

Case Report

Extadigits: an unusual presentation

Abdulrahman A. Mamuda¹, Muhammad K. Abubakar¹, Magaji G. Taura^{2,*},
Musa A. Kabir¹, Ibrahim S. Yusuf¹, Lawan H. Adamu²

¹Department of Surgery, Orthopedics unit, Aminu Kano Teaching Hospital P M B 3542, Kano, Nigeria

²Department of Anatomy, Faculty of Medicine, Bayero University, Kano, P M B 3011, Kano, Nigeria

Received: 20 August 2013

Accepted: 6 September 2013

*Correspondence:

Dr. Magaji Garba Taura,

E-mail: mgtaura.ana@buk.edu.ng

© 2013 Mamuda AA et al. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Extra digit is a common congenital anomaly in our environment which usually affect the hands and occasionally the feet but very rarely both. A five months old male infant presented with accessory digits of the both hands and feet, with two extra digits on the left hand and one on the right hand, right foot and left foot. The extra digits were well developed, with normal range of motion, good capillary refill and intact sensation. General examination revealed an otherwise healthy child with no associated congenital malformations. The treatment modality used was surgical removal of the extra digits and reconstruction of any associated anomalies in the remaining ray such as longitudinal epiphyseal bracket. After the surgery the patients is no longer experience difficulty with fitting gloves and shoes as well as discrimination among peer groups in his future life.

Keywords: Extra digits, Malformation, Surgery, Motion

INTRODUCTION

Polydactyly means the presence of more than the normal number of fingers or toes. It can vary from unnoticeable rudimentary finger or toe to fully develop extra digit, which occur as an isolated congenital anomaly or as one aspect of multi-symptom disease or syndrome.¹ Several syndromes were reported to be associated with polydactyly and geneticist often play roles in examination of children with this deformity for other congenital anomalies.²

The presentation of polydactyly can be inform of thumb polydactyly.³ Macroductyly of the left second toe with duplication of the nail beds,⁴ postaxial duplication of the fifth digit,⁵ preaxial duplication of the great toe,^{6,7} Post-axial polydactyly in both hands which is very rare, an extra digit within the hand and not along its borders⁸ and along with one foot is even rarer.⁹

Studies across different population indicate variation in frequency of polydactyly, with 75% seen as Hand post axial, 15% as foot post axial polydactyly whip is less often found with other anomalies (7% versus 15%) and 10% as bilateral hand and foot post axial polydactyly.⁵ The incidence was reported to be 2.3 per 1000 in white males, 0.6 per 1000 in white females and 13.5 in black males and 11.1 in black females.⁶

Here we report a very rare case of polydactyly with two extra digits on the left hand and one on the right hand, right foot and left foot. The extra digits were well developed, with normal range of motion, good capillary refill and intact sensation.

CASE REPORT

The patient is a 5 months old male infant who presented with accessory digits of the both hands and feet since

birth, with two additional digits on the left hand and one extra digit on the right hand, right foot and left foot respectively (Figure 1, 2, 3 and 4).



Figure 1: Left hand (pre-operative).



Figure 2: Right hand (pre-operative).



Figure 3: Right leg (pre-operative).



Figure 4: Left leg (pre-operative).

Patient is a product of full term gestation, index pregnancy was booked at three months and there was no history of radiation exposure or use of unprescribed medications, no history of maternal febrile illness during pregnancy. Delivery was uneventful via spontaneous vertex delivery.

The patient's mother is para4 +0, 4 alive there is no family history of extra digits or other congenital anomalies.

The patient has no other congenital malformations.

A general examination revealed an otherwise healthy child and a musculoskeletal system examination showed that he had two additional digits on the left hand with 1 digit on both feet and right hand respectively (Figure 1-4). The extra digits were well developed, with normal range of movement, with good capillary refill and intact sensation. There were no other anomalies detected.

An assessment of polydactyly of both hands and feet was made. The patient had two stage excisions of the extra digits, with excision of the extra digits of both feet and hands at the first stage and second stage respectively and there were no post-operative complications.

DISCUSSION

The management of polydactyly may appear simple, but careful consideration before and during surgical correction are needed.⁸ Several presentations were reported in the literature.³⁻⁹ The close presentation of case of polydactyly in relation to our case report documented in the literature were functional extra digit in both feet and non-functional extra digit in both hand,¹⁰ six digits in each limb with non functional extra digit in the hands,¹¹ bilateral postaxial (one extra digit on each limb) functional polydactyly of both hands and feet.¹² Polydactyly was also demonstrated as one of the presentation of autosomal recessive and dominant condition such as Acrocallosal syndrome,¹³ post axial polydactyly-progressive myopia syndrome,¹⁴ cleft lip and cleft palate,¹⁵ Variability in genetic expression.¹⁶ Other associated anomaly of bilateral polydactyly of hands and feet associated was supernumerary renal vessels in right kidney.¹⁷ Abnormalities involving polydactyly are usually bilateral,¹⁰ although, few studies revealed unilateral involvement being more common than bilateral involvement.¹⁸ In our case report the rarest form of presentation was seen in which two additional digits on the left hand (Figure 1) was observed making the total number of digit to be 25, and normal range of motion, good capillary refill and intact sensation was observed in the extradigit. A general examination of patient revealed an otherwise healthy child with no associated congenital anomalies.

The treatment modality of polydactyly in our patient involved surgical removal of the extra digits (Figure 5-8)

and reconstruction of any associated anomalies in the remaining ray such as longitudinal epiphyseal bracket. This in agreement with the basic goal for surgical management of patients with polydactyly which is removal of the most medial or most lateral digit so as to gain the normal contour of the hand as well as maintaining the maximum functional and cosmetic outcome.¹⁹⁻²⁵



Figure 5: Right hand (post-operative).



