

# Acute Pancreatitis and Intra-gastric Balloon: Case Report and Review of the Literature

Malak S Nouredine\*, Zaher S Houmani

Department of Gastroenterology & Hepatology, Nabatieh Governmental Hospital, Nabatieh, Lebanon.

## ABSTRACT

Obesity remains a world-wide hazard causing significant impact on general population. Many surgical and non-surgical interventions are used in the management of obesity related morbidity and mortality. Intra-gastric balloons have been widely adopted for this purpose. This procedure is considered relatively easy and safe. However, major complications-although rare- as acute pancreatitis had been reported. Thus, all the physicians must be aware of these complications for early diagnosis and management. Hereby, we report a case of acute pancreatitis following intra-gastric balloon insertion. We will also present a review of all the previous cases reported in the literature.

**Keywords:** Acute Pancreatitis, Intra-gastric Balloon, Obesity.

## \*Correspondence to:

**Malak Nouredine**

Department of Gastroenterology & Hepatology,  
Nabatieh Governmental Hospital, Nabatieh, Lebanon.

## Article History:

**Received:** 23-02-2018, **Revised:** 04-04-2018, **Accepted:** 24-05-2018

## Access this article online

Website:

[www.ijmrp.com](http://www.ijmrp.com)

DOI:

10.21276/ijmrp.2018.4.3.020

Quick Response code



## CASE REPORT

Obesity is a global health problem that is increasing worldwide with its significant morbidity and mortality. Different strategies are used to treat obesity. Starting by diet and exercise to medical therapy ending in endoscopic and surgical procedures. Every strategy is customized according to the patient's BMI, compliance, comorbid conditions, and failure of conservative measures.<sup>1</sup> Surgical procedures have been widely adopted as an effective way in achieving weight loss despite their significant postoperative complications.<sup>2</sup>

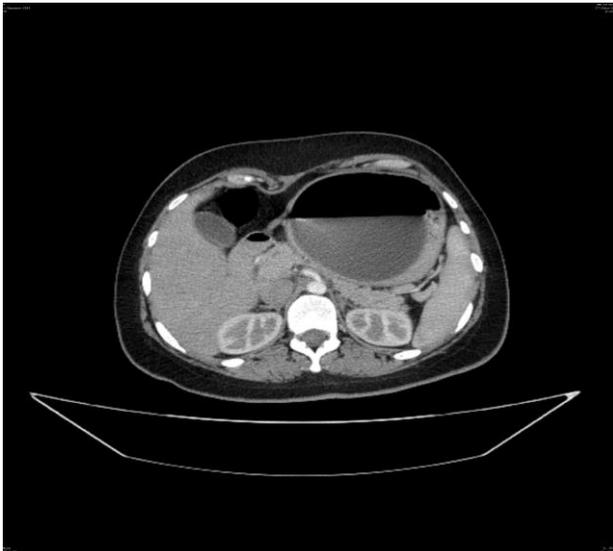
Currently, intra-gastric balloon insertion is emerging worldwide as a new non-surgical relatively safe procedure targeting weight loss with good results.<sup>3</sup> The concept behind using the balloon for weight loss is reducing the stomach space available for food thus decreasing appetite. However, side effects related to balloon insertions have been documented ranging from simple to more severe and rare complications.<sup>3</sup>

One of these rare complications is acute pancreatitis. We will present a case of acute pancreatitis following intra-gastric balloon insertion.

## CASE PRESENTATION

Our patient is a 34 years old non-alcoholic lady that was referred to our obesity clinic for intra-gastric balloon insertion for weight loss after conventional treatment failure (diet and exercise). Her weight at presentation was 85kg with a height of 160cm and a BMI of 33. Her past medical history is not significant except for dyslipidemia.

She had no contraindications for balloon insertion. After obtaining an informed consent, and explaining the possible and rare complications, in addition to the proper management of post procedure symptoms, a Biogen Intra-gastric Balloon (BIB) balloon was inserted. It was filled with 500 cc of methylene blue tinged normal saline. The procedure was smooth with no immediate complications. She was discharged on antiemetics, antispasmodics, and PPI. During monthly follow-up, the balloon was well tolerated with minimal side effects. She had lost 7kgs over 3 months. 12 weeks post balloon insertions, she presented to the emergency department with acute severe epigastric pain associated with nausea and vomiting. She has no recent history of drug intake. Vital signs were normal upon presentation. Physical exam showed severe epigastric tenderness with soft abdomen and positive bowel sounds. Full labs were done and the results were only significant for elevated amylase and lipase with normal liver function tests, lipid profile, and calcium level. Then she was admitted for proper management. Echo abdomen was normal. CT scan of the abdomen and pelvis was performed and showed extrinsic compression of the balloon on the pancreas at the level of its body. Presumptive diagnosis of the cause of acute pancreatitis secondary to intra-gastric balloon was done. Gastroscopy was done with removal of the intra-gastric balloon.<sup>3</sup> days later, the patient had significant improvement both clinically and lab wise. After 1 month, EUS was done to exclude any other cause of acute pancreatitis and turn back to be normal.



