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Distal Humeral Epiphyseal Separation in A 2 Day Old Premature baby: A Case Report

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INTRODUCTION:

Distal humeral epiphyseal separation is an uncommon injury in newborns, especially following normal vaginal delivery which presents challenges in both diagnosis and management. This type of injury can occur in newborns due to birth trauma, sometimes leading to misdiagnosis as fractures of the lateral condyle or elbow dislocation [1], [2]. The lack of ossification of cartilage in young children can result in the misdiagnosis of distal humerus epiphyseal separation as an elbow dislocation[3][5].

REPORT:

We present at case of a 2-day-old female premature infant who was born at 32 weeks gestation and weighed 1.9 kg. The infant was referred to the orthopaedic team on day 2 of life for incomplete Moro reflex over the left side following a difficult delivery via Caesarean section. The patient presented with a pseudo paralyzed left upper limb with normal movement of the fingers and wrists and intact distal circulation in the affected limb. Radiological findings showed anterior translation of the forearm bones when referenced to the humerus, with increased space between the unossified radial head and olecranon. The baby was diagnosed with right distal humerus physeal separation. She was treated with closed reduction and percutaneous pinning on the third day of life. The reduction process requires an arthrogram, and we chose to employ the direct posterior method, which involves inserting the needle straight down to the bone at the olecranon fossa. Closed manipulation was performed and the reduction was held with two 1.0mm Kirshner wires. Following this, a second arthrogram was performed to confirm the reduction after moving the elbow through its range of motion. The limb was immobilized the elbow using a Zimmer splint. The wires was removed at 2 weeks post operation. The patient was followed up regularly for the next few months. The follow-up radiographs showed good alignment and bone healing. The patient regained full range of motion in the affected limb and had no significant complications.

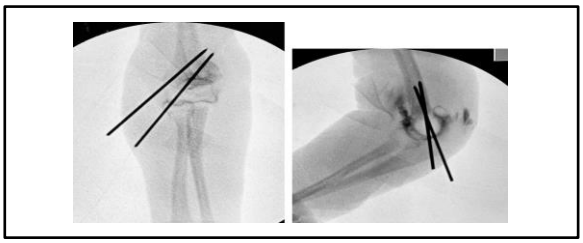

Figure 1: Xray Right Upper Limb

Figure 2: Intraoperative Fluoroscopy of the Right Elbow Fixed with 2 Kirshner Wires

CONCLUSION:

Distal humeral epiphyseal separation is a rare injury in newborns, particularly after normal vaginal delivery. The likely cause of this injury is the application of traction forces during delivery, resulting in the separation of the distal humeral epiphysis. The following are common reasons for missed diagnosis:

1. Lack of Awareness: Distal humeral physeal separation is an uncommon condition in newborns, and healthcare providers may not be familiar with its clinical presentation or diagnostic criteria, which can lead to oversight or misdiagnosis.
2. Subtle Clinical Signs: The clinical manifestations of physeal separation in newborns can be subtle and easily overlooked, especially when there are many congenital musculoskeletal abnormalities that may present in the neonatal period.
3. Limited Imaging Sensitivity: Radiographic imaging may not always capture the subtle changes associated with physeal separation in newborns, especially in cases of incomplete or minimally displaced fractures.
4. Diagnostic Mimickers: The presentation of distal humeral physeal separation may overlap with other congenital musculoskeletal conditions, which can lead to diagnostic confusion and delayed or missed diagnosis.

In conclusion, diagnosing distal humeral epiphyseal separation in newborns requires a high index of suspicion, meticulous clinical evaluation, and judicious use of diagnostic imaging modalities. Awareness of the condition, thorough examination, and consideration of alternative diagnostic approaches are essential to avoid missing this clinically significant injury in the neonatal population. Prompt diagnosis and appropriate management are crucial to prevent long-term complications such as malunion, growth disturbances, and joint stiffness.