ISSN: 2394-0026 (P)
ISSN: 2394-0034 (O)

Case Report

Unilateral simian crease in a 3 years old child - A case report

Menon Narayanankutty Sunilkumar*

Department of Pediatrics, Amala Institute of Medical Sciences, Thrissur, Kerala, India

*Corresponding author email: sunilsree99@gmail.com

How to cite this article: Menon Narayanankutty Sunilkumar. Unilateral simian crease in a 3 years old child - A case report. IAIM, 2015; 2(4): 195-198.

Available online at www.iaimjournal.com

Received on: 25-03-2015 **Accepted on:** 01-04-2015

Abstract

Unilateral simian crease (USC) is a single transverse crease that extends from across the palm of one of the hands. The presence of a single transverse palmar crease or the simian crease (SC) can be seen in normal individuals. The significance of USC lies in the fact that it can also be associated with abnormal medical conditions. Literature review indicates that there is strong coincidence with the presence of a SC and presence of genetic or chromosomal abnormalities in these subset of patients. USC is seen in 10% of the population. In this case report, a three year old child was detected to have a SC, especially an USC in one of his palms.

Key words

Unilateral simian crease, Dysmorphology, Palmar creases, Trisomy 21.

Introduction

The science of genetics and dysmorphology extensively interprets any abnormality in physical findings of an individual. The practical application of interpreting the palmar creases to diagnose any associated congenital syndromes and chromosomal abnormalities are well established [1]. When the single horizontal crease extends across the palm of the hand it is known as a simian crease (SC). Because there is resemblance of this physical finding in non-human simians as well, so it is also known as a simian crease or simian line [2]. Single palmar creases are less common than two palmar creases, however 10% of the population have one SC on one hand on any side (USC) and 5% have one SC on both hands [3]. Among the congenital syndromes, occurrence of SC is more than 63% in the Trisomy 21 group. The presence of an USC in any child may need thorough evaluation to look for any of the features of the underlying chromosomal anomalies so as not to miss the clinical diagnosis [4]. An USC in a three year old child and its significance is reported in this case study.

ISSN: 2394-0026 (P)
ISSN: 2394-0034 (O)

Case report

A 3 years old male child was seen during the morning rounds in the ward. He was admitted with many episodes of watery, fowl smelling loose stools with mucus and high grade fever of two days duration. Birth history revealed that he was born to a 29 years old mother at 37 weeks gestation via spontaneous vaginal delivery weighing 3.6 kg with normal apgar score. His parents were non-consanguineously married. He was exclusively breastfed till five months and weaning was started after this period. He had normal milestones of development and was immunized to date. On general physical examination, the child had stable vitals. He was afebrile, heart rate 82/minute, respiratory rate 36/minute. His oxygen saturation was 100% at room air. His skin turgor was normal and all peripheral pulses were equally felt. Blood pressure was 94/56 mm Hg in right upper limb. There was no dehydration and he was active. He was noticed to have a unilateral simian crease in the right palm and his left palm was normal. **(Photo 1A, 1B)** There were no other features of any congenital anomalies or dysmorphism in the child. His respiratory effort remained good. Abdominal examination and cardiovascular system examination were normal. He did not have any neurological deficits and neurocutaneous markers were absent. The child was hydrated well with oral rehydration solution, home available fluids and symptomatic treatment given for fever with paracetamol suspension. The child was discharged and is doing well.

Discussion

Palm creases are an interesting entity in the field of dysmorphology and are extensively studied and researched [1]. The importance of this dermatoglyphic finding lies in the fact that if interpreted well and variations looked for; it can give a clue to an underlying anomaly [2, 3]. In a population single palmar creases are less common than two palmar creases; however 10% of the population have one SC on one hand i.e. the USC and 5% have one SC on both hands [3]. There is a male predominance noticed in the occurrence of a SC. In the case reported the child was a male child. SC is frequently seen among Asians and Native Americans than among other populations worldwide. USC is also inherited in some of the families [1, 2, 3].

Photo - 1A, 1B: Photograph of palm of the 3 years old child showing the unilateral simian crease in the right hand. The left palm is normal.

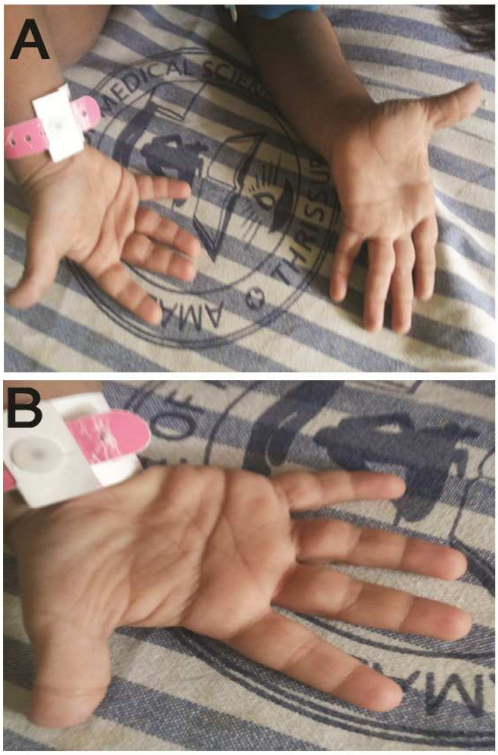

Figure 1

Literature review has opened insight into the evolution of SC. The palmar flexion creases starts appearing on the palms of the hands and soles of the feet and develop usually in the first trimester itself, i.e. by the 12th week of gestation in the fetus [1, 4]. It has been found that most creases including the SC develop concurrently

