SNS COLLEGE OF ALLIED HEALTH SCIENCES

SNS Kalvi Nagar, Coimbatore - 35

Affiliated to Dr MGR Medical University, Chennai

DEPARTMENT: ALLIED HEALTH SCIENCES

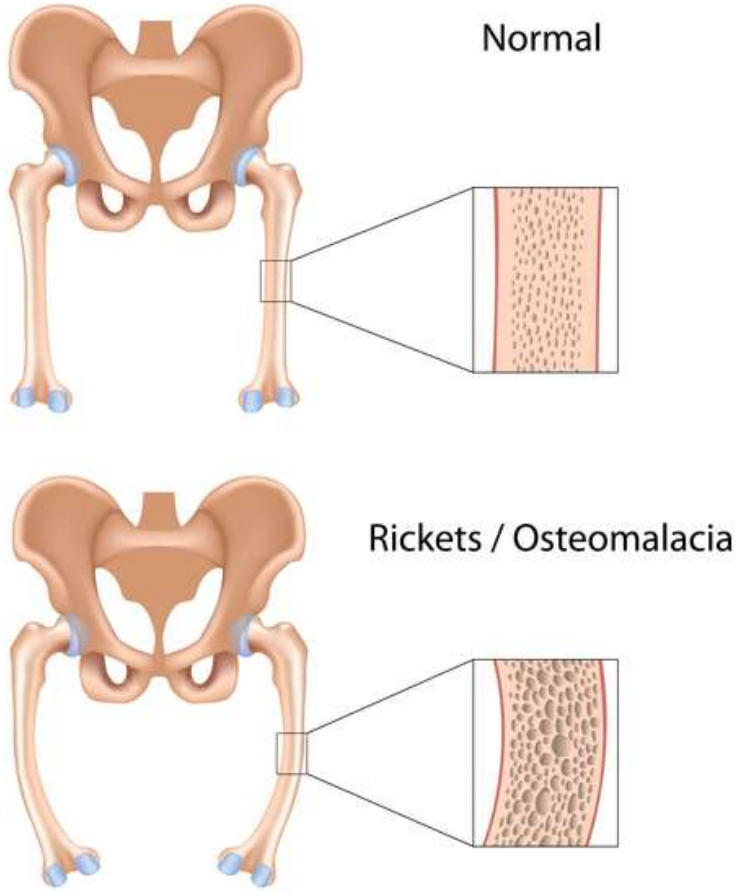
COURSE NAME: ORTHOPEDICS

Topic:Osteomalacia

Introduction

Definition

Osteomalacia is a metabolic bone disease that causes bones to soften and weaken. It's also known as adult rickets



Etiology

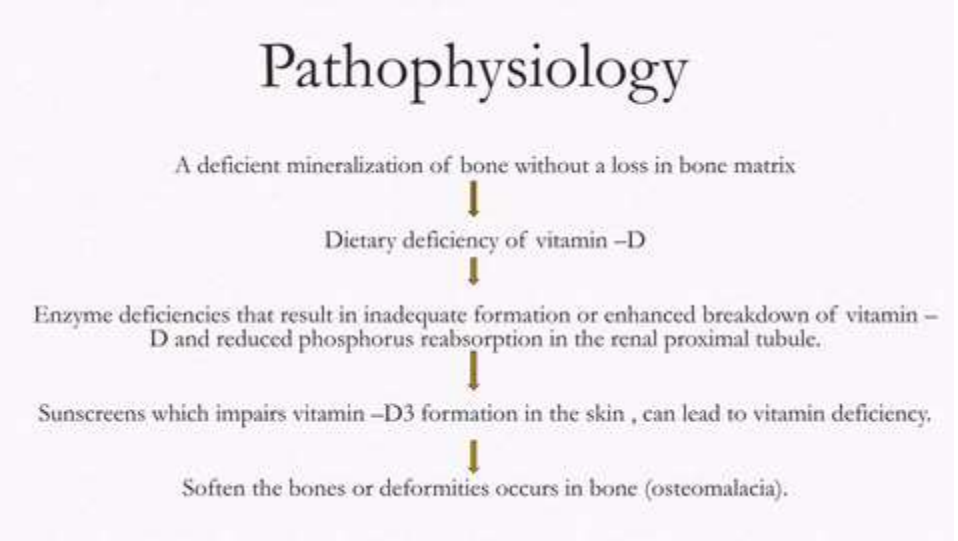
Vitamin D deficiency: Vitamin D helps the body absorb calcium, which is necessary for strong bones.

Calcium deficiency: Calcium helps maintain bone strength and hardness.

