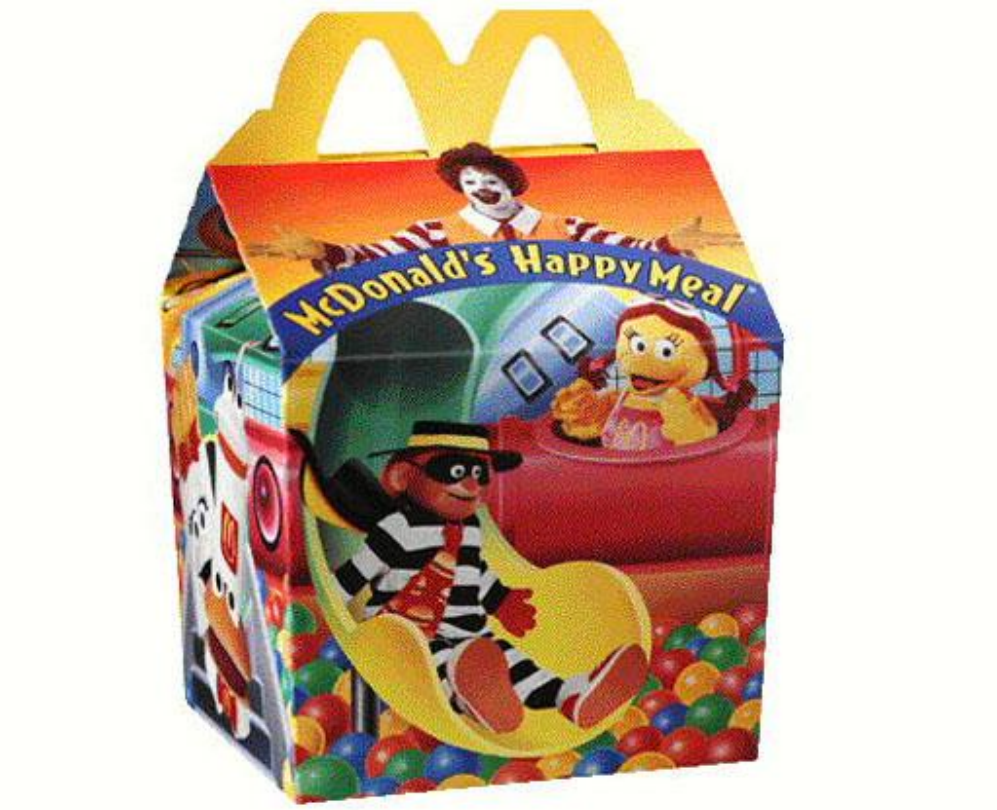
16-year-old male with nausea and vomiting and a 25 lb weight loss



Keith Murphy, MD
Med/Peds
(Originally for: HCMC November, 2011)

History

CC:

- 16-year-old Somali male, with nausea and vomiting and unintentional weight loss of 20-lbs over 6 months.
- Presented to primary care clinic

HPI:

- Vomits 1-2x/day (non-bloody, non-bilious)
- Gets full sooner than usual, feels like bloating more than pain
- He used to be able to eat "two chicken sandwiches or cheeseburgers, fries and a sundae no problem"
- Now if he eats a happy meal he gets full

ROS: no diarrhea, no fever, no rash, no jaundice, no dysuria

What's on your differential at this point?

What areas are you thinking of focusing on for physical exam?

What lab/imaging studies are you thinking about at this point?

ED visit 1 week prior

- Same presentation
- Workup included: Ua, CBC, CXR, EKG, BMP, hepatic panel, HIV and TSH.
- Only remarkable was > 300 protein on urinalysis
- Was sent home with Zofran, and recommended f/u with PCP in 1 week

