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Case Report

Pancreatitis 6 Months After Intragastric Balloon Insertion

Houssein Chebbo[1], Sarah Saleh[1], Karam Karam[2], Sarah Jalloul[2], Johny Salem[3], Georges El Hashem[4], Elias Saikaly[5], Charbel Fares[6], Marwan Haddad[6], Pierre Hani[7] and Elias Fiani[7]*

[1]Faculty of Medicine, University of Balamand, Dekweneh-Beirut, Lebanon

[2]Department of Gastroenterology, Faculty of Medicine, University of Balamand, Delweneh-Beirut, Lebanon

[3]Department of Internal Medicine, Faculty of Medicine, University of Balamand, Dekweneh-Beirut, Lebanon

[4]Associate Professor of Clinical Medicine in Hematology and Oncology, Faculty of Medicine, Saint George University of Beirut

[5]Associate Professor, Department of General Surgery, Saint george University Medical Center, Lebanon

[6]Associate Professor, Department of Radiology, Faculty of Medicine, University of Balamand, Dekweneh, Lebanon

[7]Associate professor, Department of Gastroenterology, Faculty of Medicine, University of Balamand, Dekweneh-Beirut, Lebanon

***Corresponding Author:** Elias Fiani, Associate professor, Department of Gastroenterology, Faculty of Medicine, University of Balamand, Dekweneh-Beirut, Lebanon.

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Abstract

Introduction: Bariatric surgery is a frequently used method for weight loss in obese patients. However, there has been a rising preference for non-surgical techniques like intragastric balloons (IGBs), where a balloon is endoscopically placed in the stomach and then filled with fluid. Pancreatitis is a rare and serious complication of IGBs, recognized by the FDA in February 2017. We report one such instance of pancreatitis in a Lebanese female with an IGB inserted several months ago.

Case: A 55-year-old female patient with no chronic illness presented to the emergency department with nausea and acute epigastric pain radiating to the back. History goes back to six months ago, when the patient underwent an intragastric balloon placement procedure for weight loss. Laboratory workup of liver function enzymes, triglycerides, bilirubin, and CRP was normal except for a staggering elevation in pancreatic enzyme levels, with a lipase value of 3000 U/L (reference range is 10–40 U/L) and serum amylase of 1000 U/L (reference range is 40–140 U/L). Those findings are consistent with a diagnosis of acute pancreatitis.

Discussion: The most common endoscopic therapy for obesity is intragastric balloon insertion. It is recommended to keep the balloon in the stomach for no longer than 6 months to decrease the possibility of complications. The concept behind the use of IGB is to act as a physical impediment for food, thus reducing gastric capacity and delaying gastric emptying. Of the rare complications of IGBs, pancreatitis is among the most prevalent but not the most threatening. Patients are susceptible to pancreatitis at any point in time after the procedure, starting on day 1 up until 11 months after insertion. The most likely cause of pancreatitis in IGB cases appears to be stomach dilation, which compresses the pancreatic tail and body.

Conclusion: Obesity is a metabolic disorder resulting from increased body fat. Several treatments are available, including intragastric balloon placement. Pancreatitis seems to be a rare but serious complication of the procedure. Further research is needed to minimize any possible complications of weight loss procedures.

Keywords: Intragastric Balloon Insertion; Pancreatitis; Obesity

Introduction

Obesity is an increasingly growing global epidemic, expected by the World Health Organization (WHO) to compromise the health of 176 million people worldwide by 2025. It is associated with many comorbid complications like diabetes mellitus type 2, hypertension, stroke, and osteoarthritis, among others [1]. Bariatric surgery is a frequently used method for weight loss in obese patients. However, there has been a rising preference for non-surgical techniques like intragastric balloons (IGBs), where a balloon is endoscopically placed in the stomach and then filled with fluid. Their mechanism is a reduction in food intake through reducing stomach capacity for food. Some studies showed that IGBs led to a 13.6%±7.3% decrease in total body weight. IGBs should be placed for no more than 6 months to prevent serious complications [2,3]. There have been several reported cases of different complications associated with IGB insertions, such as vomiting, minimal abdominal pain, obstruction, and gastric perforation. Pancreatitis is a rare but serious complication of IGBs recognized by the FDA [1]. We report one such instance of pancreatitis in a Lebanese female with an IGB inserted several months ago.

Case Report

A 55-year-old female patient with no chronic illness presented to the emergency department with nausea and acute epigastric pain radiating to the back. She is a non-smoker and denied alcohol intake. She has a BMI of 36 kg/m^2. History goes back to six months ago, when the patient underwent an intragastric balloon placement procedure for weight loss after multiple failing attempts to lose weight with dietary modifications. The patient was afebrile with normal vital signs. On physical examination, she had no scleral icterus and was not jaundiced. Palpation of the abdomen revealed mild epigastric tenderness and no hepatosplenomegaly or masses. Laboratory workup of liver function enzymes, triglycerides, bilirubin, and CRP was normal except for a staggering elevation in pancreatic enzyme levels, with a lipase value of 3000 U/L (reference range is 10–40 U/L) and serum amylase of 1000 U/L (reference range is 40–140 U/L). Both enzymatic values exceeded the three-times upper limit of normal. Those findings are consistent with a diagnosis of acute pancreatitis. An abdominal ultrasound ruled out the presence of gallstones. A contrast-enhanced CT scan of the abdomen showed compression of the pancreas by the distended stomach but was negative for peripancreatic fat stranding (Figure 1). The patient was then given intravenous fluids and referred for endoscopic removal of the intragastric balloon.

