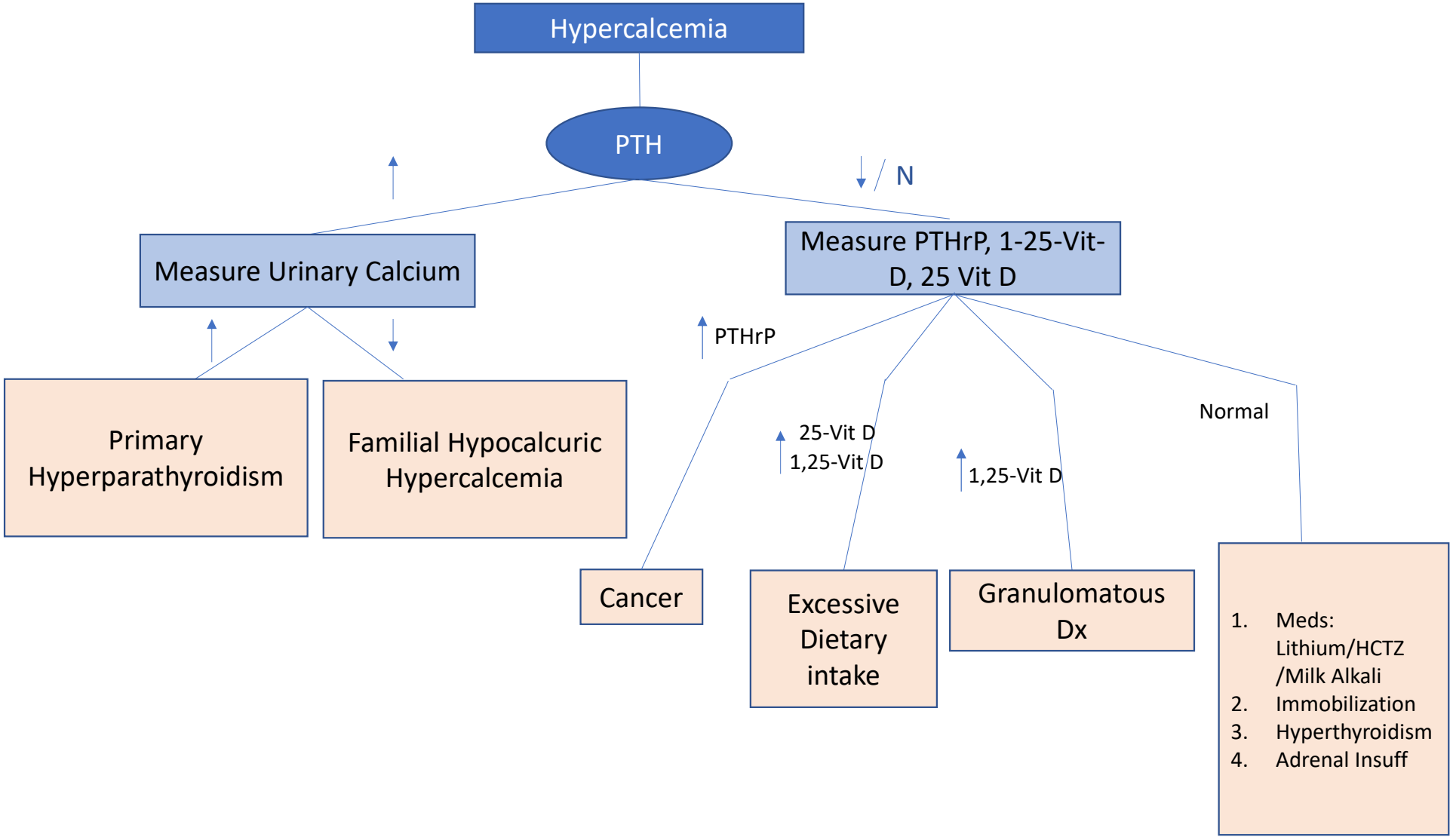

Hypercalcemia
PTH
↑
↓ / N
Measure Urinary Calcium
Measure PTHrP, 1-25-Vit-D, 25 Vit D
↑
↓
PTHrP
Primary Hyperparathyroidism
Familial Hypocalcuric Hypercalcemia
25-Vit D
1,25-Vit D
1,25-Vit D
Normal
Cancer
Excessive Dietary intake
Granulomatous Dx
1. Meds: Lithium/HCTZ /Milk Alkali
2. Immobilization
3. Hyperthyroidism
4. Adrenal Insuff

