02/27/24 Morning Report with @CPSolvers

"One life, so many dreams" Case Presenter: Ethan Chiu *(@)* ***Case Discussants***: Alec Rezigh *(@ABRezMed) and* Austin Rezigh *(@RezidentMD)*

CC: 48 F frequent dizziness and obtundation

HPI: chronic symptoms of palpitation and chills sensation once every 2-3 months have presented for 10 years. Her symptoms subsided after taking meals, candies chocolate. Since 4 mo ago more frequent dizziness were noted, about 2 weeks ago, she had one episode of L sided weakness and one episode of AMS at home.

ROS: no fever, URI, abdominal pain, back pain.

PMH: Ectopic pregnancy s/p salpingectomy 10 years ago. No DM.

Meds: not taking any medication.

Fam Hx: Mother DM

Soc Hx: she does not chew betelnut. No smoking. No illicit drug.

Health-Related Behaviors:

Allergies: NKDA

Vitals: T: 35.7 **HR:** 78 **BP:** 137/71 **RR:** 16

Exam:

Gen: Looks ill but alert and oriented.

HEENT: Not pale conjunctiva, thyroid not enlarged, no cervical LAP.

CV: regular rate rhythm, no murmurs

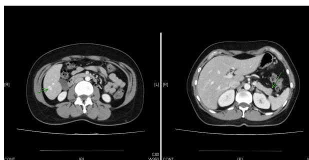
Pulm: CTAB

Abd: no tenderness

Neuro: CN intact.

Extremities/skin: no rash no edema/ muscle strength 5/5 in both UE/LE, normal sensation

Notable Labs & Imaging:



Finger sugar 35, was given 50% dextrose.

Hematology:

WBC: 12.6 neutrophilia Hgb: 14.3 Plt: 261k

Chemistry:

Na: 142, BUN: 15.3, Cr: 0.68, Bili-T 0.9, Ca: 8.9.

ALT: 19, Cortisol 9.55 wnl, ACTH 11 wnl.

Free T4 0.97 wnl, TSH 3.45 wnl.

Insulin 7.1 (1.5- 17), C-peptide 2.27 (0.9-4.3), ketone negative.

Chromogranin A 29.08 (<101.9)

Anti-insulin Ab negative

Imaging:

CT abdomen w/c: 1cm pancreatic tail nodule w/o enhancement, S6 0.9 cm liver nodule.

MRI abdomen: pancreatic tail tumor 11 mm with T2 intensity.

72h fasting => F/S 39 mg/dl, insulin 13.5 uU/ml, C-peptide 2.24 ng/ml, ketone 0.1 mmol/L / FS 39 mg/dl one day after fasting

Glucagon 1 mg administration => sugar level 68 (10 min), 71 (20 min), 77 (30 min)

MEN1 survey: IGF-1, i-PTH, prolactin, hGH, cortisol all normal limit.

Thyroid echo : thyroid cyst, no parathyroid lesion.

SACST => insulin secretion stimulated proximal splenic artery and distal splenic artery

EUS: nl pancreatic head and hypoechoic tumor in tail / Biliary system was normal

Pathology: grade 1 neuroendocrine tumor

Dx : Insulinoma

Problem Representation: 48 female who presented with chronic intermittent palpitation, dizziness and confusion, one episode of L.sided weakness and AMS, work up notable for pancreatic tail enhancing mass, later confirmed elevated c-peptide and SACST.

Teaching Points (Debora):

- **CC:** Dizziness: difference between vertigo. It is not important to do the difference. Check if is intermittent or persistent. It is the same from 10 years? Is progressing? Got Worse?
- Causes for intermittent hypoglycemia: medication in a patient with DBT, Insulinoma, exaggerated response from Beta cells. Chronic causes: Adrenal insufficiency.
- Time course of the labs are really important. What the body is doing when the sugar is low? In Hypoglycemia: the insulin should be not detected, in this case something is releasing insulin.
- **Insulinoma:** Diagnosis is typically established by supervised fasting up to 72 h with concurrent measurements of beta-cell polypeptides (insulin, C-peptide, and proinsulin), detecting up to 99% of insulinomas. Can present in any part of the pancreas. Localize is very difficult, sometimes the CT cannot detect.

PEARL: When imaging is negative: SACST – In patients with complex cases of endogenous hyperinsulinemic hypoglycemia and negative radiologic localization studies, **a selective arterial calcium stimulation test (SACST)** with hepatic venous sampling should be performed to establish that the hyperinsulinemia has a pancreatic origin and, in addition, its regionality within the pancreas.

A SACST involves injections of calcium gluconate, an insulin secretagogue, into arteries supplying the pancreas with subsequent sampling of the right hepatic venous effluent for insulin. **A positive result is defined as a doubling or tripling of the basal hepatic venous serum insulin concentration**. The increase in insulin occurs in samples from the artery supplying the region with hyperfunctioning islets, either an insulinoma or islet hypertrophy, which facilitates operative localization. (Reference: Noninsulinoma pancreatogenous hypoglycemia syndrome - UpToDate)