

Case Report

Bilateral short fourth metacarpal and metatarsal in a case of idiopathic primary hypoparathyroidism

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ABSTRACT

A case of bilateral symmetrical shortening of fourth metacarpal and metatarsal bones in a 25 year old female is described. She initially presented with symptoms of hypocalcaemia. Metabolic and endocrine work up concluded the underlying disorder to be idiopathic primary hypoparathyroidism contrary to the belief of pseudohypoparathyroidism. The function of hand and feet were normal without any discomfort. So treatment of only hypocalcaemia was done and metacarpal, metatarsal lengthening seemed unnecessary.

Keywords: Metacarpals, Metatarsals, Hypoparathyroidism, Hypocalcaemia

INTRODUCTION

Non traumatic non hereditary bilateral shortening of fourth metacarpal and metatarsals are very rare and these type of anomalies are associated with pseudohypoparathyroidisms. There are limited reports of idiopathic primary hypoparathyroidism with short metacarpals and metatarsals. As patient had only hypocalcaemic symptoms with no functional limitations in hands and feet we treated symptomatically without addressing metacarpals and metatarsals.

CASE REPORT

A 25 year old female presented to our OPD with complain of hypoesthesia of both hands. She was unmarried software engineer with a habit of sitting in front of computer more the ten hours a day. Primarily it was thought of radiating pain from neck and work out for cervical spine and upper limb nerve function found to be normal. On taking detailed history, she had a history of generalized tonic clonic seizure a fortnight ago. She was having regular menses. Normal vitals [BP 110/76 mm

Hg, temperature 37°C, HR 84/min regular]. She had history of attack of carpopedal spasm twice from which she recovered automatically.

Physical examinations revealed height 155 cm, weight 60 kg and she had bilateral short fourth fingers and fourth toes (Figure 1 and 2). Her clenched fist showed depressed knuckle at 4th position (Figure 3). Radiograph (Figure 4) showed short fourth metacarpals and metatarsals. She had no history of trauma. The differences of hand and feet from others were noted at the age of 4 years. She had no one in family having such disorders. Movements and functions of hands and feet were normal.

Lab results showed Hb: 12g/dl, platelet: 3 Lakh/ µl, blood urea, creatinine, sodium, potassium, RBS all were within normal limits. Calcium 5.4 mg/dl, ionized calcium 3.9mg/dl, serum phosphorous 8mg/dl, serum magnesium and alkaline phosphatase, serum albumin, LFT, ESR, thyroid functions were within normal limits. Intact PTH: 16 pg./ml. ECG had long QT interval. MRI revealed no space occupying lesions.

Diagnosis of idiopathic primary hyperparathyroidism was made and intravenous calcium infusion along with oral calcium tablets calcitriols started. Oral sodium valproate also started. She was discharged after proper control of calcaemic status.



Figure 1: Bilateral short fourth fingers.



Figure 3: Bilateral short fourth toes.

DISCUSSION

Short fourth metacarpals or metatarsals are not common in many races. Reports of symmetrical bilateral short fourth metacarpal and metatarsal are very scanty in literature. However in Japan the incidence is 0.022% as described by Urano et al.¹

Most common cause in these types of deformities is trauma. Reported reasons are pseudo hypoparathyroidism², pseudopseudohypoparathyroidism³, neuroblastoma, few type of congenital adrenal hyperplasia.⁴ This deformities are more common in females and even the hereditary origin of the deformity has been reported.¹ After exclusion of trauma short metacarpals are considered marker of pseudopseudohypoparathyroidism (PPHP) or pseudohypoparathyroidism type I(a). It has been rarely reported in case of primary hypoparathyroidism.^{5,6} For diagnosing pseudohypoparathyroidism hypocalcaemia along with increased serum PTH is necessary. The most

common form of skeletal disorder associated with PPHP is B/L involvement of fourth and fifth metacarpals due to premature epiphyseal fusion of both metacarpals.⁷



Figure 2: Bilaterally depressed knuckle at the fourth position due to short metacarpals.



Figure 4: X-ray showing bilateral short fourth metatarsal.

In our case hypocalcaemia, hyperphosphatemia, low serum PTH clinches the diagnoses in favour of idiopathic primary hypoparathyroidism. It was an interesting and unusual association between IPH and bilateral short fourth metacarpal and metatarsal. Previously Neda Valizadeh⁸ and Isozaki⁹ also reported short metacarpals in IPH. Based on previous literature and our reports we conclude that metacarpal shortenings are not exclusive domain of PPHP and other associations should be explored.

Number of surgical techniques has been described in literature for lengthening of metacarpals and metatarsals. As patient had no functional problem or limitations regarding shortness, nothing was done to hand and feet.

CONCLUSION

We report a rare case of bilateral symmetrical short fourth metacarpal and metatarsal in patient of no history of trauma or hereditary origin. Metacarpal sign is not a specific marker of PPHP. Therefore further biochemical,

clinical radiological investigations are necessary for differentiation.

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