Bilateral Hand Polydactyly in a Newborn with Subsequent Inflammation in the Left Hand After 15 Days: A Case Study

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***Abstract*—Polydactyly is the most common congenital condition in which a hand or foot has an additional finger or toe. Polydactyly usually affects only one hand or foot rather than both. The deformity affects upper limbs with a higher frequency than the lower. The treatment is always surgical. We report the case of a newborn who has bilateral hand polydactyly but after 15 days the extra digit present in left hand begin to discolor become inflamed and proceeding to the stage of infection. To overcome the infection, Ligation and excision performed in left hand extra digit along with right.**

***Index Terms*—Infection, Newborn, Polydactyly**

I. INTRODUCTION

Polydactyly is a malformation during the development of the human limb, which is characterized by the presence of more than the normal number of fingers or toes. It is often inherited and is much more common in Afro-Caribbean and Asian populations than in Caucasians. There are two main categories of it: syndromic and non-syndromic polydactyly. There are three types of polydactylies that are distinguished based on the location of the extra finger or toe.

1. Pre-axial polydactyly — the extra digit is located outside the thumb (radial polydactyly) or big toe (tibial polydactyly)
2. Post-axial polydactyly — the extra digit is located outside the little finger (ulnar polydactyly) or little toe (fibular polydactyly)
3.Central polydactyly — the extra digit is located in between other fingers or toes. Most often index finger.

Ulnar (post-axial) polydactyly or duplication of the little finger is the most common congenital anomaly of the hand[1]. Its prevalence is estimated between 1/630 and 1/3300 in Caucasian race and between 1/100 and 1/300 in Black race. Two phenotypic categories have been described: Type A, the extra digit is well formed and articulates with the fifth or an extra metacarpal; Type B, there is a rudimentary extra fifth digit which is usually represented by an extra skin tag. Both types can be inherited by autosomal dominant or recessive trait[2]. Usually, only the skin pedicle that contains the neurovascular bundle attaches to the additional digit., and may be removed under local anaesthesia; this is easiest when the child is less than 4 months old. If a phalanx or entire digit is duplicated, removal and soft-tissue reconstruction should be performed when the child is older, under formal operating theatre conditions[3]. Central duplication is uncommon, inherited, and can be linked to syndactyly (synpolydactyly).

II. CASE REPORT

A 15 days old male baby was brought to the surgery department by his parents with chief complaints of discoloration in the extra digit of left hand from last 7 days. According to the parents the baby was delivered normally 15 days back. The child was born with post axially normally textured extra digit in both the hands, but after 7 days the left-hand extra digit begins to get discoloured. On further enquiry they gave history of same condition in the child's elder sister also. On Examination an extra digit was seen which is connected to little finger in B/L hands and these digits were connected to little finger with narrow stalk of tissue. In left hand this digit was smooth, edematous and red in color while in right hand this digit had normal texture-like skin. On

Palpation temperature was raised in left extra digit as compared to right. His cardiovascular, respiratory, and per abdominal examinations did not detect any abnormality. His Heart rate 140 bpm, respiration rate 40 per min, temp. 99`F and Weight- 2.9 kg recorded at the time of Opd Visit. By considering the condition of inflammation in the left-hand extra digit, Ligation and Excision of both extra digits was planned. Surgery was done following parental consent. Until the two-month follow-up, no acute local or distant complications were observed throughout the postoperative period.

III. DISCUSSION

The treatment of polydactyly depends on the complexity and location of the deformity. If it is a simple surgery, an outpatient surgical procedure may be enough. If it is more complex, then the surgery can involve the bones, ligaments, and tendons. Minor cases can be treated by tying off the base of extra digits, which interrupts blood flow and causes the digit to fall off [4][5]. In the early postnatal period, postaxial polydactyly can be corrected by suture ligation or excision in the office under local anesthesia[6].In this case as the left-hand extra digit became discoloured and proceeded to stage of inflammation for that reason ligation and excision was done earlier. The exact cause of inflammation in extra digit is unclear because even the literature does not tell us about such inflammation and infection occurring in extra digits. Description of one such infection in extra digit in polydactyly is mentioned in an article but that was secondary infection in a 6-year-old boy caused by varicella-zoster virus[7].

IV. CONCLUSION

In our case there may be three most probable causes of inflammation of extra digit in left hand. First cause, there may be the twisting of the stalk of that extra digit for a short period of time leading to tissue ischemia which further encouraged inflammation. Second cause, there may be chances of vascular deficit in left extra digit due to anatomical variation that led to inflammation..Also insect bite on the digit may also be one of the cause being unnoticed by the parents leading to inflammation. As we know newborns are more vulnerable to infections due to dysregulated innate immune responses[8].So insect bite may lead to inflammation in that extra digit.

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Figures

At the time of birth

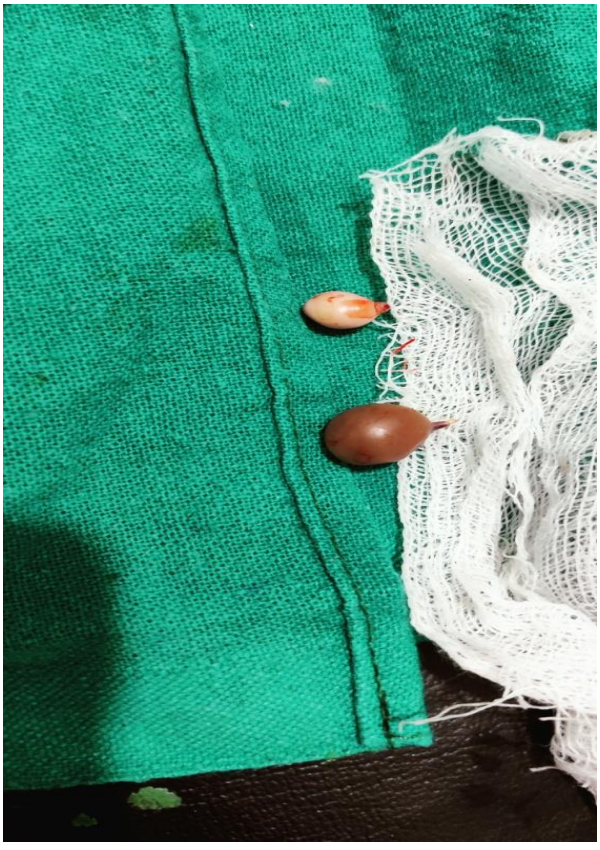
After 15 Days

Right Hand

Left Hand

Intra-Operative


5ml



After 15 Days