**Fig 1: CT abdomen showing the intra-gastric balloon compressing the pancreatic body.**

## DISCUSSION

Intra-gastric balloons are currently widely used in the treatment of morbid obesity. By reducing the stomach size, it works as a temporary way to achieve weight loss.<sup>4</sup> It is considered more effective than medical therapy, less invasive and cheaper compared to surgery.<sup>3,5</sup> Different types of intra-gastric balloons have been used including BIB, Reshape Duo, Elipse, Obalon, Heliosphere bag, Spatz, Silimed balloon, and adjustable totally implantable intra-gastric prosthesis (ATIIP). They differ by the number of balloons, presence of collapsible catheter, type of filling (air, saline, methylene blue), time left in the stomach, adjustability option, method of insertion (endoscopically, swallowing, through gastrostomy).

Several studies have been issued to assess the clinical efficacy of different intra-gastric balloons on weight loss. One trial showed an 11.2 to 12.8kg loss of weight after 3 months and a 16.7 to 20.0 kg loss, after 6 months of balloon insertion.<sup>6</sup> Other study showed only 5.9kg (7.5%) loss of starting body weight and 31% of excess body weight 6 months after balloon insertion.<sup>7</sup> Moreover, a study showed a mean reduction in weight of  $15.3 \pm 10.5$ kg, BMI reduction of  $5.3 \pm 3.4$ kg/m<sup>2</sup>, percentage excess weight loss of  $48.3\% \pm 23.3\%$ , and percentage total weight loss of  $13.6\% \pm 7.3\%$ .<sup>8</sup> Furthermore, direct relation of weight loss to balloon inflation size was shown in a study where mean excess weight loss was  $35.4\% \pm 27.3\%$  for 500ml balloons and  $48.8\% \pm 31.0\%$  for 600ml balloons ( $p < 0.04$ ).<sup>9</sup>

Many side effects have been reported in relation to balloon insertion ranging from simple to more serious events. The most common symptoms noticed are nausea, vomiting, and abdominal cramping, mainly secondary to gastric distention.<sup>3-5</sup> Other serious adverse events reported include ulcers or erosions caused by the pressure on the gastric mucosa, tear as a result of improper placement of a balloon, migration of a leaking balloon or its catheter causing intestinal obstruction.<sup>3,8</sup> Stomach perforation and severe esophagitis had also been reported.<sup>3,5</sup>

The incidence of complication rates was 2.8% in a series of 2515 patients.<sup>5</sup> Mucosal injury incidence is 4% with premature deflation of balloon required in 7-8%, although much higher incidence rates were reported from an Asian group.<sup>7</sup>

Acute pancreatitis is rarely reported in the literature as a complication for intra-gastric balloon insertion. Eleven cases were reported to date in the literature. Six of them, BIB balloon was used<sup>10-15</sup>, Spatz balloon was used in two cases<sup>16,17</sup>, and in the other three cases the balloon type was not mentioned.<sup>18-20</sup> Acute pancreatitis was explained by the extrinsic compression of the pancreatic body by the distended stomach in the majority of cases (9 cases) where it was managed endoscopically by balloon removal with complete clinical recovery.<sup>10-15,19</sup> In the other 3 cases, the cause of acute pancreatitis was due to the migration of the inflated balloon or its catheter causing intestinal and papillary obstruction requiring surgical or percutaneous intervention for balloon retrieval.<sup>16-18</sup> In our case, acute pancreatitis was secondary to balloon compression after exclusion of all other common causes. After endoscopic removal of the balloon, our patient had a dramatic clinical improvement.

## CONCLUSION

Intra-gastric balloon is an easy and effective way for weight reduction for certain type of obese patients despite its various encountered side effects. Most complications are benign and self-limited, however, more serious adverse events may ensue. Clinicians must be aware of these consequences that may present as subtle symptoms as early as the first month post insertion. Thus, prompt diagnosis and early management is needed in these cases to avoid a detrimental outcome. CT abdomen showing the intra-gastric balloon compressing the pancreatic body.

