

Mollities Ossium in adolescent child: Radiographic Features –Case Report

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ABSTRACT

Mollities ossium is softening of bone because of osteomalacia or rickets. This is either because of non utilization of available calcium, phosphate and vitamin D or because of resorption of bony calcium. Metabolism disturbances lead to deficient bone mineralisation. Rickets is the name of osteomalacia in adults which can also be named as adult rickets. We present a 12-years old girl who presented with almost crippling effects of the entity. She was radiologically diagnosed of this pathology which was later confirmed with biochemical parameters. DEXA (Dual Energy X-ray Absorptiometry) scan was helpful tool for categorizing the grading of the osteopenia. The case was of more academic importance as the features were overlapping between pediatric and adult age group. General radiography played a pivot role in eliciting the various findings relevant to the pathology.

Keywords: Mollities ossium; vitamin D; rickets; DEXA scan.

INTRODUCTION

Mollities ossium is the term given to osteomalacia or rickets as per the the age group. The skeleton is affected of softening of the bones and their associated complications. Various factors play role in the formation of the adult bone but the ongoing process can be compromised because of deficiency and defective metabolism.

CASE REPORT

12-years old girl [Figure 1] reported to the children out patient department in bed ridden state.

The complaints had increased progressively in the last two years leading to bed ridden status. There was history of difficulty in walking for the last over two years which ultimately made her non



Figure 1: 12-years old bed ridden girl with emaciated body and bowed lower limbs (white hollow arrows).

ambulatory for the last six months. There was past history of pica. On examination she was found to be emaciated and bed ridden with 14.0 kg bodyweight

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.She complained of pain in all the limbs while examination and the movements were grossly compromised. Spleen had shown mild enlargement as 9.2 cm. Other systemic examination was non relevant without any additional findings. Systolic and diastolic components of blood pressure were 100mm and 60 mm of Hg respectively. She was anemic with HB 5.2 gm% and TLC as 3000 c/mm .DLC was P66L27M02EO5. Platelets were 1.74 lakhs and alkaline phosphates was 238.0 IU/L.Body temperature was 98.2°F. Serum calcium was 8.1 mgm/dl .Plain X-rays of skull, pelvis ,fore arms and wrist had revealed the rickets and osteomalacia findings.

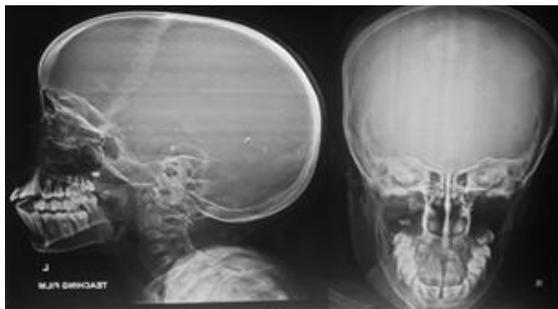


Figure 2: Skull X-ray lateral and antero-posterior view did not reveal much .Diploic space was preserved with grossly normal density of the skull bones. No evidence of basilar invagination.

Rachitic rosary was seen in the chest in the form of widening of the anterior ends of the ribs (not shown). X-ray wrist had shown features of full blown rickets in the form of flaring, cupping and fraying of the metaphysis of radius and ulna, and widening of the growth plates which is the zone of provisional calcification [Figure 3]



Figure 3 X-ray hand with wrist joint antero-posterior view. There is evidence of cupping and fraying of the distal end of the ulna (white solid arrow) and radius. Multiple pseudo fractures are seen (hollow horizontal arrows).

Pelvis was of tri radiate type and has got deformed both hip joints

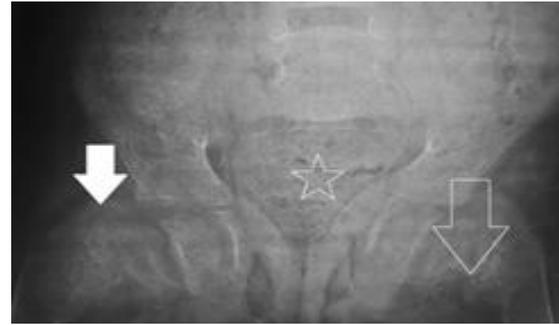


Figure 4: X-Ray Pelvis anteroposterior view. There is osteopenia and pseudo-fracture (hollow arrow) with dislocated right femoral head (solid white arrow). Pelvis shows triradiate deformity (white star).

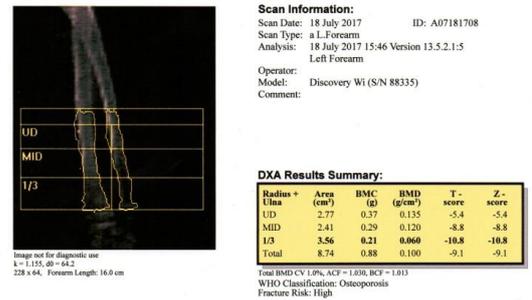


Figure 5: DEXA scan of fore arm (radius and ulna) done which shows gross osteoporosis with T-score as 10.8. This also indicates very high likelihood of fractures.

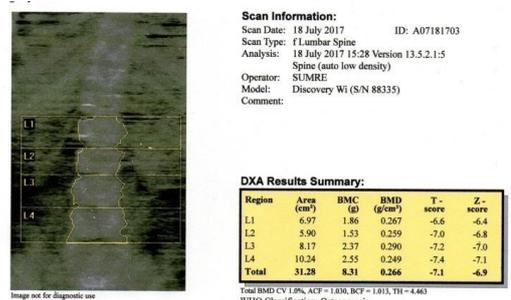


Figure 6: DEXA scan of L1-L4 lumbar vertebrae has also shown gross osteoporosis with T-score as -7.1.

All biochemical parameters confirmed the diagnosis of osteoporosis and the patient was put on treatment for osteomalacia with regular monthly follow up.

DISCUSSION

Rickets and osteomalacia leads to the softening of the bones which can leads to fracture and other complications.^[1] The first entity is related to children and the later one to the adults .Osteomalacia is incomplete mineralization of the osteoid tissue after closure of the growth plates.^[2] The presentation can vary in either of the cases. The condition can appear either because of the deficiency of Vit D or in case there is defective absorption and metabolism. Malabsorption is considered as the major cause of this entity.^[3] This can also be caused by some

hereditary disorders or by consuming some of the non-absorbable antacids. Anticonvulsant drugs also interfere in Vit D activation. Milkman syndrome can lead to multiple symmetrical fractures because of multiple insufficiencies. Blood estimation and X-ray evaluation is the best way to diagnose the condition. In very rare cases bone biopsy is required. Plain radiography shows osteoporotic pattern because of demineralization. The appearances of bones are fuzzy and smudgy. There is evidence of coarse trabecular pattern in the bones. The classical pseudo fracture or looser's zones are seen as were in our case.^[4] The common sites for these pseudofractures are concave surface of upper femur, axillary margin of the scapula, pubic ramus and ribs. In advanced cases protrusio acetabuli can be the manifestation as happened in our case. The legs can be bowed in long standing cases as our patient presented.

CONCLUSION

Plain radiography has got great role in diagnosing mollities ossium before any other biochemical or invasive investigations are done. The availability of the simple radiography is more common than other diagnostic tools. The patient can also be monitored by the radiography for the follow up of the treatment. DEXA scan can further elaborate the bone mineral density (BMD).

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