A TALE OF TWO HYPOGLYCEMICS
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OBJECTIVE
To understand the work up of hyperinsulinemic hypoglycemia by comparing two cases of very different etiologies.

INTRODUCTION
Hypoglycemia in the absence of glucose lowering medications is uncommon. The first step in evaluating hypoglycemia is to confirm fulfillment of Whipple’s triad. Standard hypoglycemic labs then must be obtained when the glucose is <55mg/dL. Data obtained at the time of a hypoglycemic event allows for determination of the etiology. We present two different cases of hyperinsulinemic hypoglycemia.

CASE PRESENTATION
Case 1: A 38 year old female presented with a 10-year history of light headedness if she skipped meals. Additional symptoms included fatigue, irritability and forgetfulness most prominent in the early morning hours. On self monitoring of blood glucose, she obtained fasting glucose values of 43mg/dL to 54mg/dL. She was admitted for a 72 hour fast with lab findings seen in Table 1. In light of concern for an insulinoma, a CT of the abdomen (Figure 1) was obtained which revealed a briskly enhancing mass within the pancreatic head measuring 1.1 x 1.4 cm. Enucleation of this insulinoma was successfully performed with resolution of hypoglycemia.

Case 2: A 41 year old female with a long standing history of diabetes mellitus type 2 requiring insulin was admitted with hypoglycemia. Due to persistent hypoglycemia despite stopping all exogenous insulin use, a hypoglycemic evaluation was undertaken and labs are seen in Table 1. Her lab work was consistent with surreptitious administration of insulin. This patient’s hypoglycemia resolved after we reviewed our findings with her and addressed our concern for factitious hypoglycemia.

COMPONENTS OF EVALUATION

History
It is important to confirm presence of hypoglycemia prior to an extensive laboratory evaluation. This is done by the documentation of Whipple’s triad:
- symptoms consistent with hypoglycemia
- with a concomitant low plasma glucose level
- relief of symptoms with treatment of hypoglycemia

Laboratory Evaluation
Once hypoglycemia is confirmed, a structured laboratory evaluation should be undertaken at the time of hypoglycemia to include:
- glucose
- insulin
- c-peptide
- proinsulin
- beta-hydroxybutyrate
- oral hypoglycemic panel

The differential for hyperinsulinemic hypoglycemia includes endogenous hyperinsulinemia (i.e insulinoma; nesideoblastosis), exogenous insulin exposure, oral hypoglycemic agents, and rarely, insulin antibodies. See figure 2 for interpretation of laboratory evaluation in hyperinsulinemic hypoglycemia.

CONCLUSION
Hypoglycemia not related to the management of diabetes mellitus is rare. A structured laboratory investigation at the time of an event is necessary to appropriately evaluate and then subsequently manage hypoglycemia.

REFERENCES