History

Past Medical Hx
- Mild intermittent asthma

Surgical Hx
- ?Pyloric stenosis repair as infant

Allergies: penicillin, ibuprofen

Immunizations UTD

Medications
- Zofran PRN nausea (taking 1-2 per day)
- Albuterol PRN wheezing

History

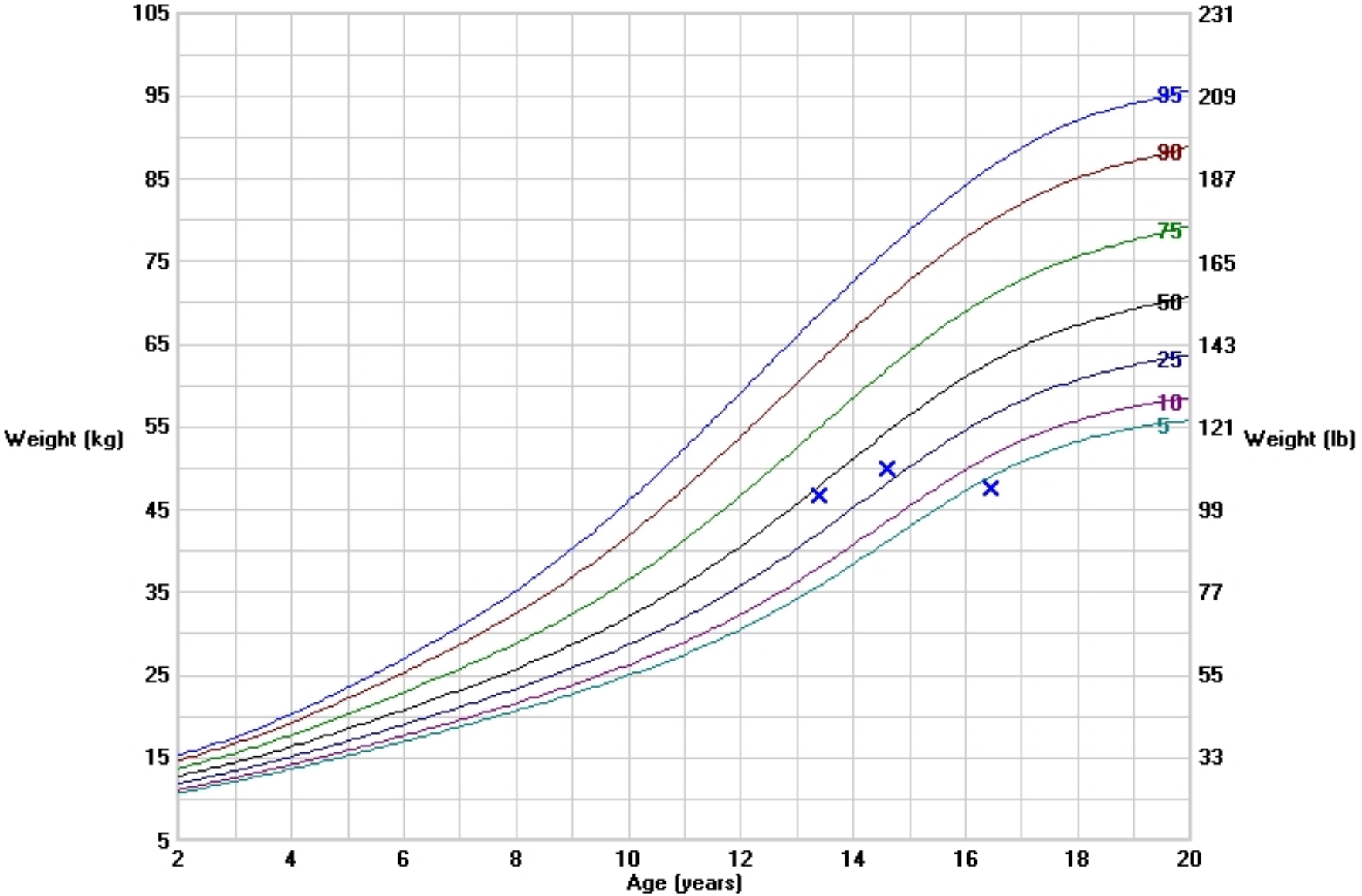
Family Hx

- Father: GERD
- Mom: "liver problem 4 years ago, now is better"
- Two healthy brothers

Social Hx

- Senior in HS, just changed schools
- Was suspended once this fall
- Mom recently visited family in Ethiopia for 2 months

Weight


Weight (kg)
105
95
85
75
65
55
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35
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15
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231
209
187
165
143
121
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77
55
33
Weight (lb)
95
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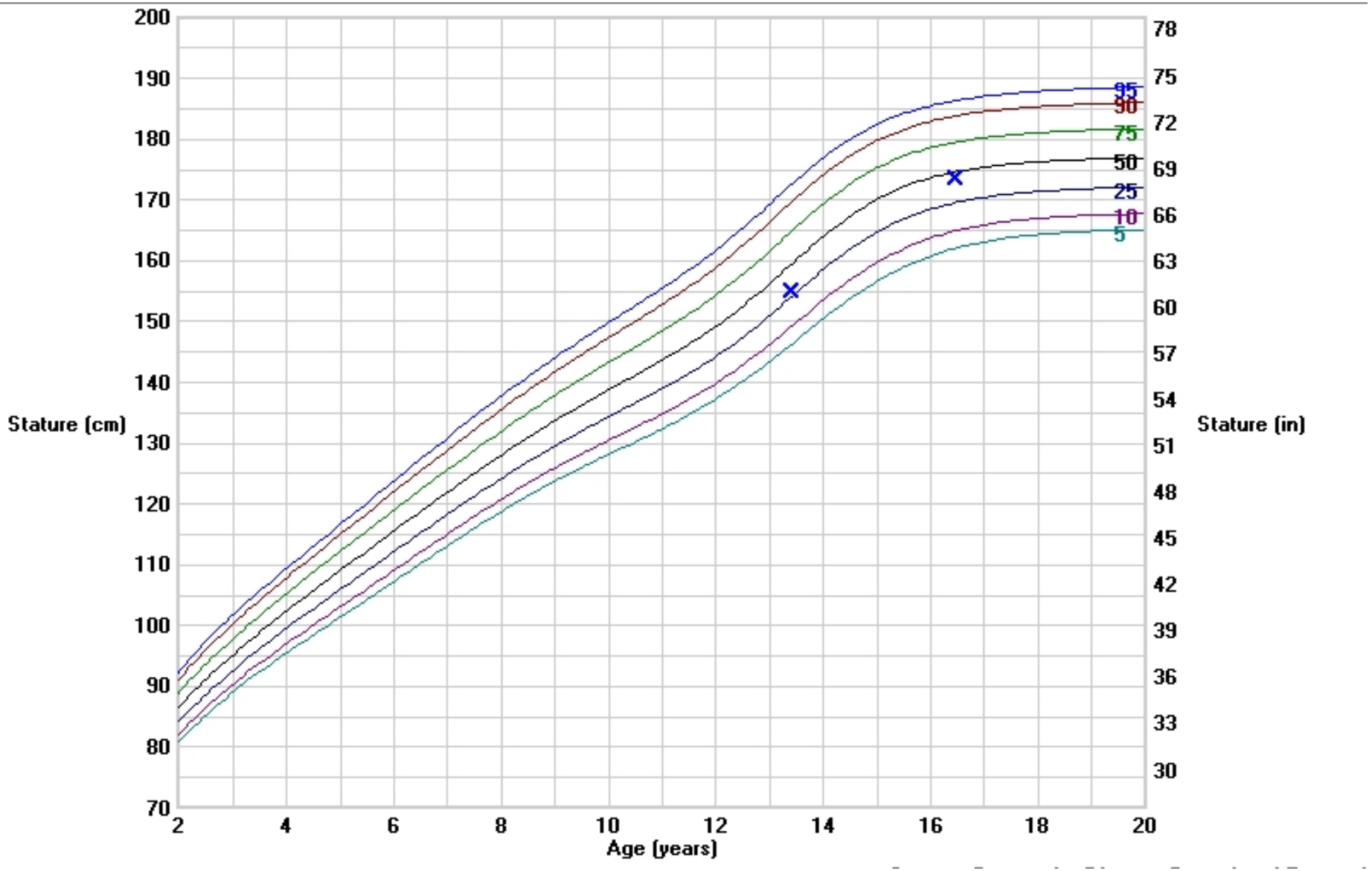
14
16
18
20
Age (years)