Phosphate deficiency: Phosphate is needed for adequate bone mineralization.

Malabsorption: Conditions like celiac disease can cause malabsorption.

Medications: Some drugs, like phenytoin, phenobarbital, and rifampin, can cause vitamin D deficiency.



Pathophysiology

A deficient mineralization of bone without a loss in bone matrix

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Dietary deficiency of vitamin –D

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Enzyme deficiencies that result in inadequate formation or enhanced breakdown of vitamin – D and reduced phosphorus reabsorption in the renal proximal tubule.

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Sunscreens which impairs vitamin –D3 formation in the skin , can lead to vitamin deficiency.

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Soften the bones or deformities occurs in bone (osteomalacia).

Risk factors & Complications

COMPLICATIONS

Bone fractures: Bones become more likely to break, especially in the hips, spine, and legs**.**

Looser's zones: These are partial cracks in the bones that can be very painful and make walking difficult**.**

Bone deformities: In children, untreated osteomalacia can stunt growth and cause bone deformities.

Muscle weakness: Vitamin D deficiency can contribute to muscle weakness, especially in the thighs, shoulders, and trunk.

Difficulty walking: As the condition worsens, it can become difficult to walk, and you might develop a waddling gait.

Dental problems: Osteomalacia can affect dental health and strength.

Increased fall risk: Weak bones increase the risk of falls.

Secondary hyperparathyroidism: This is when the body overproduces parathyroid hormone due to low calcium.

Hypocalcemia: This is when there are low levels of calcium in the blood, which can lead to seizures and cardiac issues.

Signs & Symptoms

Symptoms

Bone pain, especially in the hips

Muscle weakness, especially in the thighs, shoulders, and trunk

Frequent bone fractures, especially in the long bones, ribs, and vertebrae

Difficulty walking up stairs or getting up from a chair

Waddling gait

Assessment 1

- 1. What is osteomalacia
- 2. Mention the Risk factors
- 3.Etiological factor

Diagnosis

History collection

Physical examination

Blood tests

Vitamin D level: Low levels of vitamin D are a key indicator of osteomalacia.

Calcium level: Low levels of calcium may indicate osteomalacia.

Phosphate level: A significant drop in phosphate levels may indicate osteomalacia.

Alkaline phosphatase (ALP) level: High levels of ALP may indicate osteomalacia.

Parathyroid hormone (PTH) level: High levels of PTH may indicate osteomalacia.

Bone x-rays

Can help detect pseudofractures, bone loss, and bone softening

Bone density scan

Can help evaluate the amount of calcium and other minerals present in a patient's bone segment

Bone biopsy

May be done in some cases to see if bone softening is present

Assessment 2

- Role play about symptoms-1

Treatment

- Chondrosarcoma treatment depends on the tumor's grade and stage, and whether it can be surgically removed.
- Treatment options include surgery, radiation therapy, chemotherapy, and physical therapy.

Surgery Masnagement

- The primary treatment for chondrosarcoma
- Can cure small, conventional chondrosarcomas
- Surgeons may use 3D modeling to help plan the surgery
- If the tumor is on an arm or leg, the surgeon may try to save the limb

Surgical techniques

- **Curettage.** After scraping the tumor cells out of the bone and fill the empty space with bone cement. usually this technique on tumors that are less likely to spread.
- **Wide resection.** This involves cutting out the tumor and a section of healthy tissue near the tumor. If the cancer is in an arm or leg, may need amputation.
- **Reconstruction.** Whenever possible, surgeons will preserve as much healthy tissue as possible and reconstruct the arm or leg (limb-salvage surgery). For that, they may need a bone graft of donated bone or bone taken from elsewhere in the patients own body and may need a metal implant in the bone or an artificial joint.

Treatment

Osteomalacia is treated with supplements, sunlight, and sometimes surgery or braces.

Supplements

Vitamin D: The most common treatment for osteomalacia. People with intestinal malabsorption may need higher doses.

Calcium: May be prescribed in addition to vitamin D.

Phosphorus: May be prescribed in addition to vitamin D and calcium.

Sunlight

Increased exposure to sunlight can help treat osteomalacia.

Braces or surgery

Braces can help with bone irregularities.

Surgery can help with severe bone deformities.

O**ther treatments** Dietary changes and Regular blood tests to monitor calcium and phosphorus levels.

Recovery

Most people recover with treatment, but it can take months for bones to heal and muscles to regain strength.

Late diagnosis can make recovery more difficult.

Continuing to take vitamin D supplements regularly can help prevent the condition from returning.

Assessment-3

Quiz about

Managements

Summary

- Referrence
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