

Relationship Between Post-Axial Polydactyly and Corresponding Digital Triradius d'

Tultul Hazra

Department of Anthropology, Dr. H.S. Gour Vishwavidyalaya, Sagar 470 003, Madhya Pradesh, India

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ABSTRACT The present study is based on 33 post-axial type of polydactylous hands to examine association between extra digit and corresponding digital triradius. The results show that acute polydactyly occurs in association with an extra digital triradius on palm but in syndactylous polydactyly extra digital is not found at the base of duplicated digit.

INTRODUCTION

Polydactyly is a common digital abnormality, characterised by the presence of extra digit (s). When the extra digit is present on ulnar side of digit V, it is called Post-axial polydactyly. The extra digit may be separated from its adjoining digit fully, having two distinct metacarpo-phalangeal creases at the bases of duplicating digit, or partly, sharing a common metacarpo-phalangeal crease. The former-type is termed as Acute polydactyly and the later Syndactylous polydactyly.

The position and number of the triradii a, b, c, d and t on palm are inheritable in nature but the growth of the fingers passively determines their number, position, and presence or absence. That is, in thumbless condition triradius t is not found (Pfeiffer and Schulte Zu Berge, 1964), in zygodactyly (Webbing) of III and IV digits triradius b and c are fused, forming a single inter-digital triradius on the palm at the site of webbing (Cummins and Midlo, 1961), syndactyly (joined digits by fusion of digital bones) leads to displacement of one of the digital triradii, associated with the jointed digit (Bellelli, 1939) and in ectrodactyly (fusion of

3, 4, or 5 digital bones), triradii a, b, c and d are hardly recognisable (MacKenzie and Penrose, 1951). Thus it may be assumed that the digits I, II, III, IV and V have association with digital triradii t, b, c, and d, respectively. The present study aims to find out the nature of triradius d in presence of digit V' (the post-axial extra V digit).

MATERIAL AND METHODS

Inked manus prints were collected from 19 individuals (13 males and 6 females), having post axial polydactyly on both hands, of those 9 males and 5 females polydactyly on both hands, whereas 4 males and one female possess it only on left hand. Thus, the present study is based on $(9 \times 2) + (5 \times 2) + 4 + 1 = 33$ polydactylous hands, among whom 29 hands have acute polydactyly and rest 4 hands show syndactylous polydactyly.

RESULTS AND DISCUSSION

From table I, it is found that in post-axial acute polydactyly condition, all the palms, show presence of an extra triradius, which may be formulated as d' at the ulnar side of the triradius d, and at the base of the digit

Table 1: Distribution of 33 polydactylous palms

S. No.	Types of polydactyly	No. of hands	Presence of triradius d	Presence of triradius d'
1.	Acute polydactyly	29	29 (100%)	29 (100%)
2.	Syndactylous polydactyly	4	4 (100%)	absent

V'. On the other hand, in post-axial syndactylous polydactyly triradius d is present at the base of fused duplicated fingers. Here d' is absent. Even in the male whose extra finger is removed d' is present at the proximal side of the metacarpophalangeal crease of the extra digit.

Thus, it may be suggested that, when digit V is duplicated in the manner of a distinct finger, with distinct metacarpophalangeal crease at base, it causes the occurrence of an extra digital triradius d' on palm, other than triradius d at the base of that digit. The

present study confirms the findings of Cummins and Midlo (1961).

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