Height


Stature (cm)
200
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18
20
Age (years)

Physical Exam

Vitals: Afebrile, HR 72, BP 121/55, RR 18
weight 105 lbs, height 5'-8", BMI 15.8

General: Thin male, NAD
CV: RRR no m/r/g
Pulm: CTAB no w/r/r
Abd: Soft, NT/ND. +BS no HSM
Skin: no rashes
Neuro: UE/LE muscle strength 5/5 bilat
Lymph: No lymphadenopathy

What's on your differential?

What lab/imaging studies would you like to see?

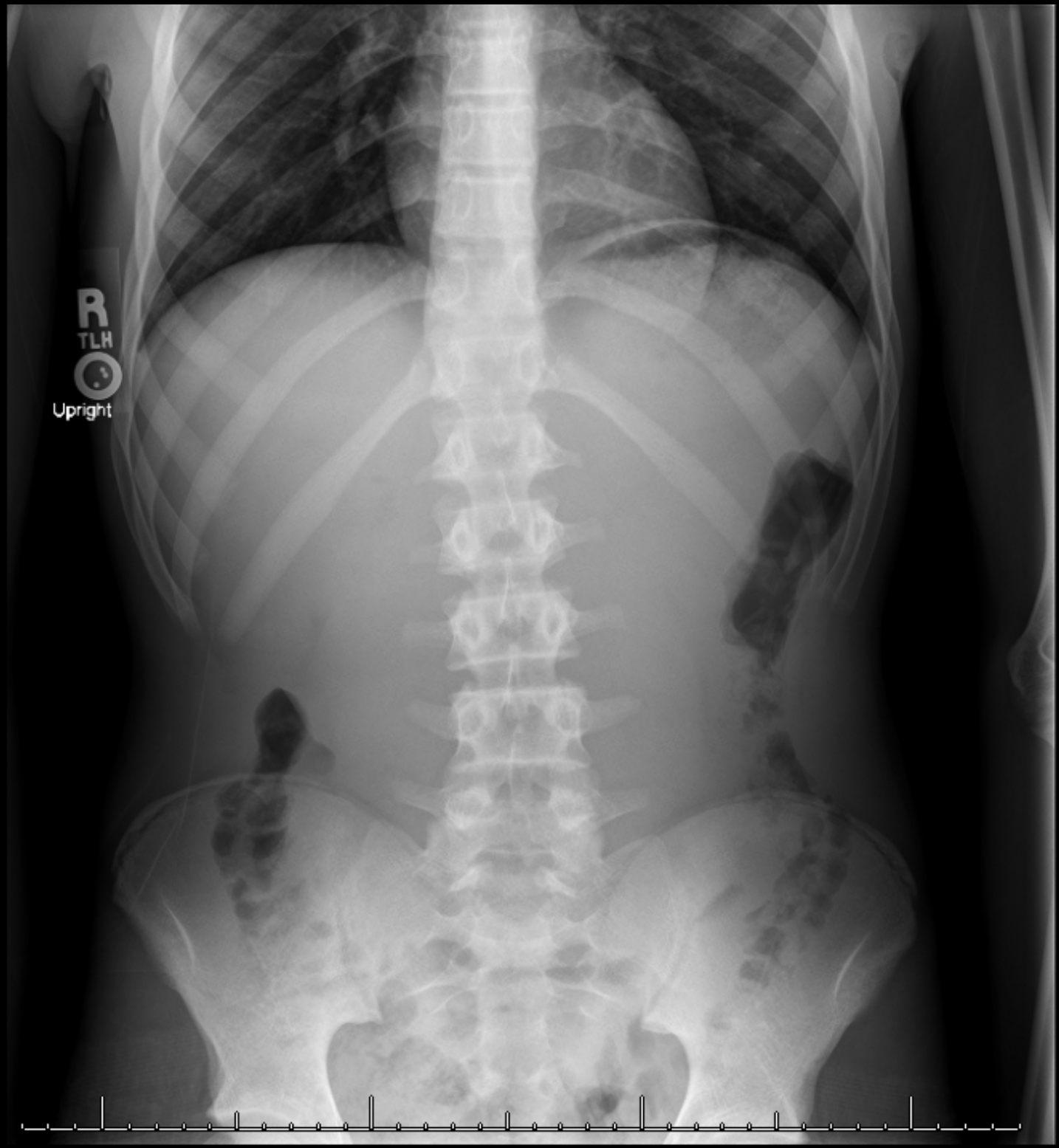
Assessment and Plan

DDx:

