Case Report

Bilateral Clinodactyly of the Index and Middle Fingers Because of Proximal Delta Phalanx

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ABSTRACT

Congenital clinodactyly is a rare pediatric hand deformity presented in familial, syndromic, or sporadic forms. Its association with bilateral Delta phalanx is very rare. A ten-year old boy presented with symmetric bilateral clinodactyly and brachydactyly of his index and middle fingers. This case report is a unique occurrence of congenital clinodactyly which a few of such case has been previously reported.

KEYWORDS
Bachydactyly; Cngenital abnormality; Delta phalanx; Clinodactyly; Trapezoid phalanx

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INTRODUCTION

Congenital clinodactyly is a rare pediatric hand deformity presented in familial, syndromic, or sporadic forms. Its association with bilateral Delta phalanx is very rare [1]. A longitudinal bracket epiphysis on the short side of the phalanx due to causes by a misshapen triangular (or trapezoidal) bone [2].
In this report we, present bilateral clinodactyly association with delta phalanx.

CASE REPORT

A ten-year old boy was referred to the Department of Orthopedics, Imam Khomeini hospital, Urmia University of Medical Sciences, Urmia, Iran, because of symmetric bilateral clinodactyly and brachydactyly of his index and middle fingers. The index fingers had about 50 and middle fingers had about 40 degrees ulnar angulation with significant overriding and scissoring on the ring and small fingers that was cosmetically unacceptable and impaired hand function upon grip. The deformities originated at the metacarpophalangeal joints. The range of motion of the proximal and distal interphalangeal joints were normal (Figure 1, 2). He was otherwise normal. There was no such a deformity in the patient's pedigree. Informed consent was taken from the parents. Plain radiographs of the right and left hands demonstrated complex deformities involving the proximal phalanges of the index and middle

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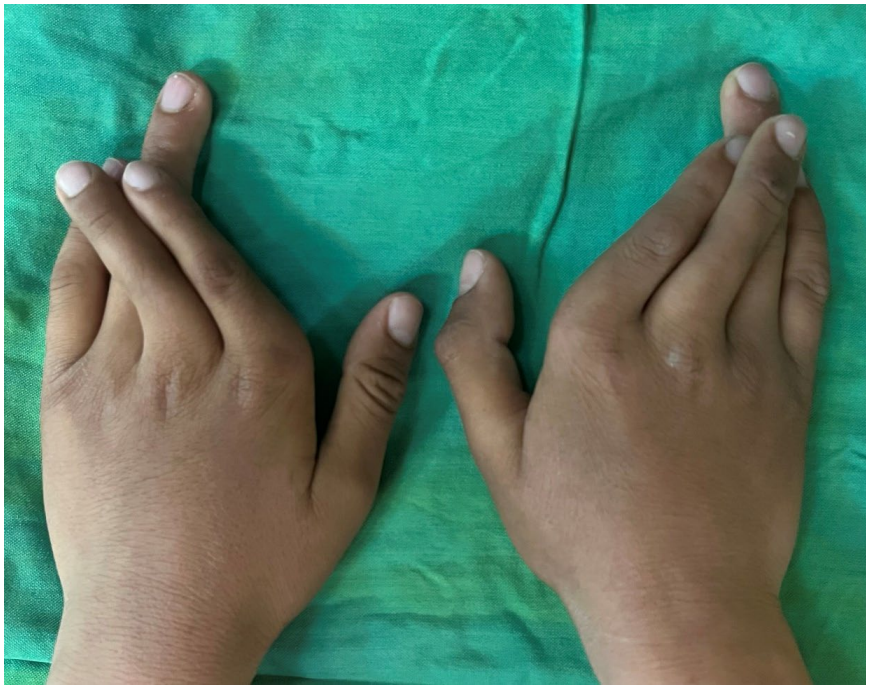

Figure 1: Bilateral scissoring of the index and middle fingers on the ring and small fingers.

