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Case Report

Bilateral proximal delta phalanges of hand: a rare case report with review of literature

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ABSTRACT

Delta phalanx or longitudinal bracketed epiphysis is a rare congenital anomaly that affects phalanges in the hand more commonly than toes. It results from a defective secondary ossification that extends longitudinally along the diaphysis and brackets the diaphysis and metaphysis, causing restricted longitudinal growth and resultant angular deformities. Although rare, longitudinal epiphyseal bracket most commonly manifests in the hands as clinodactyly and in the feet as hallux varus. We report a case of 18 year old male patient with isolated bilateral multiple proximal delta phalanges of hand.

Keywords: Delta phalanx, Longitudinal bracketed epiphysis, Short proximal phalanges, Clinodactyly, Hallux varus

INTRODUCTION

Delta phalanx or longitudinally bracketed epiphysis is an uncommon congenital anomaly occurring in the hand or the foot. It consists of a triangular bone with its epiphysis running along the short side of the phalanx from proximal to distal direction impairing the longitudinal growth of the affected digit. Delta phalanx is diagnosed by physical examination showing an angulated finger, often with some degree of shortening. Typically, X-rays are obtained to verify the bony structure. It can also be found in patients with syndactyly, polydactyly.

CASE REPORT

An otherwise normal 18 year old male patient was referred for radiography of hands and feet for evaluation of short digits of both hands.

On examination patient had short and curved bilateral thumbs, index and middle fingers with clinodactyly of all three digits.

Figure 1: Radiograph of both hands reveals multiple proximal delta phalanges and clinodactyly of medial three digits of both hands.

Radiograph of both hands were taken which revealed bilateral multiple proximal delta phalanges of thumb, index and middle fingers resulting in angulation of digits (Clinodactyly).

Figure 2: Reveals near symmetrical, bilateral short index and middle fingers with clinodactyly.

DISCUSSION

Delta phalanges are unusually shortened bones of the hands and feet first described by Blundell Jones .The defective epiphyses run the length of the phalanx instead of sitting at the ends, producing the abnormal morphology. When multiple delta phalanges exist in the same digit, brachydactyly occurs.

Although a cartilaginous bracket is present at birth, the involved bone is not ossified enough to demonstrate the bracket. Hence this abnormality is not seen on plain films until 2 years of age.[1]

It consists of a triangular bone with a c-shaped epiphysis extending along the shorter side of the phalanx preventing the normal longitudinal growth of the digit and causing progressive angulation and shortening of the affected finger.[2-5] Defective primary ossification centre during the embryonic period is considered the cause behind the abnormal configuration.[2,6]

Delta phalanx most commonly involves the tubular bones of hands and feet such as the phalanges, first metacarpal and first metatarsal bones.[7]

Usually single delta phalanx is seen, however in our case multiple delta phalanges are seen involving bilateral digits of hands. Clinically this abnormality manifests as clinodactyly. It usually appears as an isolated finding, but can also occur as part of a wide variety of congenital malformation syndromes and dysplasias. Its associations include syndactyly, polydactyly, symphalingism, brachydactyly and triphalangeal thumb.[5-8] Delta phalanges have been reported in a variety of conditions including Apert syndrome, Down syndrome, Klinefelter syndrome.[9-12] Delta phalanx has been associated with the severe form of clinodactyly.

In these cases MRI is indicated in order to confirm the presence of an epiphyseal bracket before the ossification occurs. It also provides a better assessment of the defect and its degree. Reconstructive procedures include physiolysis, osteotomy.

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