- peptic ulcer disease with partial obstrucion
- celiac disease
- eosinophilic esophagitis
- psychosocial manifestation
- inflammatory bowel disease
- TB (abdominal miliary)
- oncologic process

Plan:

- AXR, ESR, TTG, IgA, Stool H.pylori, uric acid, LDH, 25-OH vitamin D, repeat AM Ua
- Start Prevacid 30mg daily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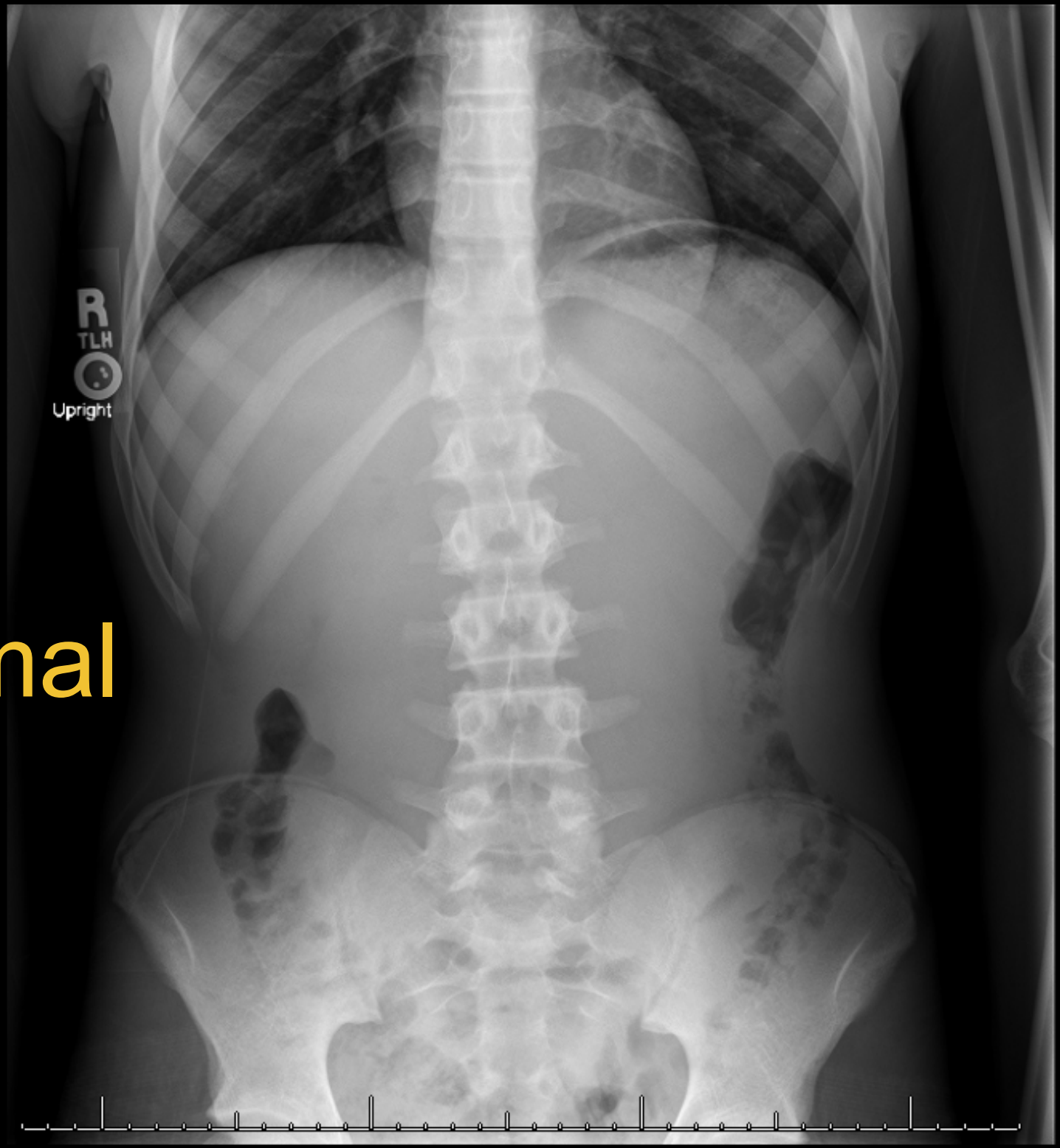


Normal

Labs

- Significant for 30 protein on Ua.
- H.pylori pending

Clinically over the next 48 hours

- Having less nausea, which he attributes to Prevacid
- Continues to take Zofran several times per day
- Weight on hospital day 4: 106 lbs, up 1 lb.

