

Varicocele Secondary to Splenic Vein Compression by Intra-gastric Balloon

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ABSTRACT

Intra-gastric balloons (IGBs) are commonly used for weight loss by mechanically distending the stomach. We present a case of a 35-year-old man who developed a left-sided varicocele 1 week after IGB insertion. Imaging revealed splenic vein compression and possible thrombosis. Urgent removal of the balloon was performed. After 1 week from removal, the patient showed significant improvement, with complete splenic vein recanalization. This case highlights the importance of early recognition of a rare complication of IGBs to avoid severe outcomes. To our knowledge, this is the first reported case linking IGBs to splenic vein compression and varicocele.

KEYWORDS: spleen stiffness; intra-gastric balloon; vein compression

INTRODUCTION

Intra-gastric balloons (IGBs) are a popular minimally invasive weight loss intervention that increases satiety and reduces food intake through mechanical gastric distention.¹ This is accomplished by the endoscopic placement of a 400–700 mL saline-filled balloon for 6 months, after which it is removed. Abdominal pain, nausea, vomiting, and gastroesophageal reflux are commonly reported side

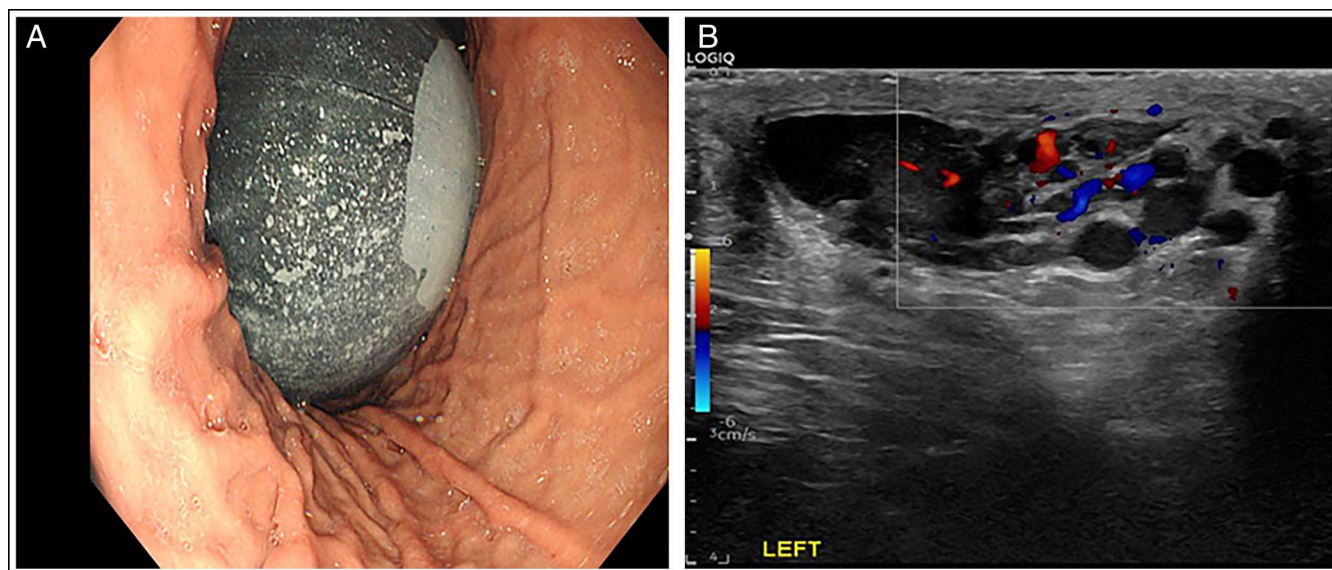


Figure 1. (A) Endogastric image showing the placement of the balloon in the gastric body. (B) Scrotal ultrasound of the left pampiniform plexus showing varicocele.

effects.¹ We present the case of a 35-year-old man who developed a left-sided varicocele 1 week after inserting (IGB). This report aims to highlight a rare potential complication associated with IGBs and the prompt management of such complication.

