

## Background

- Insulinomas are rare, functioning pancreatic neuroendocrine tumors, predominantly benign (90%). Most are sporadic, but they can occur as part of inherited disorders like MEN-1, von Hippel Lindau, neurofibromatosis-1, and tuberous sclerosis.
- Large size insulinomas are more likely to be malignant.
- 68 Gallium (Ga)-DOTATATE scan is an essential tool in diagnosis and treatment of pancreatic neuroendocrine tumors. However, tissue diagnosis is the ultimate prognosis predictor and treatment guide.

## Case Presentation

- An 80-year-old man presented with left ankle fracture after a syncopal episode. In the past several months he reported lightheadedness on multiple occasions.
- Past medical and surgical history included prostate cancer, gastroesophageal reflux disease and bilateral orchiectomy for undescended testes. He denied history of diabetes.
- Home medications: dutasteride, tamsulosin, vitamin C.
- His left ankle appeared swollen, otherwise the exam was unremarkable: he was well nourished, the abdomen was soft and nontender, there were no palpable masses.
- During admission several episodes of symptomatic hypoglycemia occurred, relieved by carbohydrates ingestion.

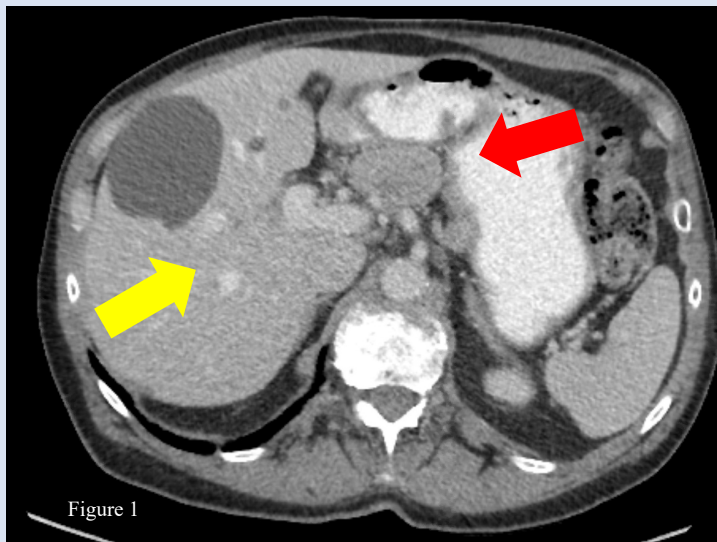


Figure 1

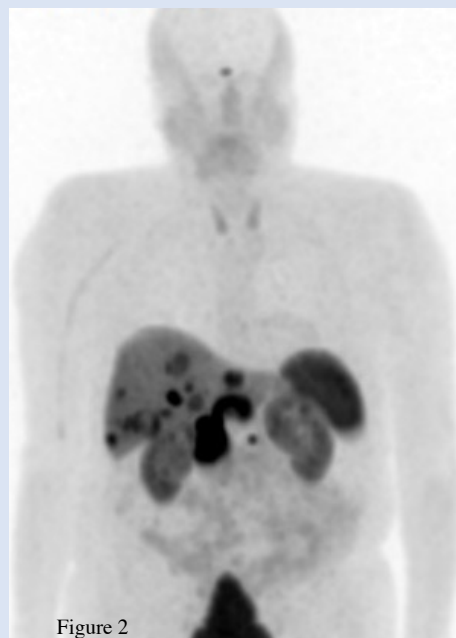


Figure 2

**Figure 1.** CT w/contrast abdomen/pelvis:

- 4.7 x 3.1 cm exophytic mass at the superior aspect of the body of pancreas (red arrow)
- 5.3 x 5 cm mass in the head of pancreas
- ill-defined hepatic lesions concerning for metastatic disease (yellow arrow)

**Figure 2.** <sup>68</sup>GA-DOTATATE scan:

- somatostatin receptor affinity in pancreatic tumor, liver metastases, and para-aortic lymph node )
- normal uptake in the pituitary gland, background liver, spleen, urinary tract, and adrenal glands.

## Treatment:

- Symptom management: small frequent meals, octreotide and intravenous dextrose
- Surgery: pancreaticoduodenectomy (Whipple) and resection of metastatic liver lesions
- Hypoglycemia resolved, dextrose infusion and octreotide stopped post-op

## Pathology:

- Pancreatic neuroendocrine carcinoma, with multiple liver metastases, PT3N0M1
- Large cell, well differentiated
- Ki-67 of 50-80% was reported in the primary tumor and metastatic lesions.

## Final diagnosis and prognosis:

- Mixed poorly differentiated and well differentiated insulinoma
- Poor prognosis
- With poor functional status palliative care route was selected

## Discussion and Conclusions

- Metastatic insulinomas carry a significant morbidity and mortality risk. Surgical resection to decrease tumor burden can reduce the risk of hypoglycemia.
- Histopathology is essential in treatment decision making. Surprisingly our patient's pathology revealed poorly differentiated neuroendocrine carcinoma, changing the prognosis and treatment.
- Treatment with platinum-based chemotherapy and etoposide is the standard of care for aggressive neuroendocrine neoplasms.
- Despite hypoglycemia resolution following surgery and good DOTATATE uptake by the well differentiated neuroendocrine tumor portion, our patient's prognosis remained poor in view of the high-grade carcinoma.
- Due to post op poor performance status he was not a candidate for chemotherapy.
- Patient declined radioembolization treatment to metastatic liver lesions with Yttrium Y-90 due to adverse effects concerns. Palliative care was perused.

## References

- <sup>1</sup>Brown , E., Watkin, D., Evans, J., Yip, V., and Cuthbertson, J., (2017). Clinical Endocrinology.

**Table 1.** Hypoglycemia workup

Lab	Value	Reference range
Plasma glucose	51 mg/dl	
Insulin	31	3-25 uIU/ml
Proinsulin	85.4	<8 pmol/l
C peptide	3.4	1.1-4.4 ng/ml
Sulfonylurea	Negative	