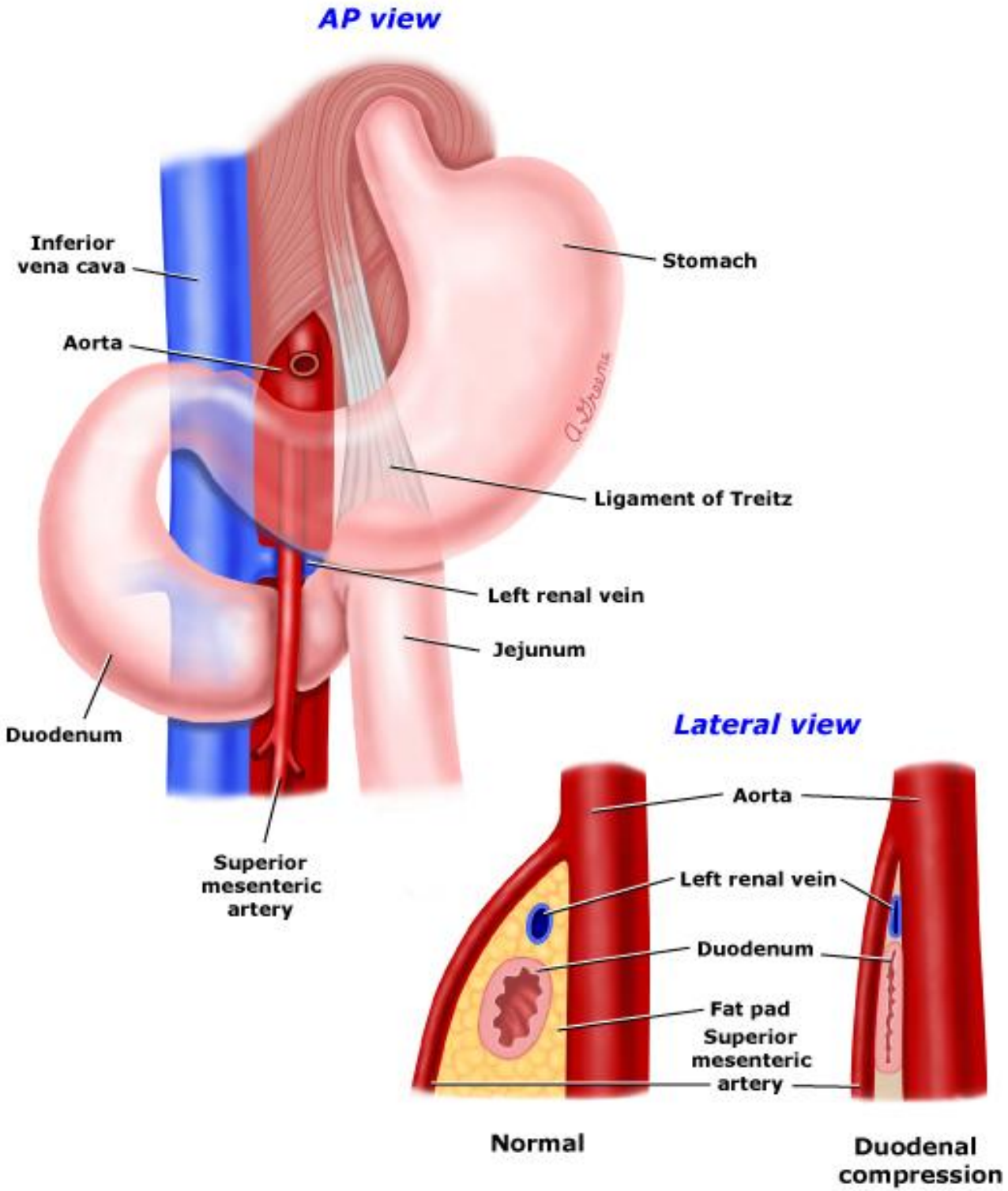
Now what?

Upper Endoscopy

Findings:
The Z-line was irregular and was found 36 cm from the incisors. Patchy moderately erythematous mucosa with no bleeding was found in the gastric fundus. Biopsies were taken with a cold forceps for histology. The examined duodenum was normal.
Impression: 16 yo African male (born in U.S. and no recent travel) who has 3 month history of significant weight loss and post-prandial vomiting as well as early satiety. Endoscopy today revealed gastric erythema and a somewhat dilated duodenum but nothing to really explain his symptoms. Biopsies were taken for h.pylori. I wonder if there is some depression or issues at home as there is no gastric outlet obstruction. Could consider a SBFT and/or gastric emptying study in future but doubt this young patient has gastroparesis.
Recommendation: - Return patient to hospital ward for ongoing care.
- Await pathology results.

