

# From Glycemic Control to Gut Telescoping: Intussusception in a Patient on a Glucagon-Like Peptide-1 Receptor Agonist

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## ABSTRACT

Glucagon-like peptide-1 receptor agonists (GLP-1RAs) are widely utilized for managing diabetes and obesity due to their efficacy in improving glycemic control and promoting weight loss. However, their gastrointestinal effects, such as slowed motility, may lead to adverse outcomes, including small bowel obstruction. Intussusception, a rare complication in adults, has been sparsely reported with GLP-1RA use. We present a 32-year-old woman with iron deficiency anemia who was incidentally diagnosed with transient small bowel intussusception on computed tomography enterography while on semaglutide therapy. No evidence of obstruction or pathological lead point was identified, and follow-up imaging showed resolution without intervention. This case suggests a possible link between GLP-1RA therapy and intussusception, likely secondary to altered gastrointestinal motility. Clinicians should remain vigilant for rare complications associated with GLP-1RAs, particularly in patients presenting with gastrointestinal symptoms. Further studies are warranted to elucidate this association.

**KEYWORDS:** obstruction; intussusception; semaglutide

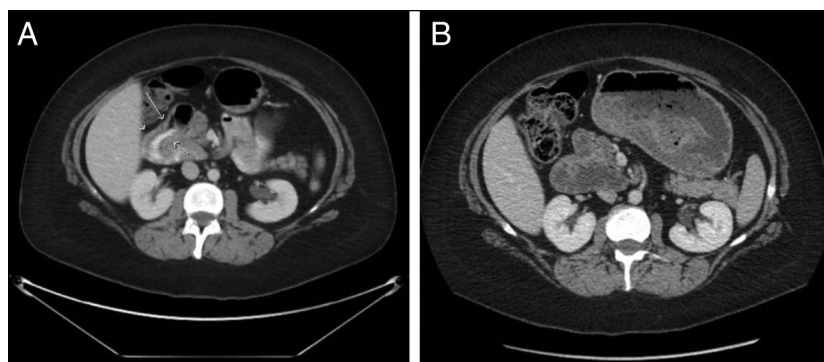
## INTRODUCTION

Glucagon-like peptide-1 receptor agonists (GLP-1RAs) are an increasingly utilized class of medications known for their efficacy in improving glycemic control and promoting weight loss. These drugs primarily exert their effects by slowing gastric emptying and reducing small intestinal motility. Although beneficial for managing diabetes and obesity, these pharmacological actions can also give rise to adverse effects, including nausea, vomiting, constipation, abdominal pain, and dyspepsia. Some observational studies have documented cases of small bowel obstruction (SBO) associated with GLP-1RA use. Among these rare events, SBO secondary to intussusception—where 1 segment of the intestine telescopes into an adjacent section—is exceedingly rare.<sup>1</sup> Here, we present a case of a patient who developed intussusception as a result of a GLP-1RA therapy, a phenomenon previously reported in only one other case.

## CASE REPORT

A 32-year-old woman with a medical history significant for gastroesophageal reflux disease, polycystic ovarian syndrome, anxiety, depression, hyperlipidemia, and severe persistent asthma was diagnosed with iron deficiency anemia during an outpatient visit. Her family history includes prostate cancer and bladder cancer on her paternal side, as well as depression and hypothyroidism on her maternal side. There is no family history of gastrointestinal malignancies. Her surgical history is notable for an appendectomy and cholecystectomy.

Esophagogastroduodenoscopy, colonoscopy, and capsule endoscopy were all unremarkable. Subsequently, a computed tomography (CT) enterography of the abdomen and pelvis with intravenous and oral contrast was performed, which incidentally revealed a short



**Figure 1.** (A) The computed tomography scan detected a short segment of small bowel intussusception in the left upper quadrant, with no signs of obstruction or identifiable masses in the abdomen or pelvis. (B) A subsequent computed tomography enterography, conducted 1 month later, demonstrated resolution of the intussusception.

segment of small bowel intussusception in the left upper quadrant. Notably, there was no evidence of SBO, and no mass was identified in the abdomen or pelvis (Figure 1). The patient reported no abdominal pain before or after the imaging. Of note, she had recently initiated subcutaneous Ozempic (semaglutide) 10 months before the imaging, with a current dose of 1 mg weekly. The patient's semaglutide dose was held given concern for worsening of intussusception during this time. A repeat CT enterography was conducted 1 month later, which demonstrated resolution of the intussusception without intervention (Figure 1) after which the medication was restarted.

## DISCUSSION

Intussusception in adults is a rare condition in which a segment of the gastrointestinal tract telescopes into an adjacent segment. It accounts for approximately 5% of all intussusceptions and 1%–5% of bowel obstructions. Unlike pediatric intussusception, which is often idiopathic, adult intussusception is typically associated with an identifiable pathological lead point in 70%–90% of cases. These lead points may include benign or malignant tumors, postoperative adhesions, inflammatory bowel disease, or other structural abnormalities.<sup>2</sup> The clinical presentation in adults is often nonspecific, with symptoms such as intermittent abdominal pain, nausea, vomiting, and signs of bowel obstruction. Due to the nonspecific nature of these symptoms, diagnosis can be difficult and often delayed. CT imaging is the most sensitive diagnostic tool and, in many cases, differentiate between those with and without a lead point.<sup>2</sup>

GLP-1RAs, such as semaglutide or liraglutide, are medications primarily used in the management of diabetes and obesity. They mimic the action of the endogenous incretin hormone GLP-1, which enhances glucose-dependent insulin secretion, suppresses glucagon release, slows gastric emptying, and promotes satiety. The exact mechanism by which GLP-1RAs might cause intussusception is not fully understood, but it is hypothesized that their antimotility effects could play a role. GLP-1RAs inhibit gastrointestinal motility by acting on myenteric neurons, which in turn modulate motility through nitrergic and

cyclic adenosine monophosphate-dependent pathways. This inhibition can lead to delayed gastric emptying and altered intestinal transit times, potentially creating areas of stasis and abnormal peristalsis.<sup>3</sup>

To date, no case reports have been published documenting intussusception in patients using GLP-1RAs. However, the literature discusses the potential gastrointestinal adverse effects associated with these drugs, including the risk of intestinal obstruction. A study by Faillie et al found an increased risk of intestinal obstruction among users of GLP-1RAs compared to those using sodium-glucose cotransporter-2 inhibitors.<sup>4</sup>

This rare case highlights the need for a deeper understanding of the potential adverse effects associated with the increasingly popular GLP-1RAs. Although these medications lead to significant weight and fat loss, it is possible that these same mechanisms could contribute to SBO and, rarely, intussusception. Intussusception in adults is uncommon and typically occurs secondary to a mass or fecalith.<sup>1</sup> In our patient, no other underlying causes were identified, making the GLP-1RA effect a more likely explanation for the intussusception. It is unlikely that the patient's history of appendectomy or cholecystectomy played a role given significant time had passed since the procedures, although this cannot be fully ruled out. In this case, since the patient was young and lacked other obvious causes or predisposing conditions, we posited that the GLP-1RA was the likely cause. However, it is important to note that although this association is plausible, we could not definitively conclude that the GLP-1RA was the direct cause of the intussusception. This case underscores the importance of closely monitoring patients on GLP-1RAs for gastrointestinal side effects and intervening promptly when necessary.

## DISCLOSURES

Author contributions: B. Thakkar developed the initial case report. MT Nguyen and R. Hagen provided edits. N. Parikh overlooked the project and provided final edits. B. Thakkar is the article guarantor.

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Informed consent was obtained for this case report.

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