Two major problems

- hyperplasia
- neoplasms – adenoma and carcinoma

Hyperparathyreoidism

Primary

- overproduction of parathormon due to the intrinsic abnormality of one or more glands
- increased level of serum calcium
- decreased phosphates
- hypercalciuria common

Causes

Adenoma 85%

Carcinoma 1%

Primary hyperplasia 14%

- sporadic
- MEN 1 – very common, first manifestation
- MEN 2 – in 20 % - 30 %, mild and often asymptomatic
- familial isolated hyperparthyreoidism
- familial hypocalciuric hypercalcemia
- familial hyperkalciuric hypercalcemia

Rarely - *ectopic production of parathormon* – clear cell renal carcinoma

Hyperparathyreoidism

Secondary

- compensatory hyperplasia of the glands due to decreased serum calcium
- rarely due to tissue resistancy to parathormon
  reaches usually normocalcemia

Causes

chronic renal failure – *most commonly*
malabsorption
vitamine D defficiency
renal tubular acidosis

Tertiary

- autonomic hyperfunction of the parathyroid glands
  overlying secondary hyperparathyreoidism

Causes are same as in secondary hyperparathyreoidism

chronic renal failure – *most common*
malabsorption
vitamine D defficiency
renal tubular acidosis

Hyperparathyreoidism

Sequellae

- metastatic calcifications
  - lungs
  - nephrocalcinosis
  - chondrocalcinosis
  - arterial calcifications

- brown tumors of bones (von Recklinghausen´s disease)
- peptic ulcers

- clinically
  - fatigue
  - weakness
  - behavioral changes

Main syndromes associated with hyperparathyroidism (HRPT)

	MEN1	MEN2	Syndrom HRPT and neoplasms of jaws
Thyroid gland	follicular adenoma	medullar carcinoma	*none*
Adrenals	nodules without hyperfunct	pheochromocytoma	*none*
	hyperfunctional adenomas	*none*	
Pancreas	islet cell neoplasms	*none*	*none*
Adenohypophysis	adenomas	*none*	*none*
other	bronchial, thymic carcinoids	lichen amyloidosus	fibroosseal lesion of jaws Kidneys-cysts, hamartomas, ca
	autosom. dom. germ line mutation	autosom. dom. germ line mutation	autosom. dom. germ line mutation
	gene *MEN-1* / 11q13	gene *RET* / 10q11	gene *HRPT-2* / 1q25-31