CT Abdomen with IV and PO contrast

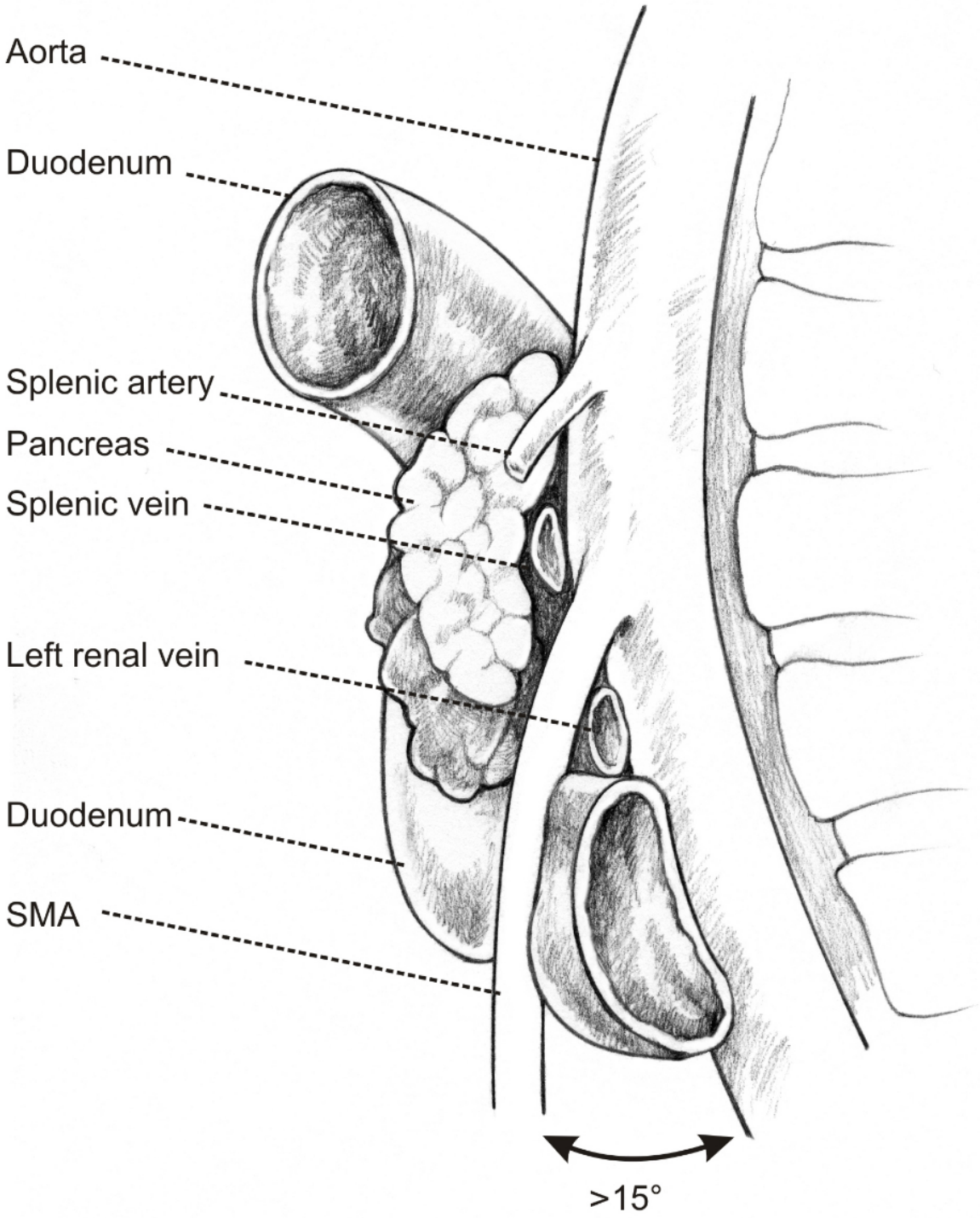
IMPRESSION
Impression:
1. Acute angulation of the origin of the superior mesenteric artery with narrowing of the space between the SMA and aorta. There is secondary narrowing of the duodenum at this level, as well as the left renal vein, findings consistent with SMA syndrome and Nutcracker syndrome.
2. There is asymmetric prominence of the left gonadal vein in the abdomen and inguinal canal. Scrotal ultrasound can help to evaluate for varicocele.



Nutcracker syndrome = compression of renal vein

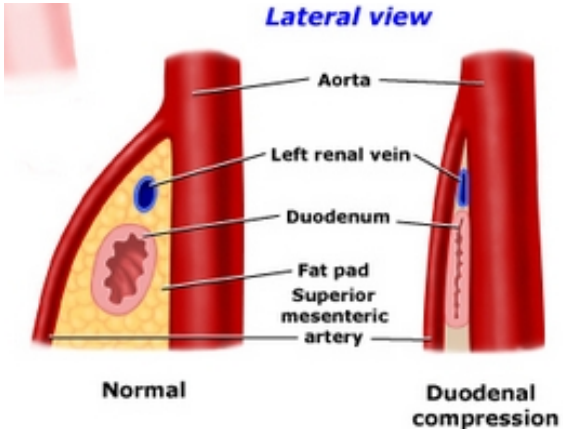
SMA syndrome = compression of duodenum

From Up To Date



Redrawn from Surgery: A Problem Solving Approach, 2nd ed, Davis

SMA Syndrome



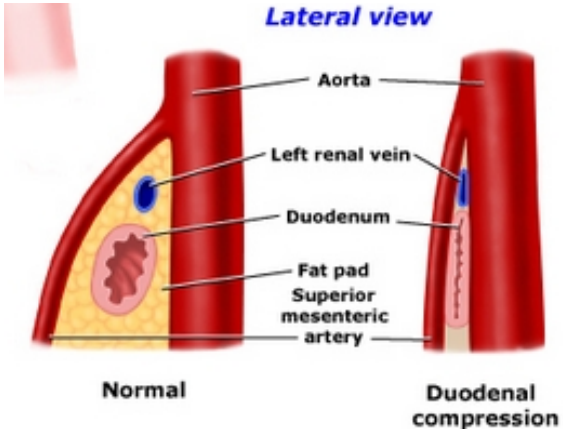
- SMA = Superior Mesenteric Artery
- Compression of duodenum, between aorta and SMA

Classic features:

- Chronic food intolerance, with nausea and vomiting
- Weight loss
- Epigastric pain (alleviated when laying prone or left lateral decubitus both relieve tension on mesentery)

- Typically associated with reflux, and often upper endoscopy shows gastritis (secondary to obstruction)

SMA Syndrome



Predisposing factors:

- Weight loss (eg malabsorption, malignancy, AIDS, anorexia nervosa, etc)
- Congenital anatomic abnormalities
- After scoliosis surgery
- After bariatric surgery
- Psychological / Mental Health disorders

