SNS COLLEGE OF ALLIED HEALTH SCIENCES

SNS Kalvi Nagar, Coimbatore - 35

Affiliated to Dr MGR Medical University, Chennai

DEPARTMENT: ALLIED HEALTH SCIENCES

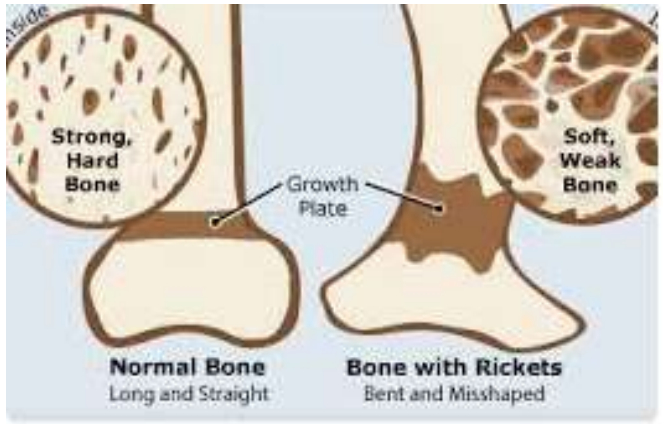
COURSE NAME: ORTHOPEDICS

Topic:RICKETS

Introduction

Definition

Rickets is a bone disease that causes bones to become soft and weak in children. It's usually caused by a lack of vitamin D, calcium, or phosphorus



Etiology

Vitamin D deficiency

Vitamin D helps the body absorb calcium and phosphorus from food. Rickets is most likely to occur during periods of rapid growth, when the body needs more calcium and phosphate.

Genetics

Hereditary rickets is a form of the disease that's passed down through families.

Kidney disorders

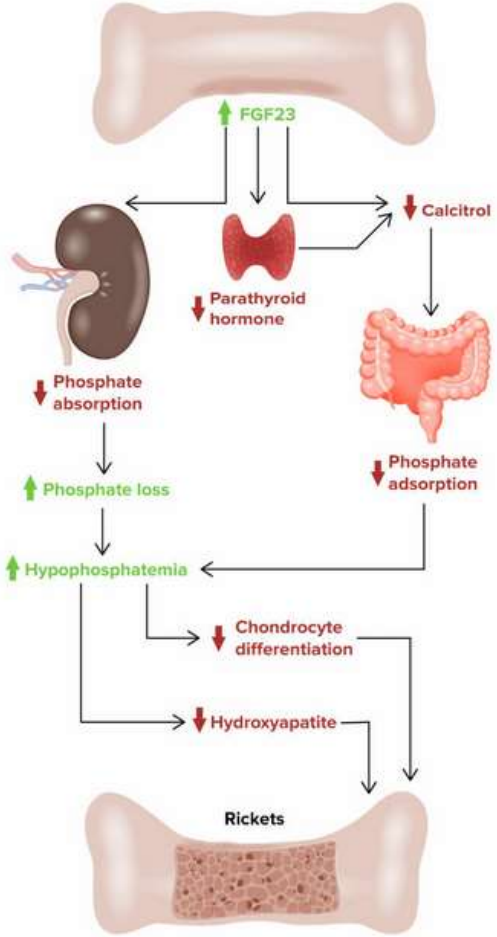
Some kidney disorders can make it difficult for the body to absorb phosphate or convert vitamin D to its active form.