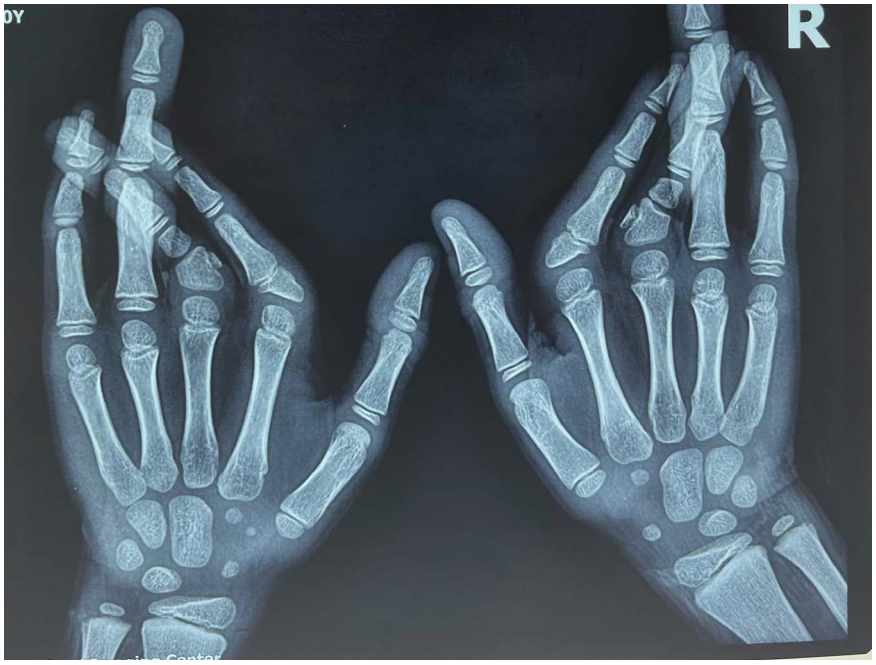

Figure 2: Plain radiographs of the right and left hands demonstrated substantial angulation (clinodactyly) and complex deformities involving the proximal phalanges of the index and middle fingers.

fingers. The underlying bony abnormalities of the proximal phalanx of middle fingers appeared to be a trapezoidal phalanx, a radial side epiphysis and secondary ossification center. The underlying bony abnormality of the index fingers appeared to be a delta phalanx at the base of proximal phalanges.

To correct the index fingers deformities, a radial based closed wedge osteotomies of the delta-type phalanges were performed. For the middle fingers a radial based closed wedge osteotomies of the delta-type phalanges and physiodesis were performed (Figure 3). After 3 month follow up in patient

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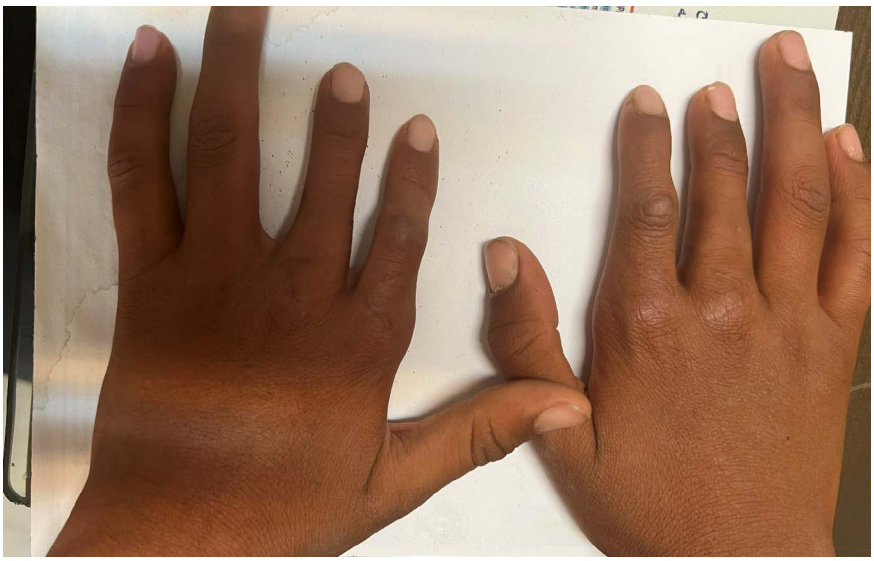

Figure 3: Clinical photo after 3 months treatment shows the correction of deformity.

recovery, the range of motion of the proximal and distal interphalangeal joints were restricted in flexion (0-40^0 ROM) but there were short compared to others fingers.

DISCUSSION

Clinodactyly refers to a deviation deformity of digits in radioulnar plane. Congenital clinodactyly may occur in syndromic, familial and sporadic forms. A majority of clinodactyly cases are inherited as an autosomal dominant trait [1-3]. In this patient bilateral symmetric involvement of the finger deformities suggest an underlying genetic cause. Albright et al. [1] described a case of familial congenital clinodactyly because of bilateral proximal delta phalanges. The patient's family tree demonstrated apparent autosomal dominant with variable expressivity and incomplete penetrance mode of inheritance [1].

Clinodactyly usually occurs in the middle phalanx of small finger with up to 10 degrees radial deviation. Involvement of proximal phalanx of the index and middle fingers with a significant ulnar angulation is a rare constellation. The proximal location of the lesion is more likely to produce significant angulation and functional disability. Usually there is a misshapen triangular or trapezoidal bone that is often developed by a longitudinal bracket or C-shaped epiphysis on the short side of the phalanx. In the current case, the aberrant epiphyses of the proximal phalanx of middle fingers were on the longer side of trapezoid phalanx. Usually clinodactyly involves a single finger in a hand; however, involvement of more than one finger as it occurred in the current case in each hand is a very rare observation [1].

To the best of our knowledge, this case report is a unique occurrence of congenital clinodactyly which a few of such case has been previously reported [1-3].

CONFLICT OF INTEREST

There is no conflict of interest in preparing this manuscript.

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