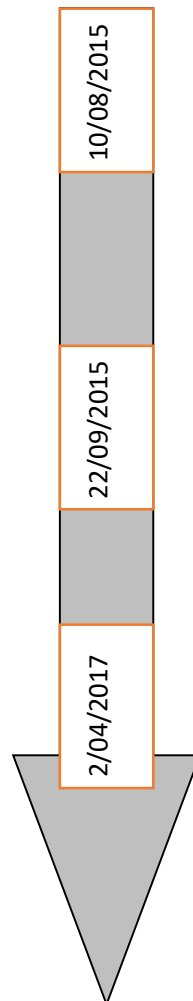
Weight: 118.5 kg, Height: 163 cm, BMI: 44.6 kg/m<sup>2</sup>, Waist circumference: 117 cm, Hip circumference: 130 cm, BP: 120/80 mm Hg, RR:14 breaths/min, PR: 80 beats/min, T:36.6°C, Examination of Head and Neck: NL. Heart and lung: NL. Edema-, Organomegally-, Fatty abdomen

### Diagnostic evaluation

Abdominopelvic sonography: NL, Pap smear: NL, Endoscopy: Stomach ulcer, H-pylori, Abnormal lab data: FBS: 82, HbA1c: 9.3 AST: 15, ALT: 13 Chol: 186, LDL: 64, TG: 385, VitD: 16/7, Zn: 76

### Diagnostic evaluation

βHCG++++, Sonography: pregnant with a 16W+4D old fetus



### Initial treatment

Diet, exercise, medical and mental consult

### Ongoing intervention and follow-up

One anastomosis gastric bypass surgery

### Ongoing intervention and follow-up

Weight loss evaluation, lab test results

### Ongoing intervention and follow-up

Sonography

## Resolution of this Episode of Care

The necessity of testing βHCG one week before bariatric surgery

**Figure 3.** Timeline of the third case

BP: Blood Pressure; RR: Respiratory Rate; PR: Pulse Rate; T: Temperature; NL: Normal. FBS: Fast Blood Sugar, Unit: mg/dL HbA1c: Hemoglobin Unit: %. AST: Aspartate Aminotransferase, Unit: U/L. ALT: Alanine Aminotransferase, Unit: U/L. Chol: cholesterol, Unit: mg/dL. LDL: Low Density Lipoprotein, Unit: mg/dL. TG: Triglyceride, Unit: mg/dL. VitD: Vitamin D, Unit: ng/ml Zn: Zinc, microgr/dL.

2015, were normal except for type 2 diabetes and hypothyroid with a history of cholecystectomy. She had had an infertility history for 6 years after marriage. She also was smoking 4 pack-year. Before undergoing surgery, the patient received the consultation of sport, nutrition, psychologist, and psychiatrist and lost 11 kg. Three months after surgery, the patient had a weight loss of 27 kg, epigastric pain, and delayed menses.

### Diagnostic assessment

Three months after surgery, her abdominopelvic sonography revealed a fetus with an age of 16W+4D. Also, her  $\beta$ HCG++++ test was positive.

## 2. Discussion

All references recommend preventing pregnancy before and after bariatric surgery for 12-24 months [1-3]. All candidates for bariatric surgery are selected according to the standard guidelines and protocols in our clinic. However, these three neglected pregnancies at the time of bariatric surgery revealed the necessity of considering pregnancy issues at the time of surgery. This event can be prevented by adding the  $\beta$ HCG test to the preoperative tests to reduce the risk of pregnancy for childbearing women. Most of the guidelines only address pregnancy consultation [Mechanick, 2013 #3], but these patients were enrolled in a 3-month education program before surgery, and a pregnancy test is not enough at the first visit. Morbid obesity is associated with infertility in childbearing women due to irregular menstrual cycles and amenorrhea, and erratic and inappropriate ovulation. Despite the possibility of pregnancy due to weight loss in the last days before surgery and discontinuation of OCP, due to irregular menses and prolonged amenorrhea in morbid obesity, women of childbearing age refuse pregnancy consultation and pre-surgery pregnancy tests. So, the pregnancy test is highly recommended for childbearing women as a bariatric surgery indication. Note that the  $\beta$ HCG test becomes positive 9 days after conception [6], and one of our patients became pregnant two days before surgery, so the  $\beta$ HCG test does not substitute pregnancy consultation before surgery. In conclusion, the three neglected cases in our clinic showed the necessity and importance of the preoperative pregnancy consultation and the  $\beta$ HCG test just before surgery.

### Ethical Considerations

### Compliance with ethical guidelines

There were no ethical considerations to be considered in this research.

### Funding

This research did not receive any grant from funding agencies in the public, commercial, or non-profit sectors.

### Authors' contributions

Conceptualization, investigation, writing – review & editing: Abdolreza Pazouki and Somayyeh Mokhber; Data collection, data analysis, and writing – original draft: Fatemeh Safari, Mohammad Tabatabaee Jabali, and Fateme Sadat Hosseini-Baharanchi.

### Conflict of interest

The authors declared no conflict of interest.

### Acknowledgments

The authors would like to thank Dr Sajedeh Riazi from Tehran University of Medical Sciences for contributing to patients' data collection.

### References

- [1] Mechanick JI, Kushner RF, Sugerman HJ, Gonzalez-Campoy JM, Collazo-Clavell ML, Spitz AF, et al. American Association of Clinical Endocrinologists, the Obesity Society, and American Society for Metabolic & Bariatric Surgery medical guidelines for clinical practice for the perioperative nutritional, metabolic, and nonsurgical support of the bariatric surgery patient. *Obesity*. 2009; 17(S1):S3-S72. [DOI:10.1038/oby.2009.28] [PMID]
- [2] Mechanick JI, Youdim A, Jones DB, Garvey WT, Hurley DL, McMahon MM, et al. Clinical practice guidelines for the perioperative nutritional, metabolic, and nonsurgical support of the bariatric surgery patient-2013 update: cosponsored by American Association of Clinical Endocrinologists, the Obesity Society, and American Society for Metabolic & Bariatric Surgery. *Surgery for Obesity and Related Diseases*. 2013; 9:159-91. [DOI:10.1016/j.soard.2012.12.010] [PMID]
- [3] Narayanan RP, Syed AA. Pregnancy following bariatric surgery-medical complications and management. *Obesity surgery*. 2016; 26(10):2523-9. [DOI:10.1007/s11695-016-2294-x] [PMID] [PMCID]
- [4] Speroff L, Fritz MA. *Clinical gynecologic endocrinology and infertility*. Maryland: Lippincott Williams & Wilkins; 2005. <https://books.google.com/books?id=>

[5] Stratification R. Guidelines for deep venous thrombosis prophylaxis during laparoscopic surgery. *Surgical Endoscopy*. 2007; 21:1007-9. [\[DOI:10.1007/s00464-007-9340-7\]](https://doi.org/10.1007/s00464-007-9340-7) [\[PMID\]](#)

[6] Melmed S, Polonsky KS, Larsen PR, Kronenberg HM. *Williams textbook of endocrinology*. London: Elsevier Health Sciences; 2015. <https://books.google.com/books?id=>

This Page Intentionally Left Blank