

Clinical Quiz

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Scurvy presenting as pseudoparalysis

Clinical Presentation

A six-year-old boy presented in the Orthopedic Outpatient Department with history of left lower limb weakness and difficulty in walking for 2 months. The severity of the weakness of the left lower limb gradually increased over a period of one and a half months, and the patient was bedridden for the last 15 days. The patient had no history of any injury, anorexia, weight loss, and delayed milestone. There was tenderness over the whole left lower limb, more marked around the knee and ankle joint. There was marked swelling over the left knee and ankle joint with knee and ankle movement, painful and restricted. There were no signs of subcutaneous hemorrhage or gum bleeding. As the child was not cooperative, the motor power of the lower limbs, especially on the left side could not be determined. There was no abnormality found on systemic examination of cardiovascular, abdominal, and respiratory systems. Routine hematological investigations were within normal limits. Radiographs of the knee anteroposterior and lateral views were carried out (Figures 1a & 1b).

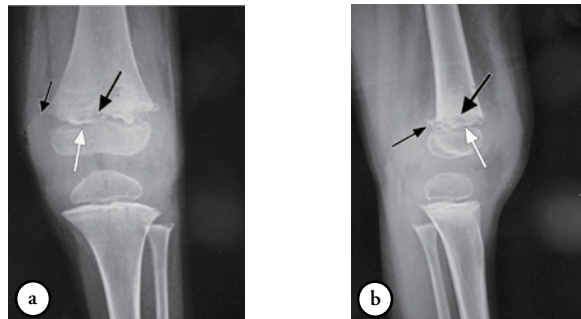


Figure 1 - Radiographs of the knee a) anteroposterior and b) lateral views showing dense metaphyseal zone of calcification (white arrow) with fraying of the margin, with bony protuberances at metaphyseal margin (small black arrow), rounding of epiphysis with dense peripheral margin of epiphysis, with central radiolucency (thick black arrow), and with generalized mild osteopenia.

Questions

1. What are the radiological features?
2. What is the diagnosis?
3. What is the treatment?

Clinical Quiz

Answers

1. Radiographs of the knee anteroposterior and lateral views (Figures 1a and 1b) shows dense metaphyseal zone of calcification (white line of Frankel) with fraying of the margin, bony protuberances at metaphyseal margin (Pelkan spur), rounding of epiphysis with dense peripheral margin of epiphysis, central radiolucency (Wimberger's sign), and with generalized mild osteopenia.
2. The patient is suffering from scurvy, which is a nutritional deficiency of vitamin C. Scurvy was diagnosed on the basis of clinical sign and symptoms, characteristic radiological changes near the end of long bones, and poor dietary intake of vitamin C. Routine hematological examination does not help in confirming the diagnosis of scurvy.^{1,2} Serum ascorbic acid levels can be used for support of the diagnosis.
3. Scurvy responds rapidly to oral or parenteral ascorbic acid. In adults, the usual dose is 1-2 g of vitamin C administered daily for 2-3 days, followed by 500 mg per day for 2 weeks, and then 100 mg daily for another 1-3 months depending on the clinical response of the patient to the treatment. In children, the dose is 100-300 mg of vitamin C orally per day for 1-2 weeks. This should be in addition to vitamin C rich diet. Clinical response of the patient to vitamin C intake in the form of disappearance of sign and symptoms of the disease are the best way to confirm the diagnosis of scurvy.³ Complete recovery usually occurs after 3 months of adequate supplementation.

Discussion

Scurvy is a common nutritional disorder caused by deficiency of vitamin C in the diet. Vitamin C performs various important functions in the body. It helps in the formation of the tissues, which originate from the mesenchyma, such as osteoid in the bone, chondroid in the cartilage, dentine in the teeth, and collagen present in the capillary walls. Due to this role of vitamin C, changes of its deficiency are more marked in tissues and organs, which contain collagen like skin, cartilage, bone, teeth, and capillary blood vessels. Scurvy can occur at any age with peak incidence between 6 and 24 months of age.^{1,4} To start with, it may present with nonspecific symptoms like anorexia, poor weight gain, and diarrhea. Specific features of the disease like bleeding from the gum, pain, and swelling over the end of the long bones, and subcutaneous hemorrhage appear late. Severe pain and tenderness over the lower limbs give rise to pseudoparalysis.^{1,4}

Bone involvement is more commonly found in infantile scurvy. Radiological features are usually present at the end of the long bones, especially at the junction, between the end of the diaphysis and growth cartilage. Diagnosis of scurvy can be missed in initial stages, if it present with vague sign and symptoms, and if the clinician is not aware of its occurrence without specific features. Early diagnosis and treatment of this condition results in full recovery and prevent complications, however, if left untreated it can be potentially fatal.³

References

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Acknowledgment. The authors gratefully acknowledge Dr. Mehtab Ahmad of the Department of Radiodiagnosis, Jawaharlal Nehru Medical College, AMU, Aligarh, India for his valuable assistance in preparing this manuscript.