

A rare case of 5th toe auto amputation (pseudo-ainhum)

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Abstract

The term ‘AINHUM’ is derived from the African word meaning ‘to saw or cut’. True ainhum otherwise called dactyl lysis spontanea is a condition involving soft tissue or digits with constricting rings commonly presenting in fifth toes, usually bilateral. It is to be differentiated from Pseudo-ainhum that occurs secondary to some hereditary and non-hereditary diseases that lead to annular constriction of digits. We report a rare case of pseudo-ainhum involving the left fifth toe only.

Keywords: Dactyl lysis spontanea, pseudo-ainhum, ainhum, Streeter's dysplasia, Voh Winkel syndrome

Case study

A 36-year female presented with swelling over bilateral 5th toe associated with proximal constriction band, which progressively increased with associated skin lesions over both palm, knuckles and feet since 4 years. Personal and family history was not significant. All peripheral pulses were normal. She did not have any regional lymphadenopathy. All blood investigations were found within normal limits. None suggestive of any infective etiology. On examination swelling involving bilateral distal part of fifth toe with band like soft tissue constriction at the proximal inter phalangeal joint level. No tenderness,

erythema, pus discharge. patient had Bilateral symmetrical scaly plaques over knuckles, palm, dorsum of foot. On X-ray left foot showed the constricting band was at the middle of proximal phalanx so deep with resorption of bone at the site of constriction separating the distal segment almost to the stage of auto amputation - stage three. Right foot showed similar band. Patient was examined, during which distal part of 5th toe came off spontaneously (as the name suggests spontaneous dactyl lysis). Patient was not willing for any interventions on right 5th toe.





Figure 1: X ray showing bilateral 5th toe constriction band.



Figure 2: Bilateral symmetrical scaly plaques over knuckles, palm, dorsum of foot.

Discussion

Ainhum (spontaneous dactyl lysis) is a painful, constrictive, circumferential, fibrous band at the base of the fifth toe, with progressive ischemia of the toe and eventual auto amputation of the digit bands ultimately result in auto amputation. [2-4] it can be Idiopathic or triggered by trauma. In the African Yorub language, ainhum means “to saw” or “file” and in the Brazilian patois, it means “fissure.” it is a disease of middle-aged African males accustomed to going barefoot. incidence of 0.015% and 2% are seen in Africa, but rare in rest of the world. [1,5,6]. Pseudo ainhum of all types is very rare. it is constricting bands that mimic ainhum but are associated with other systematic diseases.

Etiology and Pathogenesis not clearly known. Chronic trauma, infection, hyper keratosis, decreased vascular supply, and impaired sensation may produce excessive fibroplasia in a susceptible host.[7] There are three pathophysiological categories of pseudo ainhum:

- (1) congenital constricting bands are caused by the umbilical cord

(2) constriction by external forces, such as hairs or threads, which are generally factitial

(3) constricting bands secondary to other diseases. These may be hereditary or non-hereditary. this includes pachy onychia congenita, Mal de Meleda, mutilating kerato derma, lamellar ichthyosis, Voh wrinkle syn drome. on Clinical Findings, usually affects the fifth toe and 75% of the cases are bilateral.

Cole has described four clinical stages of ainhum

1) A small clavus or callus develops, which progresses to a narrow groove or fissure encircling the toe.

2) The toe becomes globular distal to the groove, associated with arterial narrowing and bone resorption.

3) Very painful; the bone separates at the joint with hyper motility of the toe.

4) Characterized by a bloodless auto amputation of the toe [8]. Congenital constricting bands (Streeter bands) usually involve more than one part of the body and frequently encircle large structures such as limbs or even the trunk. More than 50% of cases are associated with other congenital anomalies usually syndactyly or club foot when constricting bands are found on the feet.

Factitious pseudo ainhum (from tourniquet application) may prove to be a most challenging diagnosis. Strands of hair, fibers, or threads are intentionally wrapped around digits or other body parts such as a nipple or penis. it is common in children, might be found in mentally ill adults. Because of soft tissue swelling, the ligating band may not be visible and the true cause of the condition may not be immediately recognized.

Some other diseases which include systemic keratoderma with pseudo ainhum includes following. [9-13]

1) Vo Winkel syndrome (Keratoderma hereditaria mutilans), is a diffuse auto somal dominant kerato derma with onset in early infancy characterized by a honeycombed keratoderma involving the palmoplantar

sur facesn with Mild to moderate senso ri neural hearing loss.

