Refractory Hypoglycemia Induced by a Gastrointestinal stromal Tumor secreting Insulin-Like Growth Factor

Vikash Kumar MD (Presenting Author) , Aditya Chauhan MD, Praneeth Bandaru MD, Vijay Gayam MD, Jasparit Minhas MD, Lubna Attal MD, Dhir Gala BS, Salman Haider MD, Rewanth Katamreddy MD, Derrick Cheung MD
The Brooklyn Hospital Center

INTRODUCTION

- Non-islet cell tumor hypoglycemia (NICTH) is a rare paraneoplastic syndrome that leads to the release of insulin-like growth factor-2 (IGF-2)
- It is commonly associated with tumors of mesenchymal origin like gastrointestinal stromal tumors (GIST).

CASE PRESENTATION

- A 62-year-old male, with a past medical history of recently diagnosed GIST was started on imatinib but stopped taking it one month ago pending surgical evaluation, presents with altered mental status due to severe hypoglycemia.
- The patient had no prior history of diabetes or adrenal insufficiency. The patient's repetitive finger sticks glucose remained persistently low even after good oral intake and two D50 pushes. Urine toxicology and drug screen for sulfonylureas were negative.
- Laboratory investigations showed reduced levels of insulin, C-peptide, and insulin-like growth factor-1 (IGF-1), but his IGF-2 was increased. Endocrinology was consulted for refractory hypoglycemia; recommended to start D10 fluids in the setting of resistant low blood glucose and start octreotide and steroids. Insulinoma was unlikely as insulin and C-peptides were low.

Clinical Course

- CT chest/abdomen/pelvis shows grossly unchanged gastric GIST, measuring 25 x 19.6 x 11.4 cm with no evidence of metastatic disease in the abdomen or pelvis (Figure 1A).
- Esophagogastroduodenoscopy (EGD) demonstrated large, bilobed subepithelial mass measuring 10-15 cm with an area of ulceration within the mass (Figure 1B) followed up with Endoscopic ultrasound (EUS) demonstrating subepithelial lesion was found likely arising from the fundus, lesser curve and body of the stomach, layer of origin could not be determined on due to the large size of the mass (Figure 1C).
- Oncology was consulted for further management of malignancy; imatinib was resumed and referred for surgical evaluation for tumor removal.

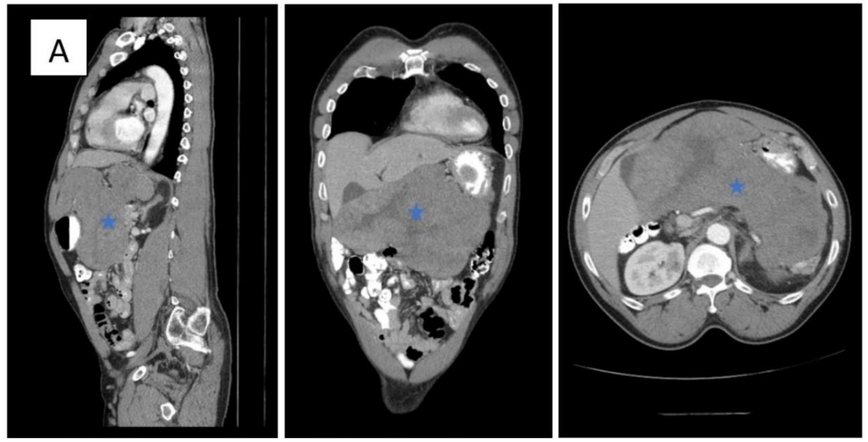

Figure 1A: CT scan abdomen/pelvis with contrast showing large soft tissue density mass inseparable from the lesser curvature of the stomach marked with asterisk

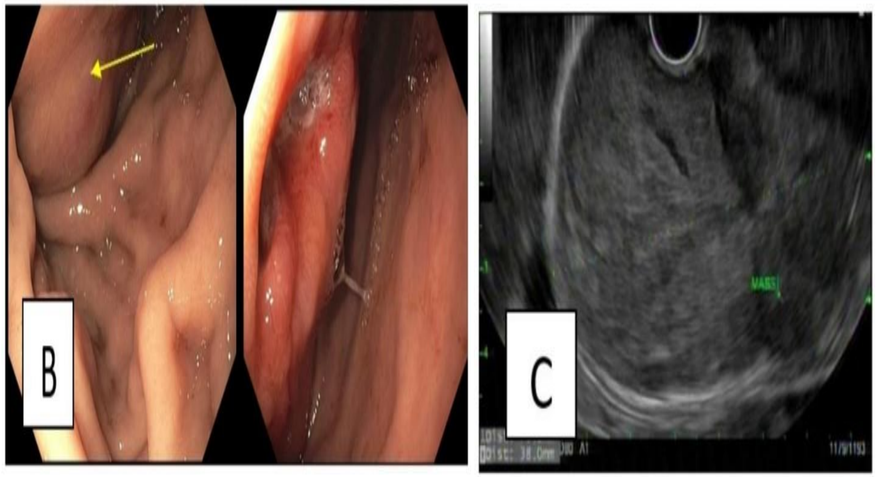

Figure 1B: EGD findings consistent with a large, bilobed subepithelial mass measuring 10-15 cm with an area of ulceration within the mass (seen best on retroflexion) was found on the lesser curvature of the stomach along the anterior wall of the stomach. Figure 1C: Endoscopic US findings showed A 43.0 mm x 77.8 mm subepithelial lesion was found likely arising from the fundus, lesser curve and body of the stomach s/p FNB x 4. The lesion was hypoechoic and had some cystic spaces within it in some areas. Sonographically, the lesion appeared to originate from the stomach, but the wall layers could not be determined due to the large size of the mass.

DISCUSSION

- IGF-II acts as an autocrine growth factor in tumor cells therefore, it is highly likely that IGF-II will be high in case of high tumor bulk and making them at high risk of developing NICTH.
- In patients diagnosed with GIST with hypoglycemic symptoms, we should consider IGF-II secreting GIST in addition to insulinoma especially in bulky tumors.