

**ACRO-OSTEOLYSIS RARE CAUSE OF CHRONIC NON HEALING ULCER -
A CASE REPORT**

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Abstract

Acro-osteolysis is defined as the resorption of bone from the shafts of terminal phalanges. This can be as a result of vascular, metabolic, toxic and mechanical trauma [1]. Clinically patient usually presents with swelling, pain, toe deformities and radiological features of tuft resorption as zones of radiolucency in the middle of the affected phalanges. We present a case of an idiopathic acro-osteolysis in a 65 year old male patient in the form of a chronic non healing ulcer. Patient had a precipitating cold exposure episode followed by repeated mechanical stress related to the occupation. Timely and appropriate surgical and rehabilitative medical care helped the patient management.

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Case report:

A 65 year old male patient hailing from Solan district of Himachal Pradesh, presented to the surgical OPD with chronic non-healing ulcer in toes of both feet for 2 years. Patient had a history of cold exposure to lower extremities and repeated mechanical stress due to his tailoring job. The actual illness started with an episode of extreme cold

exposure to lower extremities during his participation in a cricket match 25 yrs ago. Following this episode patient complained of pain and swelling of both feet including toes, for which he got treatment in a local hospital and got some relief. However, the pain and swelling in both feet including toes used to recur during winter months and went on for years. Subsequently the ulcers developed in right great toe and second toe .This was

followed by similar ulcers in left foot great toe and third toe with spontaneous shedding of toe nails. In the present episode, his Left great toe became gangrenous with superadded infection. Radiographs of the feet showed lytic areas with erosion of toe tips (Fig-1A & 1B).



Fig 1A: Left foot before amputation



Fig 1B: Left foot after amputation

Patient was planned for surgery. The big toe of left foot was amputated and debridement

of ulcers of right and left foot was done (Fig - 2 A).



Fig 2A: Left foot after amputation of great toe with debridement of right foot ulcer

Ulcers of both the feet got healed over a period of three months (Fig-2B). However there was no neurological involvement.



Fig 2A: Right and Left Foot after amputation & wound healing

Arterial pulsation of right foot was normal whereas left Dorsalis pedis, anterior tibial and posterior tibial arterial pulsations were absent. This was further confirmed with Colour Doppler, which showed thrombosis in long segment of the left superficial femoral artery however, the right foot Doppler was normal.

On detailed history taking, the Patient was found to be a chronic smoker for last 40 years and was a known hypertensive for 2 years. Routine laboratory investigations revealed a deranged lipid profile in the form of LDL-93 mg/dl, HDL-27.5 mg/dl, Serum Cholesterol-130.2 mg/dl, Triglycerides-48.9 mg/dl, however other biochemical investigations such as liver and renal & haematological profiles were within the normal range. He was put on anti-hyperlipidemic and antihypertensive drugs and the lipid profile and blood pressure was brought under control. Patient responded well to medical and surgical treatment followed by healing of the ulcer.

The histopathological examination of the amputated specimen showed features of sterile necrotic bone with micro fractures with osteoclastic erosions in a fibro vascular background with osteoblastic repair. Thus, the present case illustrates a classic case of trauma induced Acro-osteolysis, presenting as chronic foot ulcer with a vascular component due to atherosclerosis on left side.

Discussion:

The acro-osteolytic diseases are a heterogeneous ^[2] group of bone disorders characterized by bone resorption. It is

broadly classified as idiopathic and acquired. Mechanism of idiopathic osteolysis is unknown that present with diverse clinical and radiological findings in association with bone resorption or defective primary bone formation. It is characterized by the spontaneous onset of bone resorption without any known causative factors. Bone which previously appeared normal undergoes partial or complete resorption. The process continues for several years then stops spontaneously. The result of this destructive phenomenon leads to severe phalangeal deformities and serious functional disabilities. The pathogenetic mechanism of the osteolysis is unknown. The systemic manifestations in the form of malignant nephropathies have also been reported in some forms of genetic disease. The Acquired osteolysis may be the consequence of vascular, metabolic and mechanical insults, either alone or in combination of them. Acquired forms of peripheral osteolysis are easily identified from their associated signs and symptoms and seldom pose diagnostic problems, whereas the idiopathic osteolytic conditions may be overlooked in the differential diagnosis of bone resorption states. In genetic form, the disease manifests as Multicentre idiopathic osteolysis. The transmission has been thought to be autosomal dominant.

In all its forms, there is progressive skeletal rarefaction leading to disappearance of the affected bones and the resultant limb deformities. Therefore, it important to recognise the different forms by their natural history, clinical presentation, laboratory, radiographic and genetic testing, as the diagnostic precision is crucial for effective management. The idiopathic osteolyses can be subdivided into the phalangeal, tarsocarpal, and multicentric forms. Further subcategorization is based on inheritance patterns, anatomic distribution of

abnormalities, and the presence or absence of additional systemic manifestations.

In the present case, the patient had a history of exposure of the limb to an extreme cold leading to an acute vascular insult followed by repeated trauma due to his tailoring job. His terminal phalanges of all toes, on the left foot, were significantly shortened in length associated with minimal soft tissue loss. All the affected digits displayed shortened dysplastic nails. The rest of the skeleton was normal. The family history was non contributory with no affected kin.

Other causes for the vascular insults leading to a similar clinical profile can be related to certain local or systemic autoimmune disorders such as; scleroderma, rheumatoid arthritis, severe form of Raynaud's disease, Lupus, Wegener's disease and Periarteritis nodosa. However, our patient was negative for the markers for these disorders, but, he had a raised lipid profile and atherosclerosis of the long segment of superficial femoral artery of the affected side with good collateral flow. The atherosclerosis added to the ongoing mechanical insult to his extremity due to his profession after the initial triggering event. The current concept in the orthopaedic pathology explain such injuries as composition of phases of acute vascular insult followed by micro- fractures and osteonecrosis and later with a phase of accelerated remodelling due to intermittent restoration of vascular supply as has been reported by Lehmer et al ^[3] in their patient with a surfer's toe.

Conclusion:

Thus, the present case is a classic case of trauma induced Acro-osteolysis, presenting as chronic foot ulcer with a vascular involvement due to atherosclerosis on left side and emphasize the need for proper

specialist care, professional counselling and rehabilitation of such patient after the initial suspected vascular injury.

Conflict of Interest: None

References:

1. Shubhangi Vinayak Agale. Chronic Leg Ulcers: Epidemiology, Aetiopathogenesis, and Management. *Ulcers*, 2013; 10:1-9.
2. Downing N. D, Garnavos C, Lunn P G. Idiopathic multicentric osteolysis principally affecting the phalanges of the hands and feet. *Journal of Hand Surgery*. 1996(21B): 5:656-659.
3. Lehmer LM, Ragsdale BD, Hoffman D, Clark S J. Surfer's Toe: Trauma induced idiopathic acro-osteolysis in the toes of a 46 years old surfer-A case report. *Journal of the American Podiatric Medical Association*. 2012;102(2):165-168.