CASE REPORT

A 35-year-old man with obesity, otherwise having no medical conditions nor any history of surgery, underwent the insertion of a MedSil IGB (Genk, Belgium) for weight loss (Figure 1). The decision of IGB insertion was made after failing to reach a targeted body weight on a weekly subcutaneous semaglutide and intolerance to dose escalation. The balloon was filled with 600 mL of normal saline and 10 mL of methylene blue. One week after the procedure, he developed a left-sided varicocele, which he had never noticed before. The finding was confirmed by scrotal ultrasound (Figure 1). An abdominal-pelvic computed tomography (CT) scan showed balloon compression of the splenic vein that did not show any enhancement at its

distal end with few collaterals (Figure 2). This finding suggested an acute obstruction, and the radiologist could not exclude thrombosis in the nonfilling segment. The CT scan also showed a dilatation in the left gonadal vein (Figure 2), with no other abnormality detected in the abdomen. On the same day of the CT, the gastric balloon was removed endoscopically, and the patient was started on rivaroxaban to prevent further thrombotic events. No isolated gastric varices were found.

Clinically, the patient reported a significant improvement in the varicocele on the same day of the removal. After 1 week, abdominal CT was repeated, which showed a patent splenic vein with complete recanalization (Figure 2) and a significant reduction in the gonadal vein caliber (Figure 2). The patient was advised to continue taking rivaroxaban for 3 months, and his symptoms completely resolved without any complications. The patient was referred to a bariatric surgeon for further assessment and management of his obesity.