Figure 6: Left hand (post-operative).



Figure 7: Right leg (post-operative).



Figure 8: Left leg (post-operative).

Generally, it is desirable to treat polydactyly of the hands and toes because untreated patients experience difficulty with fitting gloves and shoes with discrimination among peer groups. These reasons probably explain why the parents of our index patient opted for surgical excision of the digits.

ACKNOWLEDGEMENTS

The authors appreciate the consent given by the parent of the participant as well as those who contributed in the development of this research work

Funding: None

Competing interests: None declared

Ethical approval: Not required

REFERENCES

1. Blauth W. and Olason A.T.: Classification of polydactyly of the hands and feet. Arch. Orthop. Trauma. Surg., 107: 334-344, 1988.
2. Van Nieuwenhoven C, Boehmer A, Hovius S (2009). Polydactyly. Praktischepediatrie 2.
3. Ezaki M.: Radial polydactyly. Hand Clin., 1990; 6: 577-88.
4. Mittal M, Sontakke Y, 'macroductyly with polysyndactyly of distal phalanx of left second toe – a rare case report and its embryological review', Journal of Evolution of Medical and Dental Sciences, 2013; 2(12): 1799-1802.
5. Castilla EE, Lugarinho da Fonseca R, da Graca Dutra M, Paz JE Hand and foot postaxial polydactyly: two different traits. Am J Med Genet 1997;73:48-54.
6. Novick C. Polydactyly of the hands and foot, treatment and management. Available at www.medscape.com. Accessed 2nd May 2013.
7. Jones KL. Smith's Recognizable Patterns of Human Malformation 5th ed. WB Saunders, Philadelphia. 1997: 816.
8. Kozin S.H.: Central Polydactyly. In Green D.P., Hotchkiss R.N., Pederson W.C. and Wolfe S.W. (eds.) Green's operative hand surgery, 5th edition, 2008, 1393-1394.
9. Galjaard R.J., Smits A.P., Tuerlings J.H., et al.: A new locus for postaxial polydactyly type A/B on chromosome 7q21-134. European Journal of Human Genetics, 2003; 11: 409- 415.
10. Sadler TW. Langman's Medical Embryology. 10th Ed., Philadelphia, Lippincott Williams & Wilkins. 2006; 125-142.
11. Mangalgi AS, Sherke AR, Polydactyly 24 – a case report, International Journal of Anatomical Variations, 2009; 2: 146-149.
12. Zayed EF, Elbanoby TM, Ayad W, El-Shishtawy AM. Polydactyly: Surgical Strategy and Clinical Experience with 40 Cases. Egypt, J. Plast. Reconstr. Surg., 2011; 35(2); 287-300.

13. Koenig R, Bach A, Woelki U, Grzeschik KH, Fuchs S. Spectrum of acrocallosal syndrome. *Am J Med Genet.* 2002; 108: 7-11.
14. Czeizel A, Brooser G. A postaxial polydactyly and progressive myopia syndrome of autosomal dominant origin. *Clin Genet.* 1986; 30: 406-408.
15. Kocer U, Aksoy HM, Tiftikcioglu YO, Karaaslan O. Polydactyly: a study of four generations of a Turkish family including an affected member with bilateral cleft lip and palate. *Scand J Plast Reconstr Surg Hand Surg.* 2002; 36: 284-288.
16. Karaaslan O, Tiftikcioglu YO, Aksoy HM, Kocer U. Sporadic familial polydactyly. *Genet Couns.* 2003; 14: 401-405.
17. Gesase AP. Bilateral hands and feet postaxial polydactyly presenting with renal vascular anomalies. *Ital J Anat Embryol.* 2006; 111: 179-186.
18. Miura T, Nakamura R, Imamura T. Polydactyly of the hands and feet. *J Hand Surg Am.* 1987; 12: 474-476.
19. Wassel HD. The results of surgery for polydactyly of the thumb. *Clin. Orthop. Relat. Res.*, 1969; 64: 175-93.
20. Light TR. Treatment of preaxialpolydactyly. *Hand Clin.*, 1992; 8: 161-75.
21. Hung L, Cheng JC, Bundoc R, Leung P. Thumb duplication at the metacarpophalangeal joint. Management and a new classification. *Clin. Ortho. Relat. Res.*, 1996; 323: 31-41.
22. Masuda T, Sekiguchi J, Komuro Y. "Face to face": A new method for the treatment of polydactyly of the thumb that maximises the use of available soft tissue. *Scand J. Plast. Reconstr. Surg. Hand Surg.*, 2000;34: 79-85.
23. Chiang H, Huang SC. Polydactyly of the foot: Manifestations and treatment. *J. Formos. Med. Assoc.*, 1997; 96: 194-198.
24. Huang WS, Chen SC, Chen SG. Polydactyly of the foot: Manifestations and treatment. *J. Med. Sci.*, 2000; 20 (a): 519-530.
25. Yen CH, Chan WL, Leung HB, Mak KH. Thumb polydactyly: Clinical outcome after reconstruction. *Journal of Orthopedic Surgery* 2006;14(5):295-302.

DOI: 10.5455/2320-6012.ijrms20131159

Cite this article as: Mamuda AA, Abubakar MK, Taura MG, Kabir MA, Yusuf IS, Adamu LH. Extadigits: an unusual presentation. *Int J Res Med Sci* 2013;1:607-10.