ISSN: 2394-0026 (P)
ISSN: 2394-0034 (O)

with the appearance of the fetal volar pads. There is a close correspondence between the appearance of the flexion creases and hand and digital movement. But the origin of USC is not clear in the available details on SC in human beings. Larger studies have been done in population with SC and with particular reference to Trisomy 21 [2, 4, 5]. Embryological development of human palmar, plantar, and digital flexion creases have been explained in various metaanalysis and literature [6].

As the Trisomy 21 is commonly seen in children, the dermatoglyphic pattern in a child with this chromosomal abnormality has been studied and explained in detail. Several methods have also been postulated to diagnose SC in children with Trisomy 21 [2, 5]. In the child presented, he did not have any features of Trisomy 21 syndrome such as mongoloid slant, clinodactily, sandal gap, high arched palate, mental retardation, features of hypothyroidism or any congenital heart disease. So SC should not be used as a single parameter to diagnose Trisomy 21 but other features also should be looked for [2, 5, 6].

Apart from Trisomy 21, children with syndromic association and SC include anomalies of chromosomes 5, 12, 13, 18; Klinefelter syndrome, Turner syndrome, Gonadal dysgenesis and Pseudo hypoparathyroidism [7, 8, 9, 10].

A USC was also reported in a case of chromosome 9 mutation and Robinow syndrome [11] and also sometimes found on the hand of the affected side of patients with Poland Syndrome [7, 12]. It is reported also in rare syndromes such as Saethre–Chotzen syndrome with craniosynostosis [13].

Conclusion

This case study concluded that the knowledge of the variations in the palmar creases such as a SC and USC is important. These variations in the occurrence of SC and USC in our population should be studied further. A specific syndrome or condition can be pinpointed by searching for the features of these conditions by experience. The clinical diagnosis of that condition is also based on a family history, medical history, and complete physical examination. So it is important to look for these and never miss them.

Acknowledgement

The author acknowledges the help of Dr. Ajith TA, Professor of Biochemistry, Amala Institute of Medical Sciences, Amala Nagar, Thrissur, Kerala, India during the preparation of the manuscript.

References

1. Mulvihill JJ, Smith DW. The genesis of dermatoglyphics. J Pediatr, 1969; 75: 579–589.
2. Jin Seo Park, Dong Sun Shin, Wonsug Jung, Min Suk Chung. Improved analysis of palm creases. Anat Cell Biol, 2010; 43(2): 169–177.
3. Dar H, Schmidt R, Nitowsky HM. Palmar crease variants and their clinical significance: A study of newborns at risk. Pediatr Res, 1977; 11: 103–108.
4. K Suzumori. Dermatoglyphic analysis of fetuses with chromosomal abnormalities. Am J Hum Genet, 1980; 32(6): 859–868.
5. Rajangam S, Janakiram S, Thomas IM. Dermatoglyphics in Down's syndrome. J Indian Med Assoc, 1995; 93: 10-3.
6. Kimura S, Kitagawa T. Embryological development of human palmar, plantar, and digital flexion creases. Anat Rec, 1986; 216: 191-7.
7. Achs R., Harper R.G., Harrick N.J. Unusual Dermatoglyphics Associated

ISSN: 2394-0026 (P)
ISSN: 2394-0034 (O)

with Major Congenital Malformations. N Engl J Med, 1966; 275(23): 1273-1278.
8. Sergovich F, Valentine G.H., Chen A.T.L., Kinch R.A.H., Smout M.S. Chromosome Aberrations in 2159 Consecutive Newborn Babies. N Engl J Med, 1969; 280: 851-855.
9. Forbes A.P. Fingerprints and Palm Prints (Dermatoglyphics) and Palmar-Flexion Creases in Gonadal Dysgenesis, Pseudohypoparathyroidism and Klinefelter's Syndrome. N Engl J Med, 1964; 270: 1268-1277.
10. M E Porteous, D R Goudie. Aarskog syndrome. J Med Genet, 1991; 28(1): 44–47.
11. M A Sabry, E A Ismail, R L al-Naggar, N A al-Torki, S Farah, S A al-Awadi, D Obenbergerova, L Bastaki. Unusual traits associated with Robinow syndrome. J Med Genet, 1997; 34(9): 736–740.
12. M Atasu. Dermatoglyphic findings in Poland's syndrome. J Med Genet, 1980; 17(1): 50–52.
13. Cho E, Yang TH, Shin ES, Byeon JH, Kim GH, Eun BL. Saethre–Chotzen syndrome with an atypical phenotype: Identification of TWIST microdeletion by array CGH. Childs Nerv Syst, 2013; 29(11): 2101-4.

Source of support: Nil **Conflict of interest:** None declared.