International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Exploring the Link Between Gastric Lipoma and Glycemic Variability: A Case Report

Tintu Thomas[1], Sharon Wilson[2], Dr. Elizabeth James[3]

[1,2]PharmD intern, Nazareth College of Pharmacy, Thiruvalla, Kerala
MD, Associate Professor, Department of Medicine, Believer's Church Medical College, Thiruvalla, Kerala.

ABSTRACT
A 65-year-old female presented to the Medicine OPD with complaints of frequent hypoglycemia. She complained of abdominal distension, post prandial bloating, and recurrent hypoglycemia for the last three years. She was on two oral hypoglycemic agents, and her medical records showed that she had experienced both hyperglycemic and hypoglycemic episodes. Despite stopping medication, she continued to be symptomatic. A detailed evaluation revealed a lipoma in the pyloric canal, acting like a ball valve. Changes in the stomach's contraction and emptying processes resulted in rapid gastric emptying and triggered symptoms resembling those of dumping syndrome- again producing hyper and hypoglycemia. Diagnosis of gastric lipoma usually requires endoscopic examination or imaging techniques such as CT scans.

KEYWORDS - Gastric lipoma, Dumping syndrome, Glycemic Variability

INTRODUCTION

Gastric lipomas are rare tumors, making up only 1-3% of benign stomach tumors.[1] These solitary benign tumors generally arise from the submucosa in about 95% of cases, with the antrum of the stomach being the most common location (approximately 75%).[2] Although most gastric lipomas are asymptomatic and often found incidentally, they can occasionally cause issues such as abdominal pain, dyspeptic disorders, obstruction, invagination, intussusception, or hemorrhage. [2] While most lipomas are solitary, instances of multiple lipomas have been documented and prepyloric lipomas prolapse into the duodenal bulb.[2] CT scans have proven to be extremely useful for diagnosing gastrointestinal lipomas, as these lesions typically appear as well-defined areas of uniform fatty density with attenuation values ranging from –70 to –120 H.[3] Therefore, a gastric lipoma can be definitively diagnosed through CT imaging, which may eliminate the need for endoscopy or surgery if the patient is asymptomatic.

Dumping syndrome is a medical condition characterized by the rapid emptying of stomach contents into the small intestine.[6] Also known as rapid gastric emptying, this occurs when the stomach releases its contents too quickly, causing the small intestine to receive large amounts of inadequately digested food. This can result in symptoms such as nausea, bloating, abdominal cramps, and diarrhea. Additionally, the rapid influx of food may prompt the pancreas to produce excess insulin, potentially leading to low blood sugar levels.[4,5]

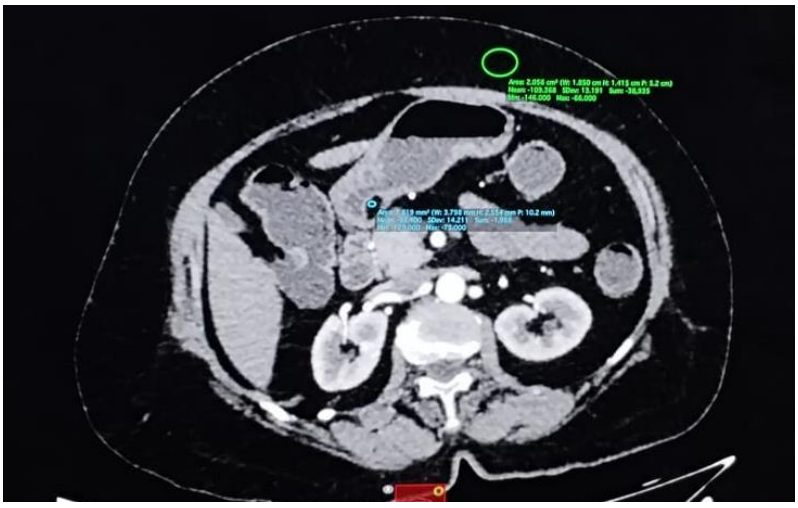
Gastric lipoma can cause gastric outlet obstruction, resulting in impaired gastric emptying. If the lipoma affects the stomach wall or surrounding tissues, it may impair gastric motility. Changes in the stomach's

contraction and emptying processes may cause fast gastric emptying and symptoms similar to dumping syndrome, thus leading to glycemic variability in select population.[1.6]

