

Hyperparathyroidism

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Hyperparathyroidism

- Excessive production of parathyroid hormone

Etiology

- a. Primary hyperparathyroidism
 1. adenoma
 2. sporadic
 3. autosomal dominant
 4. hyperparathyroidism – jaw tumor syndrome
 5. hyperplasia or adenoma

6. Multiple endocrine neoplasia MEN type 1
7. Mutation in MEN 1 gene
8. Parathyroid hyperplasia of infancy
9. Inactivating mutation of calcium sensing receptors

10. Secondary to maternal hypoparathyroidism
11. Ectopic PTH production
12. Non endocrine malignancies

b. Other causes

- Parathyroid hormone related peptide excess
 1. non endocrine malignancies
 2. benign hypertrophy of breasts

c. Calcium sensing receptor inactivating mutation

1. heterozygous – familial hypocalciuric hypercalcemia
2. neonatal severe hyperparathyroidism

d. Activating mutation of PTH/ PTHrP receptor

1. autosomal dominant
2. jansen- type metaphyseal chondrodysplasias

e. Inactivating mutation of PTH/PTHrP receptor

1. autosomal recessive
2. bloomstrand chondrodysplasia

f. Vitamin D excess

1. iatrogenic

2. ectopic production

- sarcoidosis

- tuberculosis

- granulomatous lesions

- subcutaneous fat necrosis

3. excessive fortified milk

g. Others

1. hypophosphatasias
2. mutation of tissue nonspecific alkaline phosphatase gene
3. prolonged immobilization
4. hypervitaminosis
5. leukemia

Clinical features

1. Muscular weakness
2. Anorexia
3. Nausea vomiting
4. Constipation
5. Polydypsia
6. Polyuria
7. Weight loss

8. Fever
9. Nephrocalcinosis
10. Renal calculi
11. Renal colic/ hematuria
12. Pain in back or extremities
13. Disturbance of gait
14. Genu valgum

15. Fractures

16. Tumors

17. Height ↓↓

18. Abdominal pain associated with acute
pancreatitis

19. Parathyroid crisis

- a. serum calcium > 15 mg/dl
- b. progressive oliguria
- c. azotemia
- d. stupor
- e. coma

In infants

- 20. Failure to thrive
- 21. Poor feeding
- 22. Hypotonia
- 23. Mental retardation
- 24. Convulsions
- 25. blindness

Lab findings

- PTH level ↑
- s. calcium ↑ = > 12 mg/dl
- s. phosphorus ↓ = < 3mg/dl
- s. magnesium ↓

- urine specific gravity ↓ or fixed
- s. uric acid & non protein nitrogen ↑
- alkaline phosphatase ↑
- calcitonin levels = N

Radiological findings

1. Resorption of subperiosteal bone
2. Skull → gross trabeculation or a granular appearance
3. Lamina dura may be absent
4. Generalized rarefaction
5. Signs of rickets
6. Radiographs of abdomen reveals → renal calculi or nephrocalcinosis

Differential diagnosis

- Other causes of hypercalcemia as mentioned earlier

Treatment

- Surgical exploration
- Postoperative:
 - diet rich in calcium and phosphorus
 - prevent tetany

Prognosis = good