

## Hyperinflation-Unusual but Possible Complication with Intra-gastric Balloon

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### Abstract

**Introduction:** Intra-gastric balloon is a known obesity treatment where a silicon device is implanted into the patient's stomach. It is a minimally invasive option for endoscopic obesity treatment, acting as a space-occupying device that leads to weight loss since it increases the feeling of satiety. It helps patients lose weight enabling them to reach faster and better results than just dieting. In Brazil it has been a very common treatment for obesity and has been growing in popularity due to its safety profile and good weight loss results. The total weight loss average percentage found in the Brazilian Intra-gastric Balloon Consensus was 18,4.

**Case Report:** This case report is about a 41 years old, female, caucasian patient that came up with a specific complication with the balloon, the hyperinflation. In her eighth month with the balloon she started with nausea, abdominal pain and vomiting that did not cease after changes in her usual diets. An abdominal X-ray showed a big air-fluid level into the balloon.

**Discussion:** The overall reported of complications with the Intra-gastric Balloon is very low. However, when a complication does occur, it can be very serious. Hyperinflation is an uncommon complication as demonstrated in the Brazilian Intra-gastric Balloon Consensus Statement (BIBC) and its mechanism is still unknown. One possible explanation is a relation with fungus colonization or aerobic bacteria infection. Literature data are still poor and don't allow any conclusions but some possibilities could be: fluid contamination during the insertion, valve defect, porosity of the material or some intrinsic patient condition. Spontaneous hyperinflation causes abdominal swelling and pain, and/or vomiting. At the time that this complication occurs there's only one possible treatment. The balloon must be removed to avoid more severe complications.

**Conclusion:** IGB is a very safe treatment for obesity. But, just like any other invasive treatment for obesity, it has its complications. Hyperinflation is one of them, but uncommon. There's only one solution for this problem. The balloon must be removed.

**Keywords:** Obesity; Endoscopic Obesity Treatment; Intra-gastric Balloon; Hyperinflation; Complication

### Introduction

Intra-gastric Balloon (IGB) is a known obesity treatment, where a silicon device is implanted into the patient's stomach. The procedure is done under sedation. It is a minimally invasive option for obesity treatment, acting as a space-occupying device that leads to weight loss since it increases the feeling of satiety. It helps patients lose weight enabling them to reach faster and better results than just dieting. Some balloons can remain into the stomach for 1 year while others for only 6 months. This case report is about a patient that came up with a specific complication with the balloon, the hyperinflation.

### Case Report

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Female, 41 years old, Caucasian. The patient had been trying to lose weight for at least twenty years.

No comorbidities.

No surgeries except for one cesarean section.

Familiar obesity. She decided on an intra-gastric balloon because of her inability to lose weight, despite different kinds of diets and medicines.

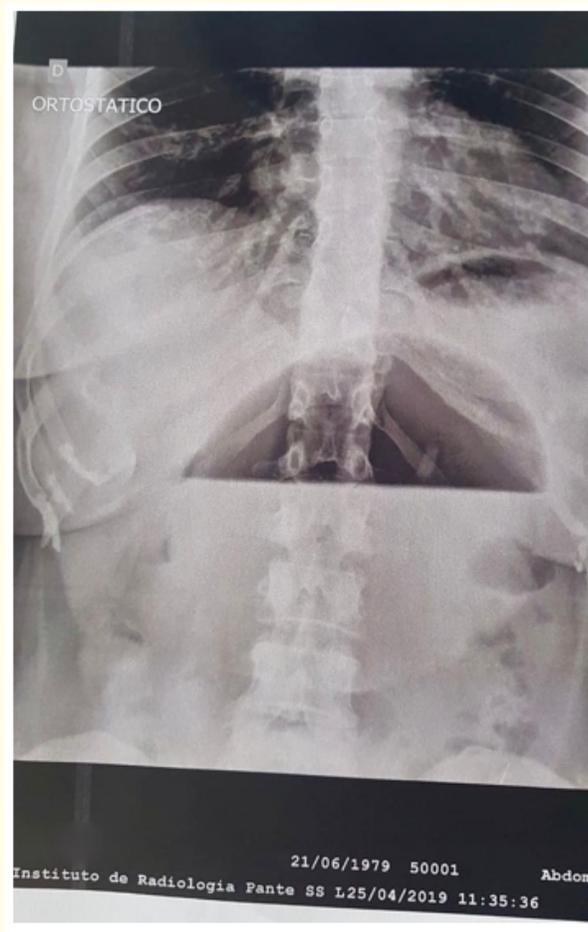
She had never thought about surgical procedures before.

On August 3<sup>rd</sup>, 2018 she underwent Spatz IGB and the procedure was successfully performed. At the moment of implantation she weighed 88 kilograms and her BMI was 34.

She presented with nausea, vomiting and abdominal pain, symptoms that disappeared after two days. The patient lost 5 kilograms in her first month with the balloon.

In April 2019 she presented with abdominal pain, nausea and vomiting that did not cease even after changes in her usual diets.

A simple abdominal X-ray showed a big air-fluid level into the balloon and the device had to be removed.



### Discussion and Conclusion

Intra-gastric Balloon has been growing in popularity due to its safety profile and good weight loss results. In Brazil it has been a very common treatment for obesity. A consensus meeting was held in São Paulo, Brazil, in June 2016, bringing together 39 Brazilian endoscopists with extensive experience in IGBs from all regions of the country. The overall Brazilian expert data encompassed 41,863 IGBs, with a total weight loss average percentage of 18,4% (+ - 2,9%). The adverse event rate after the adaptation period was 2.5%, being hyperinflation (0.9%), deflation (0.8%) of the device and early removal due to intolerance was 2.2% [1]. The overall reported of complications with IGBs is very low [1]. However, when a complication does occur, it can be very serious [2].

The balloon hyperinflation mechanism is still unknown. Literature datas are still poor and don't allow any conclusions. One possible explanation is a relation with fungus infection or aerobic bacteria's. But a plausible explanation for the colonization hasn't been found yet. Some possibilities could be:

1. Fluid contamination during the insertion?
2. Valve defect?
3. Porosity of the material?
4. Some intrinsic patient condition? [3].

In a recent publication, Dr Gontrand Lopez-Nava spoke about a 42 years old woman, who started with abdominal pain and vomiting after 7 weeks with an intra-gastric balloon. The X-Ray demonstrated a large air-fluid level and, a massive enlargement of the IGB (~1437 ml) compared with its original volume. The balloon was puncture and the fluid aspirated for microbiological assessment. Then it had to be removed. The specimen culture showed *Candida parapsilosis* [4].

Spontaneous hyperinflation causes abdominal swelling and pain, and/or vomiting. It is speculated that it may be cause by permeability of the IGB, with entry of fluid and gases by osmosis, or by bacteria or fungi, which, in high saline concentrations, produce gas by fermentation [5].

The treatment of this complication is simple. The balloon must be removed in order to avoid more severe complications.

### Conflict of Interest

The author has no conflict interest.

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