

Ainhum - A Rare Case Report

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ABSTRACT

The term 'AINHUM' is derived from the African word meaning 'to saw or cut'. True ainhum otherwise called dactylolysis 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 nonhereditary diseases that lead to annular constriction of digits. We report a rare case of true ainhum involving the left fourth toe only. It is a very rare case and a very few were reported worldwide. The highest incidence of ainhum has been reported in South Africa and South America. It is rarely reported in India. Ainhum when diagnosed and treated in early stages can be prevented from progressing to mutilating deformities.

Keywords: Dactylolysis spontanea, Streeter's dysplasia, Vohwinkel syndrome

CASE REPORT

A 38-year-old male who was a non-smoker and non-alcoholic came with complaints of pain and swelling on the left fourth toe without any ulceration or discharge. Patient gave history of trivial trauma over the left fourth toe one month prior to coming to us followed by altered sensation, which subsequently progressed, slowly to the present condition, with no gangrene or no skin changes without any co-morbidities. Personal and family history was not significant. No other similar lesion was present in the body. All peripheral pulses were normal. He did not have any regional lymphadenopathy. On local examination: There was a band like soft tissue constriction over the proximal interphalangeal joint level of left fourth toe [Table/Fig-1]. 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 [Table/Fig-2]. After proper preoperative work up left fourth toe was amputated by disarticulation at metatarsophalangeal joint. Immediate postoperative picture is shown in [Table/Fig-3]. Patient was discharged after wound has healed. Follow-up for two years thence was uneventful.

DISCUSSION

The highest incidence of ainhum has been reported among black people of South Africa and South America [1]. This condition is less common in India as compared to South Africa and South America. Ainhum when diagnosed and treated in early stages can prevent this condition from progressing to mutilating deformities. The origin of the term ainhum is unclear. The versions retrieved from <http://medicaldictionary.thefreedictionary.com/ainhum> are [2-4]:

1. Ainhum; spontaneous dactylolysis 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 [2].
2. Ain•hum (-nyum') An acquired, slowly progressive, painful fibrous constriction that develops in the digitoplantar fold, usually of the little toe, gradually resulting in spontaneous amputation of the toe; most commonly affects black males in the tropics [3].
3. Ainhum {n'hum, i'num, or (Portuguese) n-yoom} a condition of unknown origin, seen chiefly in dark-skinned people, consisting of a linear constriction that causes spontaneous amputation of the fourth or fifth toe [4].



[Table/Fig-1]: Preoperative picture.



[Table/Fig-2]: X-ray left foot.



[Table/Fig-3]: Post operative picture.

The term "ainhum" was first used by da Silva Lima in 1867 [5] from Bahia, Brazil. Incidence of ainhum in tropical and subtropical climates between 0.015 percent and 2.0 percent of the population [6]. It has been rarely reported in Europe. Commonly affected age group is between 20 and 50 years. The average age being thirty-eight and the youngest patient was seven years of age. Males were reported to be more affected than females (2:1). In true ainhum, dactylolysis of a toe (most commonly bilateral involving the fifth toe) most likely is triggered by trauma; however, the true cause remains unknown. Quiet often familial tendency has been reported [7]. The trauma may be related to walking barefoot in the tropics. A fibrotic band develops from a flexural groove and progressively constricts the full circumference of the toe until spontaneous auto amputation occurs. Ainhum occasionally affects fingers with or without involvement of toes [8]. Isolated great toe involvement has also been reported [9]. Criteria for diagnosis involve three conditions: soft tissue constriction, bulbous enlargement of the toes, and thinning or lysis of phalangeal bones. As the condition progresses, radiographic imaging is confirmatory. Cole has described four clinical stages of ainhum [10]: 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. The clinical presentation of ainhum depends on the stage at the time of presentation. The initial sign of a painful fissure under a toe may not be defining, but the progressive constriction at the base of the toe with distal oedema is diagnostic of ainhum. The toe may become rotated, clawed, and dorsiflexed at the metatarsophalangeal joint. Ultimately, before the toe is shed, it may be attached by a slender thread of fibrous tissue. Ainhum has to be differentiated from Pseudo-ainhum due to congenital annular bands described as Streeter's dysplasia [11] or keratoderma hereditarium mutilans known as Vohwinkel syndrome [12], constrictions resulting from trauma or linked to other diseases like scleroderma, Hansen disease, syringomyelia atypical keratoderma, syphilis, yaws, diabetic or vascular gangrene, or tourniquet syndrome [13]. The initial radiographic finding of ainhum [14] is a radiolucent band constricting the base of the involved toe, with distal swelling. In later stages, osteolysis develops in the distal and middle phalanges, with a characteristic tapering effect. Ultimately, the bone narrows until it fractures and auto amputates. 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 locomotor imbalance may complicate ainhum.

CONCLUSION

True ainhum usually presents bilaterally commonly involving fifth toe and sometimes fourth and fifth toes. Rarely involvement of great toe has been reported. Very rarely it has been reported in fingers. Ainhum has been very rarely reported in India. We have presented a case of true ainhum involving isolated left fourth toe only, which is very rare.

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Date of Submission: **Oct 28, 2015**

Date of Peer Review: **Jan 01, 2016**

Date of Acceptance: **Jan 12, 2016**

Date of Publishing: **Apr 01, 2016**

FINANCIAL OR OTHER COMPETING INTERESTS: None.