SMA Syndrome

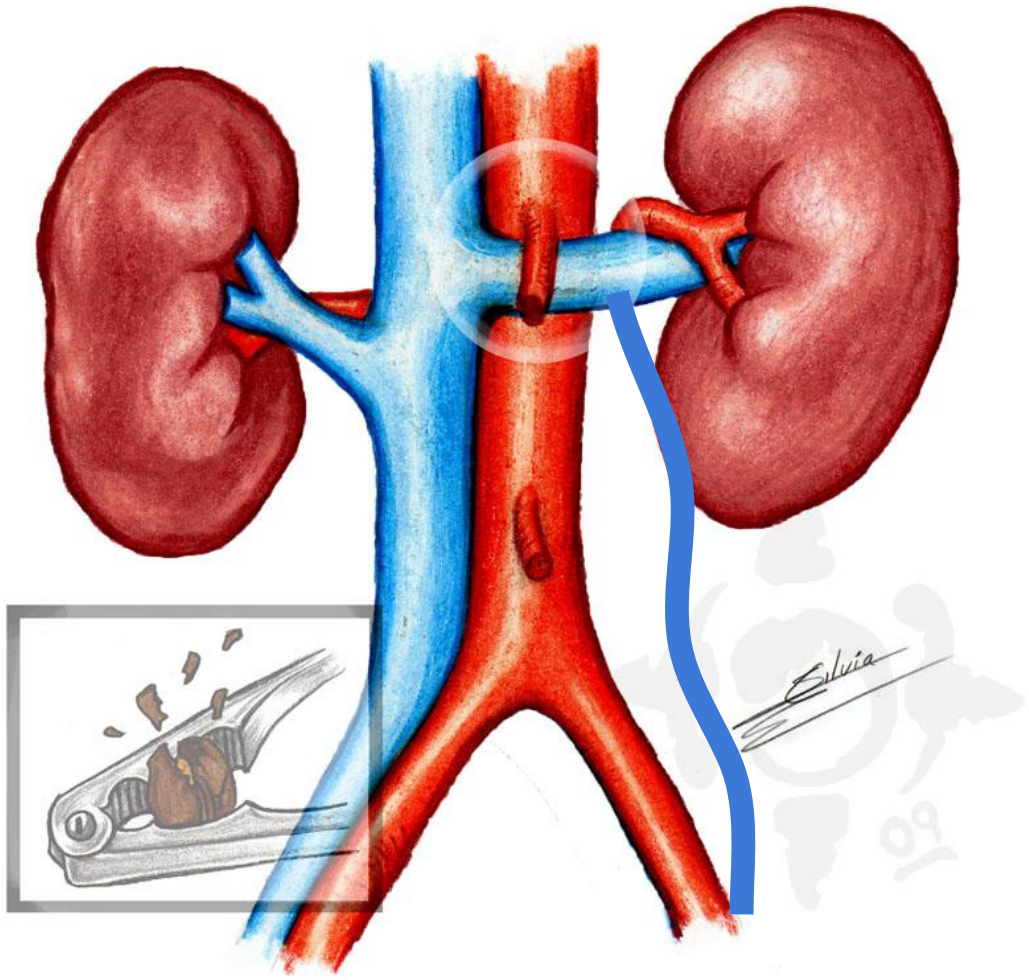
Diagnosis made by
- CT (with oral contrast)
- Barium studies

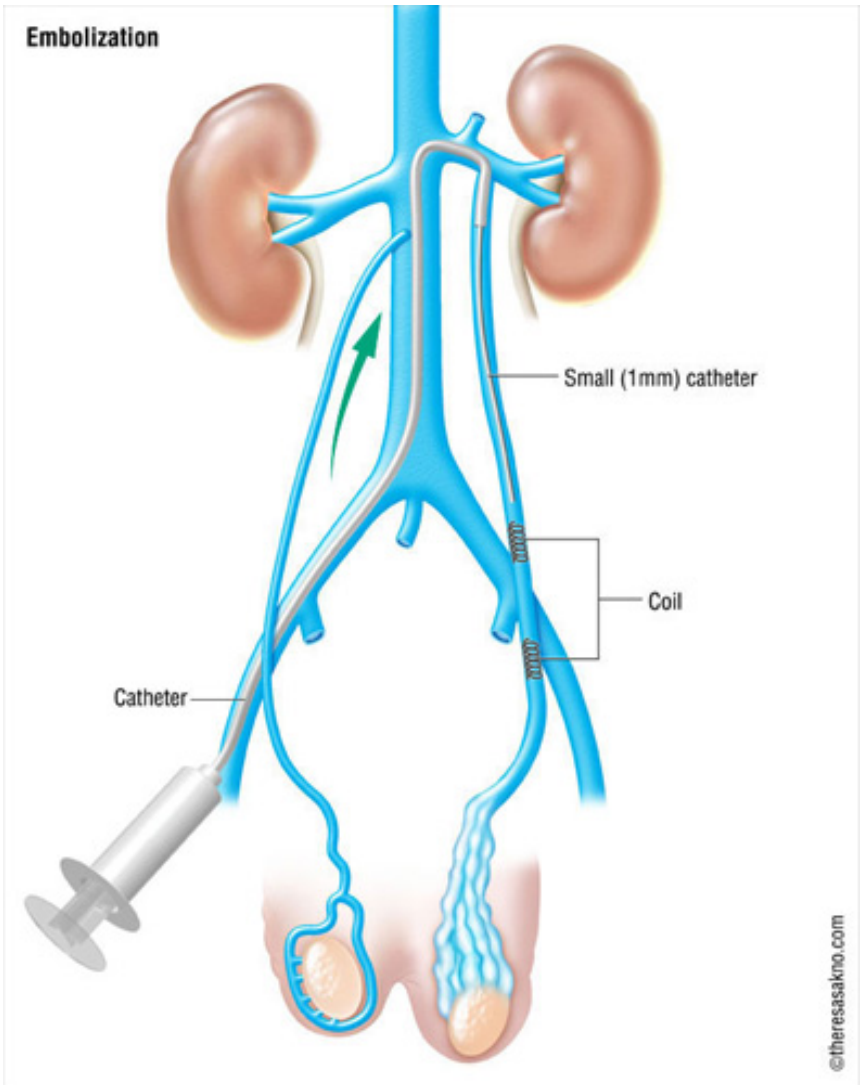
Medical management
- Fluids
- May require bowel rest, TPN or NJ past obstruction
- Monitoring for refeeding syndrome

