

A 7-year-old boy is brought to the clinic by his mother, who is concerned about his poor vision at night. She mentions that his skin has become unusually dry and flaky. On examination, you notice triangular, shiny spots on the conjunctiva. The family's diet is primarily rice-based, with little access to vegetables or animal products.

Question:

What are the possible long-term complications of this deficiency if untreated?

A 48-year-old man with a history of chronic alcoholism is admitted with confusion, difficulty walking, and memory problems. On examination, he has horizontal nystagmus, ataxia, and disorientation. His diet consists mainly of alcohol with little solid food.

Question:

Explain the importance of thiamine in glucose metabolism.

A 28-year-old woman presents with sore throat, cracked lips (angular cheilitis), redness and swelling of the tongue, and a scaly rash on her face. She follows a restrictive diet to lose weight, mainly consuming processed snacks and avoiding dairy.

Question:

- Which vitamin deficiency is likely, and what are its key biochemical roles?

A 60-year-old man from a rural area presents with diarrhea, a red, scaly rash on sun-exposed areas, and confusion. He has been living on a maize-based diet with minimal protein.

Question:

- Explain the characteristic symptoms (the three D's).

A 45-year-old man presents with fatty liver, fatigue, and difficulty concentrating. He consumes a diet high in processed foods and low in whole grains, eggs, and vegetables.

Question:

- Describe the role of choline in lipid metabolism and neurotransmitter synthesis.

A 35-year-old woman reports burning sensations in her feet, fatigue, and insomnia. She has been following a highly restrictive diet to lose weight, avoiding most food groups.

Question:

- Discuss the role of this vitamin in the synthesis of coenzyme A.

A 40-year-old man complains of irritability, depression, and tingling in his hands and feet. He has been taking isoniazid for tuberculosis for the past six months. On examination, there are cracks at the corners of his mouth (angular cheilitis).

Question:

- Explain the biochemical role of pyridoxine in neurotransmitter synthesis.

A 30-year-old woman presents with thinning hair, brittle nails, and a red, scaly rash around her eyes and mouth. She admits to consuming large amounts of raw egg whites in her diet.

Question:

- Suggest dietary and supplemental strategies to resolve her symptoms.

A 32-year-old pregnant woman complains of fatigue and shortness of breath. Blood tests reveal macrocytic anemia, and her dietary history indicates inconsistent intake of leafy greens and prenatal vitamins.

Question:

- Discuss the importance of folate in pregnancy and the risks to the fetus.

A 58-year-old vegetarian woman presents with fatigue, numbness in her hands and feet, and a swollen, red tongue. Blood tests reveal macrocytic anemia and elevated methylmalonic acid levels.

Question:

- Describe the diagnostic and treatment approach for this vitamin deficiency.

A 45-year-old sailor, recently returned from a long voyage, presents with fatigue, bleeding gums, joint pain, and pinpoint hemorrhages. His diet during the voyage lacked fresh fruits and vegetables.

Question:

- Discuss the role of vitamin C in collagen synthesis.

A 65-year-old woman complains of generalized bone pain and muscle weakness. She spends most of her time indoors and avoids dairy due to lactose intolerance. Blood tests show low calcium and elevated alkaline phosphatase levels.

Question:

- Explain the role of vitamin D in calcium homeostasis.

A 25-year-old man with a history of fat malabsorption due to cystic fibrosis presents with muscle weakness, impaired coordination, and decreased reflexes.

Question:

- Suggest dietary and supplemental interventions to address the deficiency.

A 3-day-old neonate presents with bleeding from the umbilical stump and bruising. The baby was delivered at home and did not receive any postnatal injections.

Question:

- Explain the role of vitamin K in blood clotting.
- What preventive measures should have been taken, and how should the condition be treated now?

A 5-year-old boy is brought to the clinic with complaints of frequent respiratory infections, dry eyes, and stunted growth. On examination, his corneas appear hazy, and there are small, foamy spots on the conjunctiva. The family's diet is low in dairy, eggs, and colorful vegetables.

Question:

- Discuss the function of vitamin A in vision and immune health.

A 60-year-old man presents with difficulty walking, loss of sensation in his legs, and a history of a high-carbohydrate diet with minimal protein intake. He mentions he has been feeling progressively weaker. Neurological examination shows absent ankle reflexes.

Question:

- What treatment approach should be followed?

A 19-year-old college student complains of chronic fatigue, sensitivity to light, and a painful, swollen tongue. Examination reveals cracks at the corners of her mouth and a greasy, scaly rash on her nose and forehead. She follows a vegan diet with minimal planning.

Question:

- Explain the role of the vitamin involved in energy metabolism.

A 45-year-old farmer presents with dark, thickened skin that worsens with sun exposure, diarrhea, and confusion. His diet consists primarily of maize, and he has limited access to protein-rich foods.

Question:

- What dietary and supplemental interventions can resolve his symptoms?

A 55-year-old man with a history of nonalcoholic fatty liver disease presents with worsening liver function tests. He consumes a diet low in eggs, meat, and beans. Imaging reveals fatty infiltration of the liver.

Question:

- Suggest dietary sources to improve his condition.

A 30-year-old woman complains of burning sensations in her hands and feet, mood changes, and frequent headaches. She has been following a restrictive “clean eating” diet that eliminates many food groups.

Question:

- How can this deficiency be managed through diet?

A 25-year-old pregnant woman presents with nausea, irritability, and peripheral neuropathy. She has a history of taking oral contraceptives before her pregnancy and has not been taking prenatal vitamins regularly.

Question:

- How should this deficiency be addressed during pregnancy?

A 40-year-old man undergoing long-term antibiotic therapy for recurrent infections complains of thinning hair, brittle nails, and a rash around his mouth and nose.

Question:

- How might his antibiotic use lead to biotin deficiency?

A 45-year-old man presents with a sore tongue, fatigue, and irritability. Blood tests reveal macrocytic anemia. He admits to heavy alcohol consumption and poor dietary habits.

Question:

- Explain the importance of this vitamin in DNA synthesis and red blood cell production.

A 70-year-old man presents with fatigue, unsteady gait, and difficulty concentrating. He has a history of long-term use of antacids for gastroesophageal reflux disease. Blood tests reveal macrocytic anemia and low serum B12 levels.

Question:

- Outline a treatment plan, including dietary and supplemental options.

A 35-year-old man presents with bleeding gums, joint pain, and easy bruising. He works long hours and relies heavily on fast food, rarely consuming fruits or vegetables.

Question:

- What dietary changes and supplements should be recommended?

A 14-year-old girl complains of leg pain and fatigue. She has a history of avoiding sunlight and consuming minimal dairy products. Blood tests show low calcium and vitamin D levels. X-rays reveal bowing of the legs.

Question:

- Recommend lifestyle and dietary interventions to manage her condition.

A 20-year-old man with a history of cystic fibrosis presents with muscle weakness, vision problems, and loss of reflexes. He reports poor adherence to his pancreatic enzyme supplements.

Question:

- How does cystic fibrosis contribute to this vitamin deficiency?

A 25-year-old woman undergoing long-term antibiotic therapy for a severe infection develops easy bruising and prolonged bleeding from minor cuts.

Question:

- What are the treatment and preventive measures for this deficiency?