Liver disorders

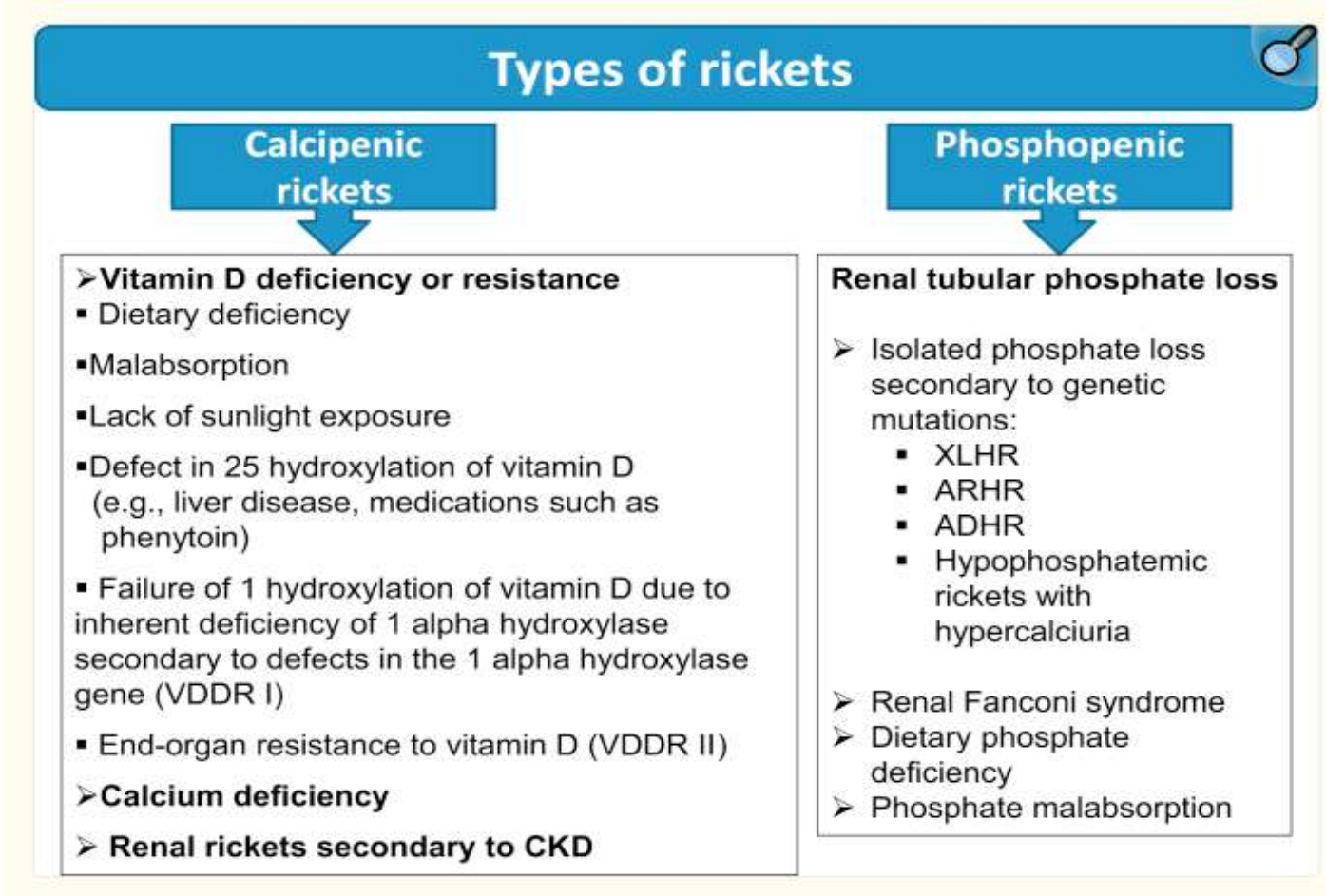
Some liver disorders can prevent the body from converting vitamin D to its active form.

Pathogenesis

Bones consist of cells that have various specific roles during the bone formation process. Osteoblasts are bone-forming cells that secrete the extracellular matrix and mineralize the osteoid, whereas osteoclasts break down the bone matrix during the stage of remodeling, disease conditions, or aging. For bone maturation, the organic component of the bone matrix, the osteoid, must be mineralized by calcium salts. In rickets, this process is hampered and results in amassing of osteoid beneath the growth plate leading to softness in the bone over a gradual period of time.