Figure 1: Axial and Coronal Ct scan showing the compression of the pancreas by the distended stomach without features of pancreatitis (peripancreatic fat stranding and fluid collection).

Discussion

Obesity, measured by Body Mass index (BMI), is a complex metabolic illness resulting from the accumulation of excess body fat. It is associated with multiple comorbidities like diabetes mellitus, hypertension, and coronary artery disease [4]. Patients with a BMI of 25-29.9 Kg/m2 are overweight. Obesity begins at a BMI of 30 kg/m^2 and is divided into three categories: Type 1 obesity (BMI 30–34.9 Kg/m2), Type 2 obesity (BMI 35–39.9 Kg/m2), and Type 3 obesity, or seriously obese (BMI >40 Kg/m2) [5]. Therapeutic approaches for obesity treatment are dependent on BMI and include intensive lifestyle modifications along with medical treatment and surgical interventions [4]. The primary treatment for obesity should be a non-surgical lifestyle change. This approach comprises nutrition, exercise, and behavioral changes. It is the most effective non-surgical therapy, resulting in a 15–25% weight reduction. Bariatric surgery may be needed if the problem cannot otherwise be solved [6]. Bariatric surgery like laparoscopic sleeve gastrectomy and Roux-en-Y gastric bypass is indicated for patients with a BMI of 35 kg/m2 or above (obesity types 2 and 3) when other solutions like lifestyle changes fail. It is also indicated for patients with a BMI of 30–35 kg/m2 (obesity type 1) and inadequately controlled type 2 diabetes, hypertension, dyslipidemia, and obstructive sleep apnea that are resistant to medical treatment [7].

Bariatric surgeries have been proven to be the most effective option for weight loss. They result in a mean loss of one-third of the initial body weight within two years following the procedure [8]. However, regardless of their effectiveness, only 1% of eligible patients undergo the procedure [4]. This can be attributed to the high cost, difficult accessibility, and high complication rate at the early and late stages of the procedure [9]. Given these limitations, endoscopic bariatric treatment has recently emerged and has become the leading choice for patients as it is less invasive, affordable, and

efficient [9]. The most common endoscopic therapy is IGB insertion. Similar to bariatric surgery, IGB insertion is indicated in patients with a BMI >35 or 30 kg/m2 and certain comorbidities who fail initial treatment with lifestyle modifications [4]. The concept was first introduced in 1982 by Nieben and approved by the FDA in 2015 as a primary weight-loss intervention [9]. The mean change in weight and BMI after IGB removal was found to be 15.7 ± 5.3 kg and 5.9 ± 1.0 kg/m2, respectively [9]. Although it is highly effective, rare complications like esophageal and gastric perforation, bowel obstruction, and pancreatitis have been reported [10]. In this case, we reported a 56-year-old patient found to have acute pancreatitis 6 months after intragastric balloon insertion.

The concept behind the use of IGB is to act as a physical impediment for food, thus reducing gastric capacity and delaying gastric emptying [11]. Moreover, stomach dilation will activate stretch receptors, which in turn will transfer afferent signals along the vagus nerve, providing satiety sensations [11]. This technique is contraindicated in patients with previous bariatric or gastric surgeries and should be carefully considered in patients with hiatal hernia and upper gastrointestinal bleeding. It is recommended to keep the balloon in the stomach for no longer than 6 months to decrease the possibility of complications [12].

Of the rare complications of IGBs, pancreatitis is among the most prevalent but not the most threatening. Up to this date, over 30 cases of acute pancreatitis have been reported as a complication of IGB insertions since the FDA warning in 2016, none which resulted in mortality [13]. The four reported cases of deaths in patients were due to perforation and aspiration, not pancreatitis [14]. Diagnostic criteria for post-IGB pancreatitis include recent IGB, epigastric pain radiating to the back consistent with pancreatitis, and biochemical or radiological evidence of pancreatitis [14]. Our patient met these criteria, with typical pancreatitis epigastric pain and an elevation in pancreatic enzymes to levels higher than three times the upper limit of normal. Thus, a diagnosis of acute pancreatitis was made. Patients are susceptible to pancreatitis at any point in time after the procedure, starting on day 1 up until 11 months after insertion [15]. The most likely cause of pancreatitis in IGB cases appears to be stomach dilation, which compresses the pancreatic tail and body [15]. Our CT scan results support this theory, providing insight into the underlying cause of pancreatitis in our patients. The absence of peripancreatic fat stranding does not rule out the diagnosis, especially in milder forms of acute pancreatitis [16].

Concerning the management of pancreatitis post-IGB placement, it is recommended to remove the balloon in all symptomatic patients. This approach was proven to improve patient symptoms and reduce the likelihood of long-term sequelae [17].

Conclusion

Obesity is a metabolic disorder resulting from increased body fat. Several treatments are available, including intragastric balloon placement. It is an emerging, minimally invasive procedure that does not come about without complications. Pancreatitis seems to be a rare but serious complication of the procedure. Further research is needed to minimize any possible complications of weight loss procedures and improve the quality of life in the obese population.

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