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Neck of femur fracture in paediatric age with hypovitaminosis D

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Abstract

Femoral neck fractures are rare in children until and unless there is a high energy trauma. This paper describes an unusual case of neck of femur fracture in a girl with very low vitamin Dof <4.20 ng/ml successfully managed by open reduction and internal fixation with dynamic hip screw. No clinical or radiological signs of avascular necrosis were observed in four months of follow-up.

Keywords: Hip, neck of femur, vitamin-D, femur

Introduction

Femur neck fractures are rare injuries. It accounts for <1% of all fractures in children. Most are caused by high energy trauma due to motor vehicle accidents and fall from height. Pathologic fractures can occur due to low energy trauma and rarely, stress fractures due to repetitive activity like running and jumping. Despite it being a rare fracture, significant long term complication are usually seen. Treatment option are based on Delbert classification.

History

A 14 year female came to the emergency room with complaints of pain in left hip and inability to bear weight after fall. She presented to us on post traumatic day E. Examination of her left lower limb was remarkable for shortening and external rotation. Anteroposterior plain radiographs of the pelvis with both hips showed neck of femur fracture basicervical (Delbert type 3). Skin traction was applied. On blood investigation it was found that vitamin D-25 hydroxy level was deficient with value around <4.20ng/ml. 24 hours later patient was taken to the operating after taking informed consent for open reduction and dynamic hip screw fixation. Post operatively patient was given one dose of vitamin D3 oral injection and post operative period was uneventful Physiotherapy was started for mobilization of joint and was followed by gait training.

Follow up review showed that the fractures had healed well by 16 weeks. The radiographs did not show any sign of avascular necrosis of the femur head. Range of movement of both hip joints was mobile full and without any pain on sitting in crossed leg position.



Fig 1: Plain radiograph of pelvis



Fig 2: Traction view of bilateral hip anteroposterior view



Fig 3: Anteroposterior and lateral view of femur



Fig 4: Anteroposterior view of pelvis with bilateral hip



Fig 5: Anteroposterior and lateral view of femur



Fig 6: Anteroposterior view of pelvis with both hips



Fig 7: Pelvis in frog view position



Fig 8: Anteroposterior view of pelvis with bilateral hip



Fig 9: Frog view x-ray of pelvis



Fig 10: Patient showing hip flexion



Fig 11: Patient sitting in crossed leg position

Discussion

Femoral neck fractures are rare injuries in children, but high incidence of long term complication of avascular necrosis make it an important entity. Fracture of these types mainly result from trauma rarely can also occur as a pathological fracture. Avascular necrosis incidence is reported in 30 to 35% cases. Operative management is said to be done under 48 hours post injury but in this case the patient presented to the emergency room after 72 hours.

Other complications except AVN can also be seen Coxa vara, Coxa Valga, non-union, leg length discrepancy. No such complication was seen with our patient.

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