Cushing's Syndrome

A Continuing Conundrum

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CASE DESCRIPTION

73 year old man with type 2 diabetes and hypertension

Prior admissions for altered mental status in the setting of severe symptomatic hypokalemia, hypocalcemia and metabolic alkalosis

New diagnosis of systolic heart failure and acute hyponatremia

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Endorsed new fatigue, weight gain, insomnia, and weakness

Afebrile, HR: 85-91, BP: 105-135/70-80, RR: 18, on RA
Exam remarkable for bilateral eye ecchymoses, crackles of the lower lungs, bruising of the abdomen, petechial rash of the chest, severe anasarca

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Lab	Value
Sodium	121
Potassium	3.3
Hemoglobin	9
Platelets	102
Pro-BNP	10,488
24-hour urine cortisol, free	537 µg/dL (<60 µg/day)
AM Cortisol (s/p Dexamethasone)	64 ug/dL (4.3-22.4)

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ACTH: 44 pg/ml (7.2-63.3)

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MRI brain: 3 mm hypodense left sided pituitary lesion

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CT: simple appearing cystic lesion in the tail of the pancreas, and bilateral adrenal nodules, left greater than right.
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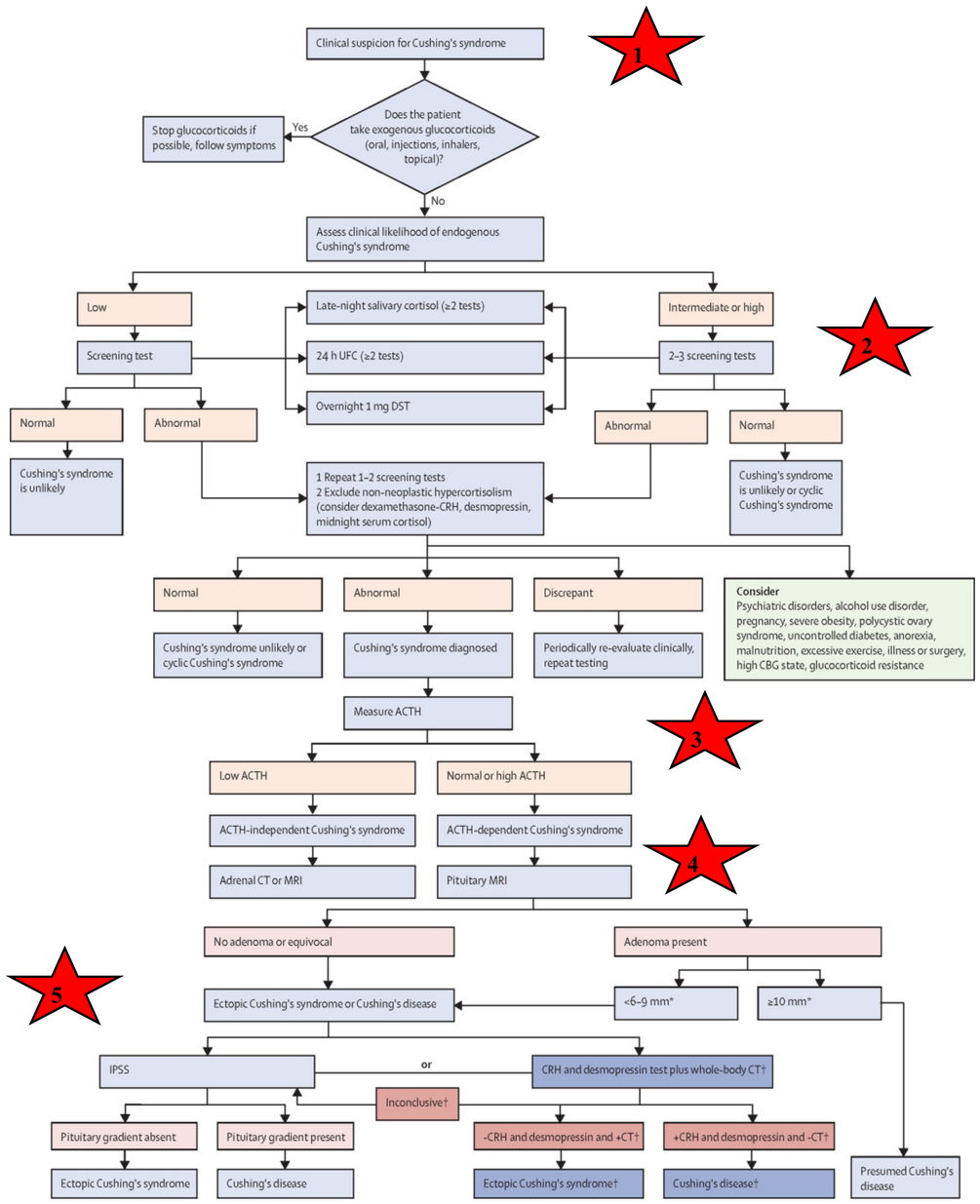
PET DOTATATE Scan: large cystic pancreatic body lesion with intense peripheral somatostatin uptake, and mild uptake in the left adrenal gland.

Pancreatectomy

Recurrent hypercortisolism
Repeat PET Scan: Increased uptake in the left adrenal nodule

Left adrenalectomy, staining positive for ACTH
Block & Replace Therapy

APPROACH TO DIAGNOSIS



DISCUSSION

- This patient has inappropriately normal ACTH suggestive of a dependent Cushing's process
- Imaging revealed three possible sources for hypercortisolism in this patient (pituitary and two different ectopic sources including pancreas and ectopic production of ACTH from the adrenal gland)
- The patient remains with intermittent hypercortisolism despite multiple attempts at source control and the etiology remains unclear
- His clinical course was complicated by profound Cushing's cardiomyopathy, delaying surgical intervention and requiring medical management. Cushing's cardiomyopathy is reversible with normalization of cortisol levels.

REFERENCES & GRATITUDE

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TEACHING POINTS

- Cushing's Syndrome, though uncommon, **may present with conditions frequently encountered in the primary care setting** such as hypertension, diabetes, congestive heart failure, insomnia, and elevated BMI
- In considering an etiology, **an ACTH level** allows us to create a **framework for diagnosis**
- Understanding the workup of this condition is crucial, given the complexity of this syndrome and importance of timely referral
- **Surgery is often considered definitive management** for hypercortisolism (with source control or bilateral adrenalectomy)
- In severe or persistent Cushing's syndrome, **endogenous production of cortisol is blocked** with ketoconazole and metyrapone and **replaced with exogenous dexamethasone** or bilateral adrenalectomy is pursued