

Hyperparathyroidism

HISTORY of PRESENTING ILLNESS 50% will not report any symptoms!

HYPERCALCEMIA

- BRAINS** Acute confusion, drowsiness, changes in mental state
- BONES** Painful bones Symptomatic from 3.5 mmol/l total Ca⁺⁺
- STONES** Renal stones, and all the attendant pains
- GROANS** Of severe Abdominal pain

DEHYDRATION

- Thirst**
- Polydipsia**
- Polyuria**
- Nausea, vomiting, anorexia, weight loss**
- Fatigue and weakness**
- Anxiety, depression, apathy, psychosis**

Examination: no real findings apart from dehydration;

Look for:

- Pancreatitis
- Proximal muscle weakness
- Hyper-reflexia / Fasciculations

INVESTIGATIONS:

Need to demonstrate PTH rise:

The diagnosis of hyperparathyroidism is made by demonstrating **elevated parathyroid hormone levels in the setting of high serum calcium**. Almost all other causes of hypercalcemia suppress the release of parathyroid hormone.

Thus:

PTH levels

This is all you really need, but you should exclude all the other reasons for hypercalcemia... Including lung cancer!...

Alkalosis is associated with decreased serum Ca due to increased protein binding.

Acidosis is associated with increased ionized Ca due to decreased protein binding

CMP

Chest X-ray

BSL:

polydipsia, polyuria, dehydration... Could it be uncontrolled diabetes??...

LFT: what is alk phos doing? Could bone lysis be happening?

EUC could it be secondary hyperparathyroidism?

i.e when the parathyroid glands are chronically stimulated 2ndary to chronic renal failure