CASE

A 65-year-old woman visited the Medicine OPD with complaints of frequent hypoglycemia. She was taking two oral hypoglycemic medications, and her medical history showed episodes of both hyperglycemia and hypoglycemia. She also reported abdominal distension, bloating, and recurrent hypoglycemia over the past three years. Her clinical examination was unremarkable, and her HbA1c was 5. Given this HbA1c level, her oral hypoglycemic medications were discontinued to prevent further hypoglycemia, and ambulatory glucose monitoring was recommended. Monitoring results showed alternating spikes of hyperglycemia and hypoglycemia that were unrelated to food intake. She remained on dietary control, but her abdominal distension and discomfort persisted, along with the glycemic variability. A USG of the abdomen was performed, showing normal results. Serum Insulin and C- peptide levels were done, which were normal. A CECT abdomen was done to rule out insulinoma, paraganglioma, pheochromocytoma, etc. The CECT abdomen revealed a homogenous well defined oval mass in the stomach wall near pylorus- and prolapsing into the pyloric canal, with a density of – 60 H U measuring 1.6 x 0.8 cm, diagnostic of a mural lipoma,

FIGURE



A gastroenterology consultation was recommended, leading to an upper GI endoscopy. The endoscopy revealed pyloric obstruction caused by an elongated lipoma, which acted like a ball-valve, obstructing the pylorus and triggering dumping syndrome, which led to sudden shifts between hyperglycemia and hypoglycemia. Differential diagnosis included carcinoid, neural tumor and metastatic deposit.[3] The small mass was removed by OGD scopy. The Rapid Urease test for H Pylori was negative. The diagnosis of a gastric lipoma that was confirmed on histopathological examination of the surgical specimen. On follow up for 2 years, the patient continues to be asymptomatic and euglycemic, with HbA1c of 5.6 %.

DISCUSSION

A gastric lipoma is a benign tumor made up of adipose (fat) tissue found in the submucosal layer of the stomach. Majority of gastric lipomas are asymptomatic and usually detected incidentally. Occasionally

these can cause abdominal pain, dyspeptic disorders, obstruction, invagination and hemorrhages. Seventy-five per cent of these are located in the antrum of stomach. Lipomas that are close to the pylorus can lead to gastric outlet obstruction, resulting in altered gastric emptying, frequently by obstructing the pyloric canal or prolapsing through the pylorus into the duodenum. If the lipoma impacts the gastric wall or surrounding tissues, it affects gastric motility.[2]

On CECT, a lipoma or fat has radiodensity ranging from –70 to –120 H U and is easy to identify within stomach wall. [3] Classical 2 signs seen on OGD Scopy are the tenting sign and cushion sign.[3] A 'tenting sign' occurs when the normal mucosa overlying the lipoma is retracted easily away with a biopsy forceps, and a 'cushion sign' occurs when the forceps produces a soft, cushioning indentation on pressing the lipoma.[3]

Treatment is endoscopic deroofing and removal, if the size is < 2 cm. However larger lipomas have to be surgically enucleated.[7]

CONCLUSION

Hypoglycemia is more dangerous than hyperglycemia, hence de-prescribing in the elderly, if HbA1c is low is life- saving. Gastric Lipomas, although extremely rare can be the cause of dyspeptic symptoms and though one producing dumping syndrome and glycemic variability is unique. An accurate diagnosis of gastric lipoma can be reached with a combination of imaging and endoscopic techniques, and can be treated endoscopically or surgically depending on the size of the lipoma.[7]

REFERENCES

1. Georgiev A, Tsvetkova S, Aleksova L, Ali M. Gastric lipoma of the pylorus - case report of an incidental finding. Radiol Case Rep. 2021 May 25;16(7):1882- 1884. doi: 10.1016/j.radcr.2021.04.054. PMID: 34113411; PMCID: PMC8170008.
2. Thompson WM, Kende AI, Levy AD. Imaging characteristics of gastric lipomas in 16 adult and pediatric patients. AJR Am J Roentgenol. 2003 Oct;181(4):981-5. doi: 10.2214/ajr.181.4.1810981. PMID: 14500213.
3. Nasa M, Choksey A, Phadke A, Sawant P. Gastric lipoma: an unusual cause of dyspeptic symptoms. BMJ Case Rep. 2016 Jun 22;2016: bcr2016215297. doi: 10.1136/bcr-2016-215297. PMID: 27335362; PMCID: PMC4932402.
4. Fernandez, M J et al. "Gastrointestinal lipomas." Archives of surgery (Chicago, Ill: 1960) vol. 118,9 (1983): 1081-3. doi:10.1001/archsurg.1983.01390090065015
5. Symptoms & Causes of Dumping Syndrome NIDDK. National Institute of Diabetes and Digestive and Kidney Diseases. 2019. Available from: https://www.niddk.nih.gov/health-information/digestive-diseases/dumping-syndrome/symptoms-causes
6. Hui C, Dhakal A, Bauza GJ. Dumping Syndrome. 2023 Jun 26. In: Stat Pearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024 Jan–. PMID: 29261889.
7. Maderal F, Hunter F, Fuselier G, Gonzales-Rogue P, Torres O. Gastric lipomas--an update of clinical presentation, diagnosis, and treatment. Am J Gastroenterol. 1984 Dec;79(12):964-7. PMID: 6507422.