

## An early onset of acute renal failure in a young woman with obesity and infertility who underwent gastric balloon positioning. A case report

M. MILONE, P. MAIETTA, P. BIANCO, A. PISAPIA, D. GAUDIOSO,  
G. CORETTI, F. MILONE, M. MUSELLA

**SUMMARY:** An early onset of acute renal failure in a young woman with obesity and infertility who underwent gastric balloon positioning. A case report.

M. MILONE, P. MAIETTA, P. BIANCO, A. PISAPIA, D. GAUDIOSO,  
G. CORETTI, F. MILONE, M. MUSELLA

**Introduction.** Although intragastric balloons have been in use for several years to achieve weight reduction in obese patients, acute renal failure after gastric balloon positioning is reported in few studies

**Case report.** A 32-year-old white infertile woman undergone Bioen-

terics Intragastric Balloon (BIB) positioning in an attempt to weight loss and improve her fertility status. After only six days of persisting vomiting acute renal failure was found. A complete recovery of renal function was obtained after 14 days.

**Conclusion.** Acute renal failure was due to persistent vomiting leading to dehydration. Physicians involved in BIB patients management must consider the possibility of major complications in all hyperemetic subjects. BIB removal, with a concomitant intravenous fluid replacement and minerals or vitamins supplementation has to be taken into account as an emergency procedure.

KEY WORDS: Renal failure - Gastric balloon - Vomiting - Obesity.

### Introduction

The surgical treatment of obesity is a rapidly growing area of surgical practice today. Intragastric balloon treatment, less invasive than surgery, promotes a weight loss of five to nine body mass index (BMI) units in 6 months with an impressive improvement of obesity-associated comorbidities in all those patients not suitable for surgery due to different reasons (1).

We report a case of a 32-year-old obese infertile woman developing an acute renal failure following Bioenterics Intragastric Balloon (BIB) positioning.

### Case report

A 32-year-old Caucasian Italian infertile woman (body mass index, BMI: 36 kg/m<sup>2</sup>) underwent BIB positioning in an attempt to

weight loss and improve her fertility status (1, 2). Her past medical history was unremarkable except for hypertension.

At 1 day after BIB placement, she presented persisting vomiting. In the following 5 days, the patient continued vomiting and presented lethargy and confusion. Acute renal failure, metabolic acidosis, and hyperkalemia were found as revealed by blood metabolic indexed. More in details, Creatinine was 5,2 mg/dL (normal value 0,6 - 1,2 mg/dL), potassium 5,0 mEq/L (normal value 3,4 - 4,8 mEq/L), pH 7,2 (normal value 7,35 - 7,45), HCO<sub>3</sub><sup>-</sup> 19 mmol/L (normal value 24 - 28 mmol/L), PCO<sub>2</sub> 31 mmHg (normal value 35 - 45 mmHg).

A gastroscopy was performed and, although neither obstruction or migration to the antropyloric region was discovered, the BIB was removed. The patient was treated with crystalloids and bicarbonates and after 14 days was discharged with a complete recovery of renal function (normalization of all blood metabolic indexed).

Written informed consent was obtained from the patient for publication of this case report.

### Discussion

The prevalence of people who are overweight or obese has increased dramatically in high-income countries during the past 20 years. The World Health Organization estimates that 54.3% of women and 51.7% of men in the United States will be obese (body mass index [BMI] > 30 kg/m<sup>2</sup>) in 2015 (3). Obesity is associated

"Federico II" University of Naples, Naples, Italy

Corresponding author: Marco Milone, milone.marco@alice.it

© Copyright 2014, CIC Edizioni Internazionali, Roma

with numerous comorbidities affecting virtually every organ system, including hypertension, type II diabetes mellitus, coronary artery disease, dyslipidemia, infertility, certain cancer and in the end increased mortality (2, 4, 5).

Obesity is notoriously difficult to manage. Diet, behavioral therapy, exercise, and pharmacologic intervention have traditionally been used but generally yield modest results, and weight regain is common. In cases of failed medical therapy, bariatric surgery should be considered the treatment of choice for severe obesity (6).