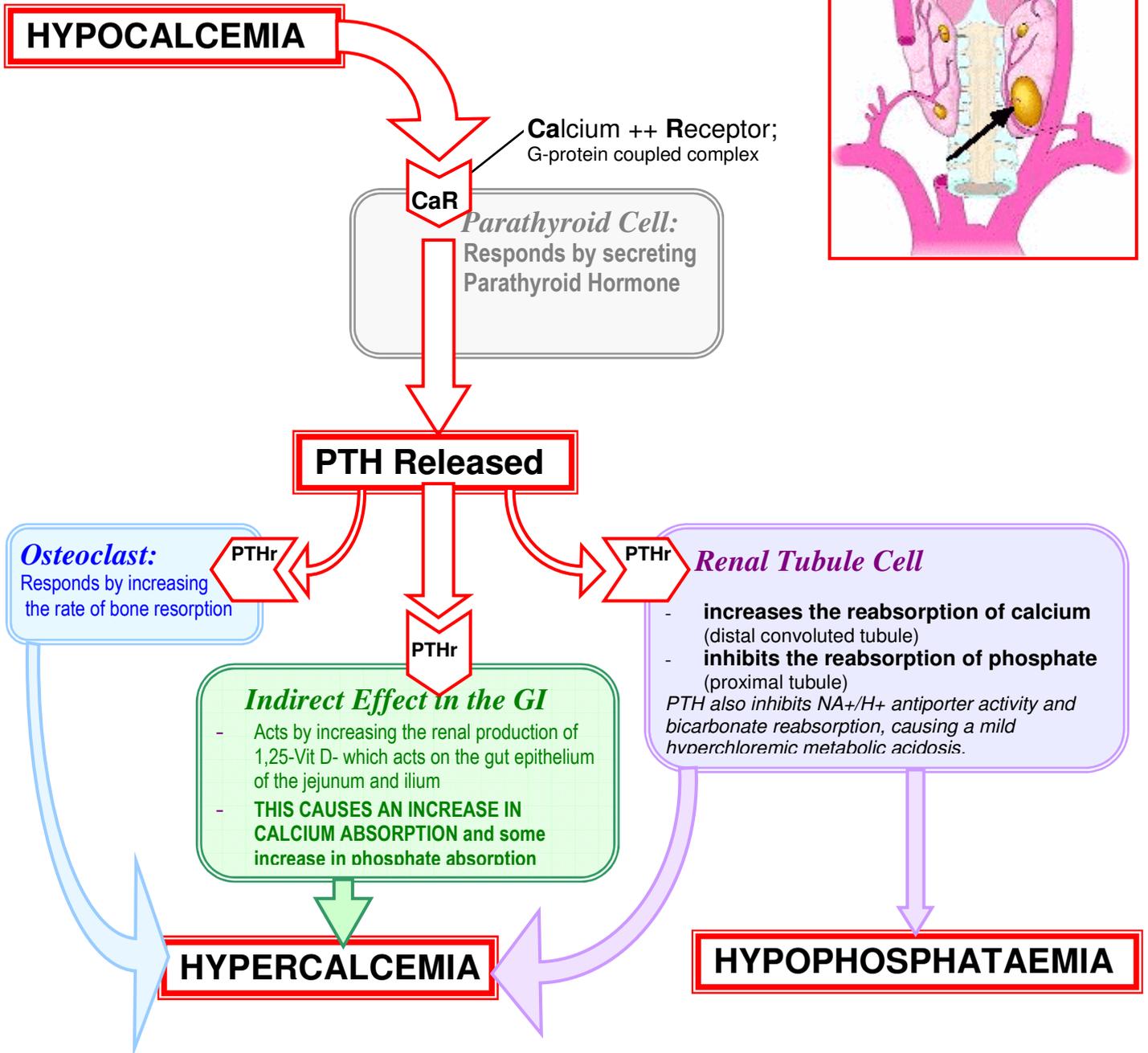
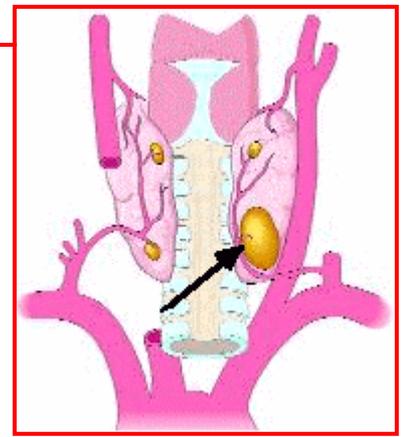
ECG: long Q-T interval = hypercalcemia

IMAGING : SESTAMIBI Tc99 scan will show which gland to operate on

MANAGEMENT: fix the electrolytes first

- Mild hypercalcemia only warrants some normal saline rehydration
- Severe hypercalcemia requires NS as well as Pamidronate (bisphosphonate) 30-60mg IV
- **Surgery is the definitive treatment: get rid of those glands; INDICATIONS ARE:**
 - Elevation of serum calcium more than 1 mg/dL above reference range
 - History of an episode of life-threatening hypercalcemia
 - Reduction of creatinine clearance by more than 30%
 - History of nephrolithiasis
 - Elevation of 24-hour urinary calcium excretion higher than 400 mg
 - Reduction of bone mass more than 2 standard deviations below normal
 - Surgical referral is also recommended if consistent follow-up of the patient is difficult or if hypercalcemia complicates the management of other medical problems.

Pathophysiology of the parathyroid



Renal resorption of PO_4 is the MAIN HOMEOSTATIC MECHANISM in control of your phosphate!
 PTH and CT increase phosphorus excretion, and Vitamin D decreases its excretion

PRIMARY:
 High PTH
 High Ca^{++}
 Abnormal production of parathyroid hormone without any stimulus

SECONDARY:
 High PTH
 Low or Normal Ca^{++}
 Normal compensation for hypocalcemia; the parathyroid gland's attempt to maintain normal Ca^{++}

TERTIARY:
 High PTH
 High Ca^{++}
 After a long time of secondary hyperparathyroidism, the gland hypertrophies and begins to over-secrete. THUS tertiary hyperparathyroidism occurs