## REFERENCES

1. Tsigosa C, Hainerb V, Basdevant A, et al. Obesity Management Task Force of the European Association for the Study of Obesity. Management of obesity in adults: European Clinical Practice Guidelines. *Obes Facts* 2008; 1: 106-116 [PMID: 20054170 DOI: 10.1159/000126822]
2. Snow V, Barry P, Fitterman N, Qaseem A, Weiss K. Clinical Efficacy Assessment Subcommittee of the American College of Physicians. Pharmacologic and surgical management of obesity in primary care: a clinical practice guideline from the American College of Physicians. *Ann Intern Med* 2005; 142: 525-531 [PMID: 15809464 DOI: 10.1016/j.accreview.2005.06.023]
3. Imaz I, Martínez-Cervell C, García-Alvarez EE, Sendra-Gutiérrez JM, González-Enríquez J. Safety and effectiveness of the intra-gastric balloon for obesity. A meta-analysis. *Obes Surg* 2008; 18: 841-846 [PMID: 18459025 DOI: 10.1007/s11695-007-9331-8]
4. Mathus-Vliegen EM. Intra-gastric balloon treatment for obesity: what does it really offer? *Dig Dis* 2008; 26: 40-44 [PMID: 18600014 DOI: 10.1159/000109385]
5. Genco A, Bruni T, Doldi SB, et al. Bioenterics intra-gastric balloon: The Italian experience with 2515 patients. *Obes Surg* 2005; 15: 1161-1164 [PMID: 16197790 DOI: 10.1381/0960892055002202]
6. Mathus-Vliegen EM, Tytgat GNJ. Intra-gastric balloon for treatment-resistant obesity: Safety, tolerance, and efficacy of 1-year balloon treatment followed by a 1-year balloon-free follow-up. *Gastrointest Endosc* 2005; 61: 19-27 [PMID: 15672051]
7. Ganesh R, Rao AD, Baladas HG, Leese T. The Bioenteric Intra-gastric Balloon (BIB) as a treatment for obesity: poor results

in Asian patients. *Singapore Med J* 2007; 48: 227–231 [PMID: 17342292]

8. Sallet JA, Marchesini JB, Paiva DS, et al. Brazilian multicenter study of the intra gastric balloon. *Obes Surg* 2004; 14: 991–998 [PMID: 15329191 DOI: 10.1381/0960892041719671]

9. Roman S, Napoléon B, Mion F, et al. Intra gastric balloon for “non-morbid” obesity: a retrospective evaluation of tolerance and efficacy. *Obes Surg* 2004; 14: 539–544 [PMID: 15130235 DOI: 10.1381/096089204323013587]

10. Mohammed AE, Benmoussa A. Acute pancreatitis complicating intra gastric balloon insertion. *Case Rep Gastroenterol* 2008; 2: 291-295 [PMID: 21490858 DOI: 10.1159/000151287]

11. Shelton E, Froomes P, Fink MA. Education and Imaging. Gastrointestinal: balloon pancreatitis. *J Gastroenterol Hepatol* 2012; 27: 986 [PMID: 22515808 DOI: 10.1111/j.1440-1746.2012.07102.x]

12. Issa I, Taha A, Azar C. Acute pancreatitis caused by intra gastric balloon: A case report. *Obes Res Clin Prac* 2016; 10: 340-343 [PMID: 26410462 DOI: 10.1016/j.orcp.2015.08.003]

13. Said F, Robert S, Mansour EK. Pancreatitis and intra gastric balloon insertion. *Surg Obes Relat Dis* 2016; 12: e33-e34 [PMID: 27050403 DOI: 10.1016/j.soard.2015.12.015]

14. Geffrier C, Samaha E, Duboc H. Acute “balloon pancreatitis”. *Endoscopy* 2014; 46: E383 [PMID: 25254588 DOI: 10.1055/s-0034-1377370]

15. Navajas-Laboa M, Bridet L et al. Intra gastric balloon and epigastric pain: beware of the pancreas. *Turk J Gastroenterol* 2015; 26: 87-88 [PMID: 25698286 DOI: 10.5152/tjg.2015.4227]

16. Öztürk A, Yavuz Y, Atalay T. A case of duodenal obstruction and pancreatitis due to intra gastric balloon. *Balkan Med J* 2015; 32: 323-326. [PMID: 26185725 DOI: 10.5152/balkanmedj.2015.15312]

17. Vongsuvan R, Pleass H, van der Poorten D. Acute necrotizing pancreatitis, gastric ischemia, and portal venous gas complicating intra gastric balloon placement. *Endoscopy* 2012; 44: E383-384 [PMID: 23139033 DOI: 10.1055/s-0032-1310146]

18. Holland S, Bach D, Duff J. Balloon therapy for obesity-when the balloon bursts. *J Can Assoc Radiol* 1985; 36: 347-349 [PMID: 4086508]

19. Torres OJM, Moraes-Junior JMA, Torres CCS, Nunes EA. Acute pancreatitis due to intra gastric balloon. *Int J Case Rep Images* 2016; 7: 499–502 [DOI: 10.5348/IJCRI-201687-CR-10675]

20. Alqasim AMA, Alferdaus AM, Alsalem TM. Acute Pancreatitis Induced by Intra gastric Balloon. *Int J Med Res Prof* 2017; 3: 309-311 [DOI:10.21276/ijmrp.2017.3.5.060]

**Source of Support:** Nil.

**Conflict of Interest:** None Declared.

**Copyright:** © the author(s) and publisher. IJMRP is an official publication of Ibn Sina Academy of Medieval Medicine & Sciences, registered in 2001 under Indian Trusts Act, 1882. This is an open access article distributed under the terms of the Creative Commons Attribution Non-commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

**Cite this article as:** Malak S Noureddine, Zaher S Houmani. Acute Pancreatitis and Intra gastric Balloon: Case Report and Review of the Literature. *Int J Med Res Prof.* 2018 May; 4(3):105-07. DOI:10.21276/ijmrp.2018.4.3.020