Types of Rickets



Complication & Complications

COMPLICATION

If left untreated, rickets can cause permanent deformities and short stature

In adults, a similar condition is called osteomalacia

COMPLICATIONS

Bone pain or tenderness

Decreased muscle tone and weakness

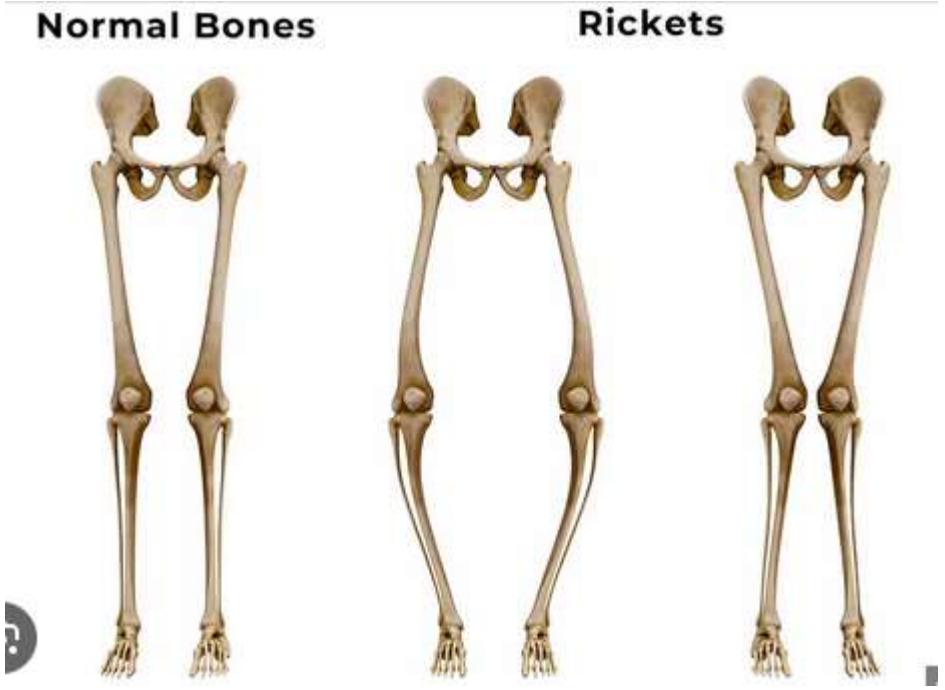
Dental deformities

Impaired growth

Increased bone fractures

Muscle cramps

Skeletal deformities, such as bowlegs, an odd-shaped skull, or a curved spine



Signs & Symptoms

Symptoms

Bone pain or tenderness
Decreased muscle tone and weakness
Dental deformities
Impaired growth
Increased bone fractures
Muscle cramps
Skeletal deformities, such as bowlegs, an odd-shaped skull, or a curved spine

Assessment 1

- 1. What is rickets
- 2. Mention the complication
- 3.Etiological factor

Diagnosis

History collection

Physical exam

will check for tenderness or pain in the bones, especially in the arms, legs, pelvis, and spine.

and also check the skull, chest, wrists, and ankles for abnormalities.

Blood tests

A blood test can measure the levels of calcium and phosphate in the blood.

A blood test can also measure serum alkaline phosphatase (ALP) and serum phosphorus.

X-rays

X-rays of the affected bones can show bone deformities, such as bowing of the legs, an oddly shaped skull, or a protruding breastbone.

X-rays can also show the degree of bone softening and fraying.

Other tests

A bone density scan (DEXA scan) can measure the calcium content in bones.

A bone biopsy can be performed in rare cases.

Assessment 2

- Role play about symptoms-1

Treatment

- Rickets is usually treated with vitamin D and calcium supplements, or by improving a child's diet. In some cases, surgery may be required to correct severe bone deformities.

Treatments

- Vitamin D and calcium supplements
- Most cases of rickets are caused by a deficiency in vitamin D and calcium. Children may need to take these supplements for about three months.

Improved diet

- Children can eat more foods that are rich in vitamin D and calcium. These include:
- Eggs ,Cod liver oil ,Oily fish ,Vitamin D-fortified foods ,Beef liver
- Special vitamin D supplements

Treatment

- Special vitamin D supplements
- Some people may need special forms of vitamin D supplements if their bodies can't convert vitamin D into its active form.
- Vitamin D injections
- Children who have trouble absorbing vitamins and minerals may need a yearly vitamin D injection.
- Bracing
- For some cases of bowleg or spinal deformities, a doctor may suggest special bracing.

Surgery

- Surgery may be required to correct severe bone deformities.

Monitoring

will monitor a child's progress with X-rays and blood tests and Too much vitamin D can be harmful.

Outlook

- For children with nutritional rickets, the outlook is typically good. Most children recover completely and grow into healthy adults.

Assessment-3

Quiz about

- 1. Supplementations.