An Unusual Source of Hypoglycemia

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Disclosures

• Nothing to disclose
Objectives

- Identify indications for workup of hypoglycemia
- Define work up for hypoglycemic patients
- Recognize obscure causes of hypoglycemia in a previously diabetic patient
Patient Presentation

- 62 year old female presenting for follow up from surgery for papillary thyroid cancer
- Previously underwent total thyroidectomy for multifocal papillary thyroid cancer (largest focus 4.6 cm) 18 months prior to current presentation
- Thyroidectomy uncomplicated
  - Margins negative
  - 5/15 central neck lymph nodes were positive for papillary thyroid cancer
  - Treated with 100 mCi $^{131}$I
- Past medical history significant for poorly controlled diabetes, hypertension
- Patient immigrated from Indonesia approximately 5 years prior, had limited English proficiency and little social support
- Weight gain of 15 lbs over past 6 months
Interim history

• Recent history notable for two hospital admissions over the last few months for changes in mental status
• Negative imaging of head for source of mental status changes
• Enlarged cervical lymph nodes noted on CT scan of head/neck done for changes in mental status
• Follow up ultrasound and biopsy demonstrated papillary thyroid cancer
• Recurrent hypoglycemia noted and diabetic medications adjusted, eventually stopped
• Hypoglycemic episodes persisted
Labs
- Glucose 54 mg/dl
- Insulin 8 mIU/L (normal <6)
- Proinsulin 29 pmol/L (2.1 – 26)
- C-Peptide 4.1 ng/ml (0.8 – 3.9)
- Serum sulfonylurea screen - negative
- TSH <0.01 mIU/L (on levothyroxine)
- Thyroglobulin 17 IU/ml
- Thyroglobulin antibody - negative
- Cortisol mcg/dl 18.1
Summary of Problems

• Papillary thyroid cancer metastasis to neck
• Recurrent hypoglycemia
  • Concurrent elevated insulin and c-peptide levels
Search for Endogenous Insulin

- Abdominal/pelvis CT and MRI
  - Negative except evidence of previous distal pancreatectomy
- PET scan positive in cervical region consistent with known/previously biopsied lymph node with papillary thyroid cancer
- EUS negative for pancreatic lesions
- Octreotide scan negative
Imaging
No obvious source could be identified

Plans made for selective arterial stimulation venous sampling

Decision to proceed with neck dissection for metastatic papillary thyroid cancer as workup continued for source of insulin
Surgery

• Modified radical neck dissection
  Levels II-V

• Intraoperative findings of multiple enlarged, dark and cystic appearing lymph nodes, consistent with papillary thyroid cancer
  • Greatest in level IV

• Surgery uneventful, no unexpected intraoperative findings

Oertli, D, Udelsman, R. Surgery of the Thyroid and Parathyroid Glands 2007.
Pathology

• Papillary thyroid carcinoma involving 7/31 lymph nodes
• Neuroendocrine tumor involving 3/31 lymph nodes
• Immunopathology
  • Insulin stain highlights enlarged but morphologically normal islet cells
  • Glucagon cell positive
  • Rare somatostatin cells also positive
Postoperative Course

• Patient’s hypoglycemic episodes subsided and diabetes returned
• Additional radioactive iodine was given
• Patient remained asymptomatic at 18 months and was subsequently lost to follow up
Case Summary

- 62 year old female with recurrent hypoglycemia from a cervical lymph node metastasis from a previously resected pancreatic neuroendocrine tumor (? insulinoma)
Incidence of Cervical Metastasis from NETs

• More common sites of metastasis
  • Mesenteric lymph nodes
  • Liver

• Overall 8.7% of NETS with a positive Octreoscan were for a cervical lymph node
  • Only 1 case was a pancreatic neuroendocrine tumor primary
  • All had other sites of metastasis in addition to cervical lymph node
Other NETS with Reported Cervical Metastasis

• Glucagonoma (MEN 1 patient)

• Patient had 12 pancreatic neuroendocrine tumors and metastases in 4 cervical lymph nodes
Questions?

Thank you