2) Carvajal syndrome (Striate palmoplantar keratoderma) associated with woolly hair and cardiomyopathy .it is auto somal recessive disease due to a defect in desmo plakin.

3) Scleroatrophic syndrome of Huriez - an auto somal dominant keratoderma with sclerodactyly present at birth with a diffuse symmetric keratoderma of the palms and soles.

4) Olmsted syndrome -Mutilating palmoplantar kerato derma with periorificial keratotic plaques, that begins in infancy

5) Mal de Meleda (acral kerato derma)

6) Porokeratosis of Mibelli

7) Scleroderma

8) Psoriasis

9) Hansen's disease

Non-operative management of ainhum in the early stages includes topical or injectable corticosteroids, salicylate preparations, or retinoids. Surgical treatment for stage I and early stage II ainhum is a Z-plasty, which involves releasing the constricting base through a Z-shaped repair after surgical amputation. For stages III & IV, amputation is generally necessary.

The definitive treatment for late-stage ainhum may be surgical amputation (if not auto amputation). If left untreated, auto amputation, secondary infections and loco motor imbalance may complicate ainhum. When chronic fungal or bacterial infections or psoriasis are diagnosed in the early phase of band formation, treatment may reverse the threat to the digit.

Conclusion

True ainhum usually presents bilaterally commonly involving fifth toe and sometimes fourth and fifth toes. Rarely involvement of great toe has been reported. We

present case of pseudo-ainhum with associated kerato derma over both palm, dorsum of foot and knuckles. Systematic disease leading to pseudo-ainhum is quite rare finding, specially in India.

References

1. 5] [6] [7] Greene JT, Fincher RM. Case report: Ainhum (spontaneous dactylolysis) in a 65-year-old American black man. *Am J Med Sci.* 1992;303(2):118-20.
2. [Illustrated Dictionary of Podiatry and Foot Science by Jean Mooney. 2009
3. "ainhum." Elsevier Limited, available from: <http://medical-dictionary.thefreedictionary.com/ainhum> Farlex Partner Medical Dictionary. 2012.
4. "ainhum." Farlex, available from: <http://medical-dictionary.thefreedictionary.com/ainhum>. Miller-Keane Encyclopedia and Dictionary of Medicine, Nursing, and Allied Health, Seventh Edition. 2003
5. "ainhum." Saunders, an imprint of Elsevier, Inc. available from: <http://medical-dictionary.thefreedictionary.com/ainhum>. da Silva Lima JF. On ainhum. *Arch Dermatol.* 1880; 6:367.
6. Browne SG. True Ainhum: Its Distinctive and Differentiating Features. *J Bone Joint Surg Br.* 1965; 47:52-55.
7. Priya B, Suganthi RR, Manimegalai M, Krishnaveni A. Familial ainhum: a case report of multiple toe involvement in a father and son, staging of ainhum with insight into different types of constricting bands. *Indian J Dermatol.* 2015;60(1):106.
8. de Araujo DB, Lima SM, Giorgi RD, Chahade WH. Ainhum (dactylolysis spontanea): a case with hands and feet involvement. *J Clin Rheumatol.* 2013;19(5):277-79.
9. Olivieri I, Piccirillo A, Scarano E, Ricciuti F, Padula A, Molfese V. Dactylolysis spontanea or ainhum involving the big toe. *J Rheumatol.* 2005;32(12):2437-39.
10. Cole GJ. Ainhum: An account of fifty-four patients with special reference to etiology and treatment. *J Bone Joint Surg Br.* 1965; 47:43-51.
11. Streeter G. Focal deficiencies in fetal tissues and their relation to intrauterine amputations. *Contributions Embryol Carnegie Inst.* 1930; 22:1-46.
12. Bassetto F, Tiengo C, Sferrazza R, Belloni-Fortina A, Alaibac M. Vohwinkel syndrome: treatment of pseudo-ainhum. *Int J Dermatol.* 2010;49(1):79-82.
13. Castori M, Valiante M, Ritelli M, et al. Palmo plantar keratoderma, pseudo-ainhum, and universal atychia: A new patient and review of the palmoplantar keratoderma congenital alopecia syndrome. *Am J Med Genet A.* 2010;152A (8):2043-47.
14. Dacca Rett M, Espinosa G, Rahimi F, Eckerman CM, Wayne-Bruton S, Couture M, et al. Ainhum (dactylolysis spontanea): a radiological survey of 6000 patients. *J Foot Ankle Surg.* 2002;41(6):372-78.