Intragastric balloons have been in use for several years to achieve weight reduction in obese patients who do not meet the criteria for bariatric surgery, or in super-obese individuals before bariatric surgery. A meta-analysis published in 2008 about safety and effectiveness of BIB (13 papers including 3442 patients) showed that majority of complications were mild (7). Acute renal failure is reported in few studies; Roman (8) in a study on 142 patients reported renal insufficiency in 2 patients (1.1%); Al-Momhem (9) in another study on 44 patients, reported renal failure in 2 patients (4.5%); Banetti (10) reported two patients. In all cases it was due to persistent vomiting leading to dehydration.

At variance with other reports we described a very early onset of symptoms after BIB positioning in a young non super-obese woman. Moreover no obstruction due to BIB positioning was revealed.

In all cases acute renal failure was due to persistent vomiting leading to dehydration. The relevant role of the vomiting as a risk factor in subjects undergoing restrictive surgery is well recognized (11, 12).

## Conclusion

Physicians involved in BIB patients management must consider the possibility of major complications in all hyperemetic subjects. BIB removal, with a concomitant intravenous fluid replacement and minerals or vitamins supplementation, has to be taken into account as an emergency procedure. Early treatment can rapidly improve the clinical conditions, avoiding permanent deficiencies.

---

**Conflict of interest.** The authors declare that they have no competing interests.

## References

1. Musella M, Milone M, Bellini M, Fernandez ME, Fernandez LM, Leongito M, Milone F. The potential role of intragastric balloon in the treatment of obese-related infertility: personal experience. *Obes Surg.* 2011 Apr;21(4):426-30.
2. Musella M, Milone M, Bellini M, Sosa Fernandez LM, Leongito M, Milone F. Effect of bariatric surgery on obesity-related infertility. *Surg Obes Relat Dis.* 2012 Jul-Aug;8(4):445-9.
3. Hedley AA, Ogden CL, Johnson CL, Carroll MD, Curtin LR, Flegal KM. Prevalence of overweight and obesity among US children, adolescents, and adults, 1999-2002. *JAMA.* 2004 Jun 16;291(23):2847-50.
4. Fontaine KR, Redden DT, Wang C, Westfall AO, Allison DB. Years of life lost due to obesity. *JAMA.* 2003 Jan 8;289(2):187-93.
5. Milone M, Di Minno MN, Leongito M, Maietta P, Bianco P, Taffuri C, Gaudio D, Lupoli R, Savastano S, Milone F, Musella M. Bariatric surgery and diabetes remission: sleeve gastrectomy or mini-gastric bypass? *World J Gastroenterol.* 2013 Oct 21;19(39):6590-7.
6. Surg O. 2004 ASBS Consensus Conference on Surgery for Severe Obesity. *Relat Dis.* 2005;1:297-381.
7. Imaz I, Martinez-Cervell C, Garcia-Alvarez EE, et al. Safety and effectiveness of the intragastric balloon for obesity. A metaanalysis. *Obes Surg.* 2008;18:841-6.
8. Roman S, Napole'on B, Mion F, Bory RM, Guyot P, D'Orazio H, et al. Intragastric balloon for "non-morbid" obesity: a retrospective evaluation of tolerance and efficacy. *Obes Surg.* 2004;14:539e44.
9. Al-Momen A, El-Mogy I. Intragastric balloon for obesity: a retrospective evaluation of tolerance and efficacy. *Obes Surg.* 2005;15:101e5.
10. Banetti A. Acute renal failure after intragastric balloon in morbidly-obese metformin-treated diabetic patients. Report of two cases. *Nutrition, Metabolism & Cardiovascular Diseases.* 2012;22, e7ee8.
11. Scarano V, Milone M, Di Minno MND, Panariello G, Bergogliatti S, Terracciano M, Orlando V, Florio C, Leongito M, Lupoli R, Milone F, Musella M. Late micronutrient deficiency and neurological dysfunction after laparoscopic sleeve gastrectomy: a case report. *Eur J Clin Nutr.* 2012 May;66(5):645-7.
12. Milone M, Scarano V, Di Minno MN, Lupoli R, Milone F, Musella M. Rapid onset of Wernicke's syndrome after gastric balloon positioning. *Eur J Clin Nutr.* 2012 Aug;66(8):971.