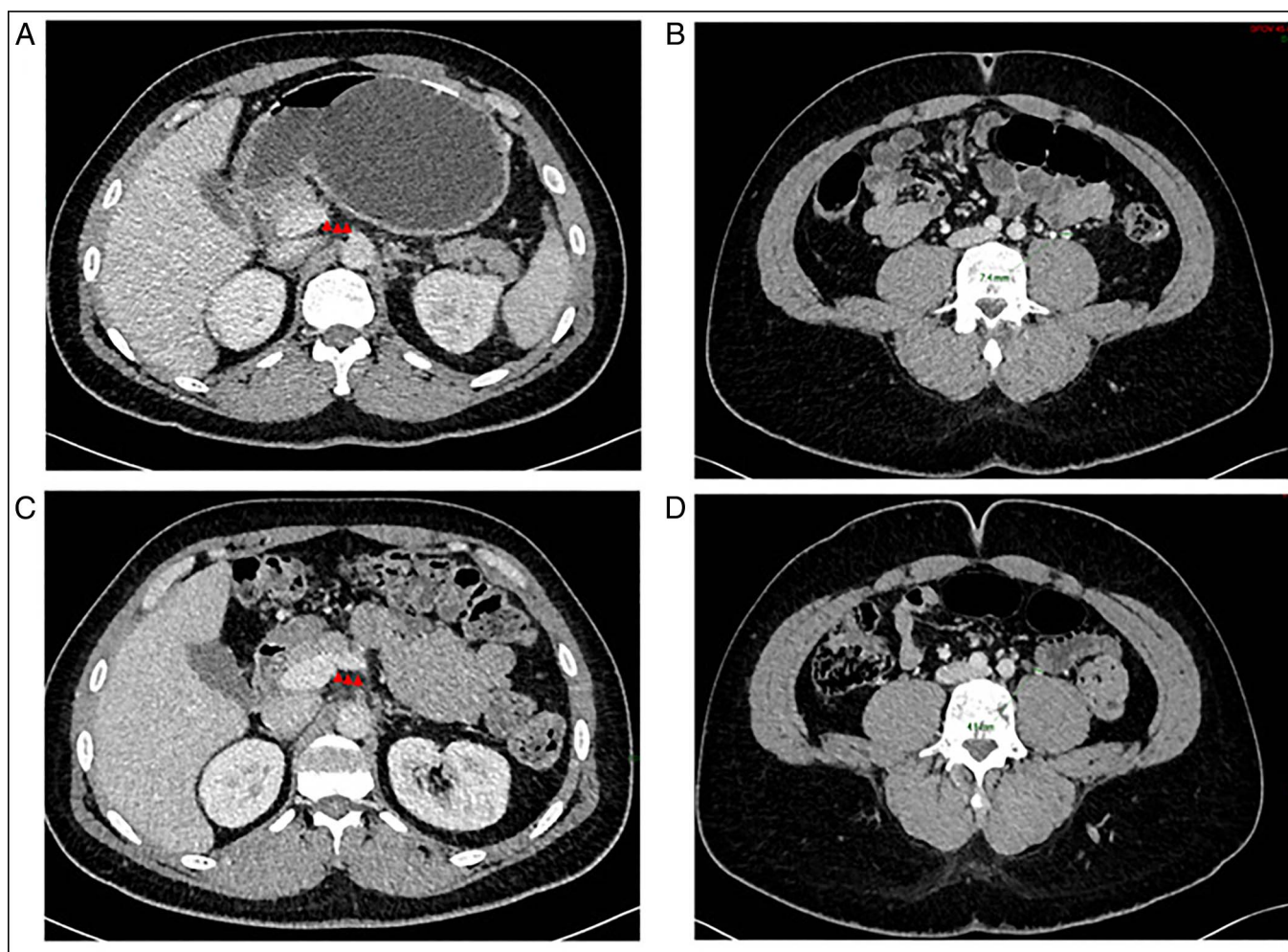


Figure 2. (A) Axial CT showing the intragastric balloon with nonvisualization of the splenic vein (arrowheads) at the level of the portal vein confluence likely secondary to gastric balloon mass effect or thrombosis. (B) Axial CT caudal to the aortic bifurcation shows a prominent gonadal vein of 7.4 mm in diameter. (C) Axial image after removal of the intragastric balloon shows recanalization of the splenic vein (arrowheads). (D) Interval improvement of the dilated left gonadal vein of 4.9 mm in diameter. CT, computed tomography.

DISCUSSION

Our reported case highlights a distinctive potential complication of IGBs. Vascular obstruction and thrombosis secondary to IGB placement are extremely rare. Besides a single case report by Aljahdli² of a patient with renal vein compression and subsequent thrombosis, direct vascular injuries by IGBs are not found in the literature. The case novelty is 2-faceted. First, the direct balloon compression on the splenic vein at its distal end with a complete lack of enhancement at a supine position. Second, it highlights another rare complication related to portocaval anastomosis: well-described anatomical communication between the splanchnic and systemic venous systems.^{3,4} Of particular concern is the splenorenal shunt, which resulted in the presenting symptom of our patient, namely varicocele.

The left gonadal vein drains the left pampiniform plexus into the left renal vein and then to the inferior vena cava.³ The splenic vein, which normally drains into the portal vein, has back channels to the renal vein and sometimes directly to the gonadal veins⁵ that shunt blood in case of any flow impedence. Although rare, there are case reports of varicocele secondary to overall portal hypertension⁶ or specifically to isolated splenic vein thrombosis.⁷ In this patient, we cannot determine whether the splenic vein compression caused the varicocele or just unconcealed a subclinical disease. Regardless, the effect of the balloon on the gonadal vein diameter was evident because the diameter difference between the post and pre-balloon placement was more than 50%. Long-term complications of varicocele can range from testicular discomfort to infertility and testicular atrophy.⁸

Urgent removal of the gastric balloon in such a case is warranted. Given the radiological ambiguity and unprecedented clinical findings, we opted to commence anticoagulation. We aimed to prevent the propagation of splenic vein thrombosis and further complications such as isolated gastric varices. This rapid intervention and removal of the IGB had an immediate clinical improvement of the varicocele and radiological enhancement of the splenic vein. Delaying the intervention may result in splenic vein thrombosis requiring a long period of anticoagulation and screening endoscopies.

Although IGBs are considered widely safe, we report a rare, potentially deleterious complication. Gastroenterologists should be aware of it and consider them in patients undergoing IGB insertion. Early recognition and rapid action may result in more benign clinical outcomes. To the best of our knowledge, this is the first case to link IGBs to splenic vein compression and the first to associate IGBs with varicocele.

DISCLOSURES

Author contributions: All authors were responsible for the direction of the study team and the facilitation of the project plan. All authors made a significant contribution to the work reported, whether that is in the conception, report design, execution, acquisition of data, analysis, and interpretation, or all these areas; took part in drafting, revising, or critically reviewing the case study; gave final approval of the version to be published; have agreed on the journal to which the case study has been submitted; and agree to be accountable for all aspects of the work. A. Alangari is the article guarantor.

Institutional review board statement: The study proposal was reviewed and approved by the Institutional Review Board of King Saud Medical City.

Financial disclosure: None to report.

Informed consent was obtained for this case report.

Received July 25, 2023; Accepted August 18, 2023

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