MM Illness Script

Who	Age 70, M>F
Presentation	Anemia > Bone Pain>Elevated Creatinine >Fatigued> Hypercalcemia > Weight loss
What is it	Malignancy of plasma cells that results in an increase in single immunoglobulin and its corresponding light chain (kappa or lambda)
How to diagnose	Serum/urine protein electrophoresis (SPEP/UPEP) + Immunofixation of serum & urine (SPIE/UPIE) To confirm diagnosis: Serum/urine free light chains measurements + Bone Marrow with >10% monoclonal plasma cells
Abnormalities	ESR, BMP, CBC, SPIE/UPIE, SPEP/UPEP, Serum free light chains, Serum alkaline phosphatase (NORMAL), Beta-2-macroglobulin, plasma immunoglobin level; UA with proteinuria Bone marrow aspirates, plain x ray/PET/MRI (Not nuclear bone scan)
Symptoms	Based on organ involvement and hyper-viscosity
Treatment	Dexamethasone + high dose chemotherapy with immunomodulator (Lenalidomide/Thalidomide) or proteosome inhibitor (Bortezomib); autologous stem cell transplant in younger patients

CC: Altered Mental Status

HPI: 75-year-old female presents with fatigue, lethargy, decreased appetite and generalized weakness.

Starting earlier this week, the patient began to develop symptoms of fatigue, constipation and weakness that slowly progressed. She started to sleep more during the day. She was only able to eat few sips due to decreased appetite. She is able to walk on her own at baseline however over the last week, she seems to go limp with prolonged walking. She had 1 unwitnessed fall a few days ago. She complained of lower back pain after the fall.

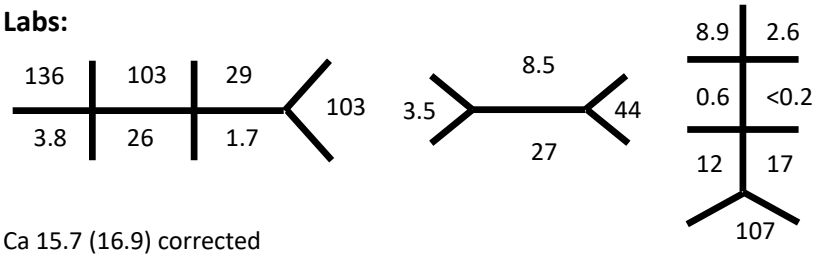
ROS + last BM 5 days ago, urinary frequency without dysuria

ROS – abdominal pain, diarrhea, chest pain, shortness of breath

PMH: HTN**,** DM II, Anemia, Hypothyroidism, OSA not on BiPAP
SH: Never smoker, never used alcohol
FH: No relevant family history
Allergies: None
Medications:
ASA 81
Atorvastatin 20
Ferrous sulfate 325mg
Gabapentin 100mg qhs
Levothyroxine 50 mcg qAM
Linagliptin 5mg qd
Pantoprazole 40mg qd
Miralax 17g packet qd

Physical Exam:
General: Lethargic, but easily awakens
HEENT: Dry mucous membranes, No lymphadenopathy
Cardiac: Regular rate and rhythm, S1, S2, no murmurs
Pulm: Vesicular breath sounds bilaterally
Abdomen: Soft, non distended, non tender to palpation
Extremities: Warm, well perfused, 2+ DP
Back: No wounds/sacral ulcers, tenderness to palpation lower back – paraspinal muscles
Neuro: Oriented to self, place, time; able to hold against gravity. No lateralizing weakness. No CN deficits

Labs:



Ca 15.7 (16.9) corrected
SPEP gamma band of 4.28 gm/dL
Bone marrow: Kappa restricted plasma cells (36%)
Kappa: Lambda ratio is 294

Diagnosis of IgG kappa MM.

Discussed approach to AMS- "MIST"
Discussed approach to hypercalcemia diagnosis

- Multiple Myeloma is a clonal proliferation of plasma cells
- Presentation of MM includes hypercalcemia, renal dysfunction, anemia, bone disease. Alkaline phosphatase is usually normal
- Diagnosis of MM involves clonal bone marrow plasma cells ≥ 10%
- The workup for plasma cell disorders includes SPEP, immunofixation, and serum free light chains to help us identify if and which immunoglobulin component is being made in abundance.