Surgical management
- Strong's procedure: division of the ligament of Treitz to allow duodenum to fall away from the aorta
- Duodenojejunostomy

Nutcracker Syndrome

- Compression of Renal vein, between aorta and SMA





Nutcracker Syndrome

- Compression of Renal vein, between aorta and SMA

Classic features

- Hematuria (often asymptomatic)
- *Left* flank pain
- *Left* testicular pain

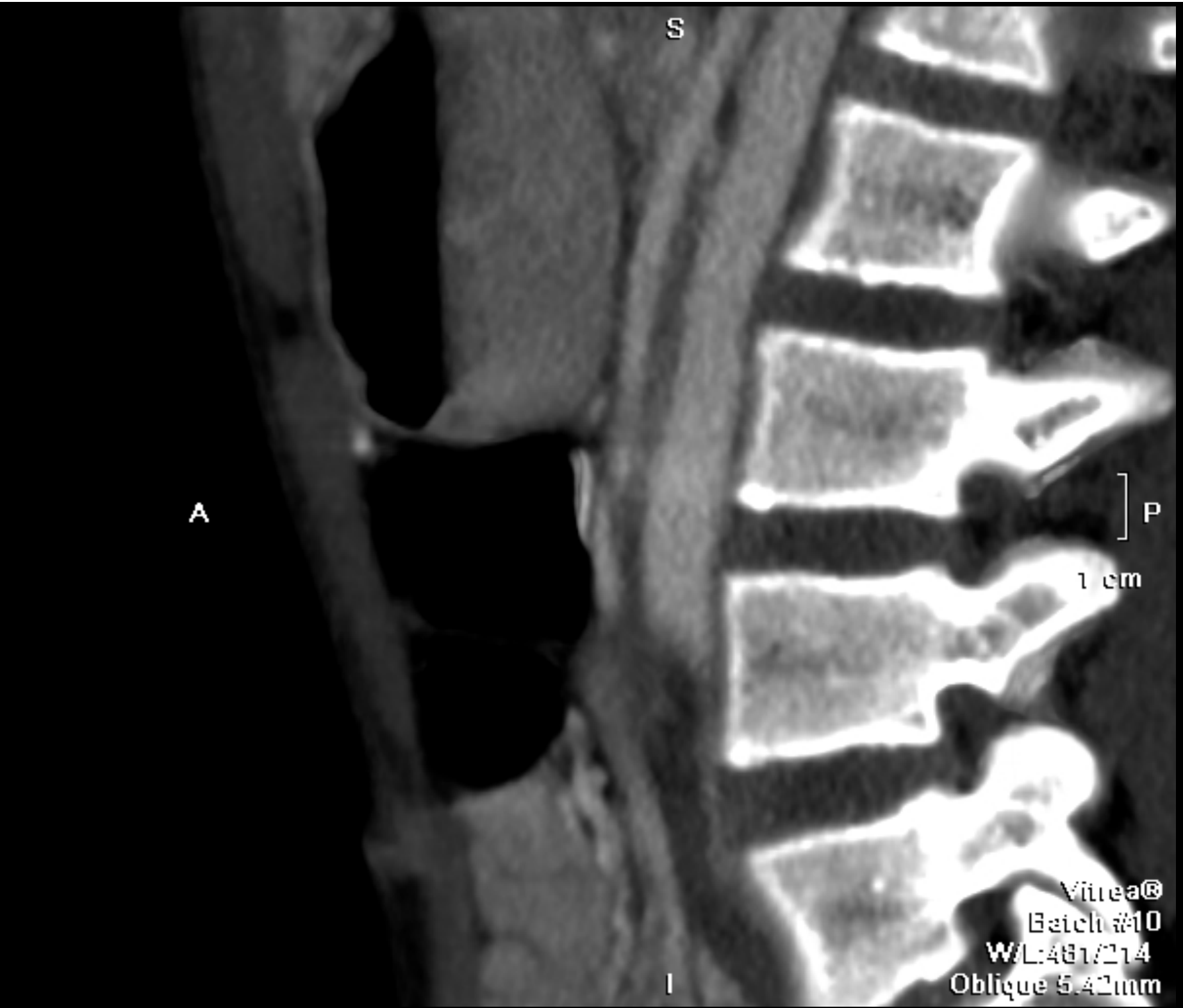
Nutcracker Syndrome

Diagnosis made by

- Ultrasound (first line, looking at renal vein diameter)
- CT angiography
- MR angiography
- Renal angiography

Treatment

- Unclear if treatment is required
- Should be based on severity of symptoms
- Stenting and surgical procedures have been described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Batch #10
W/L:481/214
Oblique 5.42mm

References

1. Merrett, *et al*. Superior Mesenteric Artery Syndrome: Diagnosis and Treatment Strategies. *J Gastrointest Surg*. 2009. 13:287-92.
2. Scovell, *et al*. Superior Mesenteric Artery Syndrome. *Up To Date*. June 2011.
3. Kurklinsky, *et al*. Nutcracker Phenomenon and Nutcracker Syndrome. *Mayo Clin Proc*. 2010. 85 (6) 552-9.

Thanks!

Access this talk again at:

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