

Images in clinical medicine



Primary hyperparathyroidism secondary to parathyroid adenoma mimicking rickets - an unusual presentation

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Primary hyperparathyroidism secondary to parathyroid adenoma mimicking rickets - an unusual presentation

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Image in medicine

In rare cases, a parathyroid adenoma can mimic the signs and symptoms of rickets or contribute to ricket-like changes in the body. Parathyroid adenomas are benign tumors that develop in the parathyroid glands, which are responsible for regulating calcium and phosphate levels in the body. When an adenoma overproduces parathyroid hormone (PTH), it can disrupt the normal balance of calcium and phosphate, leading to ricket-like manifestations. Here are some ways in which a parathyroid adenoma can mimic rickets: 1)

bone demineralization: excessive production of PTH by a parathyroid adenoma can cause increased bone resorption, resulting in bone demineralization. This can lead to weakened bones, similar to the under mineralization seen in rickets; 2) skeletal deformities: parathyroid adenomas causing hyperparathyroidism can lead to skeletal deformities, such as bowing of the long bones or other abnormalities, resembling the bone deformities seen in rickets; 3) growth delay: hyperparathyroidism resulting from a parathyroid adenoma can disrupt normal growth and development, causing growth delay in children; 4) vitamin D deficiency: in some cases, parathyroid adenomas can lead to vitamin D deficiency. Vitamin D deficiency can contribute to ricket-like changes, as observed in rickets; 5) electrolyte imbalances: hyperparathyroidism caused by a parathyroid adenoma can disrupt the balance of calcium and phosphate in the body, leading to abnormal serum levels. These electrolyte imbalances can contribute to the development of ricket-like changes. If ricket-like changes are

suspected, it is important to thoroughly evaluate the underlying cause. This typically involves conducting blood tests to assess calcium, phosphate, PTH, and vitamin D levels, as well as imaging studies to identify the presence of a parathyroid adenoma. Treatment of the adenoma usually involves surgical removal, which can help restore normal parathyroid function and resolve the ricket-like symptoms. Primary hyperparathyroidism (PHPT) is a rare disorder in pediatric age, with an estimated incidence of 2-5 cases in 100,000 live births. A 17-year-old male patient was brought to the orthopaedics outpatient department (OPD) with complaints of joint pain and deformity since 2 years which were increasing over the period of time with no history of trauma. On examination there were X-ray changes seen like mimicking rickets which were physal widening, epiphyseal cupping and fraying, metaphyseal fraying and splaying, looser zones (pseudo fractures), bowed or distorted long bones, and delayed bone age.

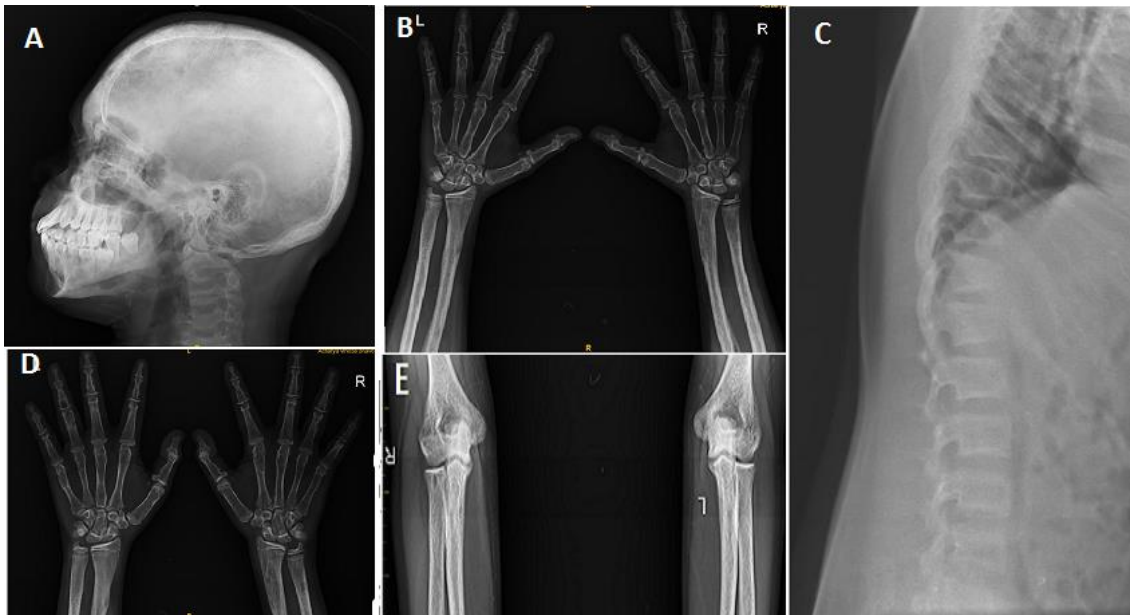


Figure 1: A) lateral view of plain X-ray of skull suggestive of softening and thinning of the cranial bones, particularly in the occipital area at the back of the skull, X-rays may reveal areas of thinning and increased translucency; B) anteroposterior view of plain X-ray of bilateral wrist suggestive of widened growth plate, fraying and cupping of the distal radius and ulna, metaphyseal fraying and splaying seen; C) lateral view of plain X-ray of dorsolateral spine suggestive of Rachitic rosary (beaded appearance on X-rays), cupping and flaring of the rib ends, thin and undermineralized rib cortex; D) anteroposterior view of plain X-ray of bilateral hand suggestive of widened growth plate, cupping and fraying of the metaphysis; E) anteroposterior view of plain X-ray of bilateral elbow suggestive of widened growth plate, cupping and fraying of the distal humerus and proximal radius and ulna, metaphyseal fraying and splaying