

## Fractures occurring in human immunodeficiency virus-infected individuals observed in coastal Karnataka: A series of 13 cases

Sir,

Human immunodeficiency virus (HIV) till date has caused 40.1 million deaths, and in 2021, 650,000 people died from HIV-related causes.<sup>[1]</sup> HIV is no longer what it was two or three decades back becoming a manageable chronic health condition with increasing access to antiretroviral therapy (ART). Opportunistic infections (OIs) which were common in HIV-infected individuals have decreased with the availability of ART and along with prophylaxis against OIs have resulted in an increase in life expectancy. The problem arising now are noncommunicable diseases with osteoporosis and fractures being one of the many known to occur in these individuals.<sup>[1-4]</sup>

The present study was conducted retrospectively and included cases diagnosed with fractures in confirmed cases of HIV (diagnosed as per National AIDS Control Organization guidelines) who were admitted from August 01, 2013, to July 31, 2015, to a tertiary care hospital in coastal Karnataka, India.<sup>[5]</sup> Demographic details, clinical presentation, cause of fracture, bone involved, complications, co-infections, treatment and outcome were analyzed in this study.

During the study period, we encountered 13 cases with males being more commonly affected than females

in a ratio of 10:3 and the age group most commonly affected being 40–50 years (n = 5). The status of HIV was known in four cases where two were on ART. Trauma was the main cause of fracture in all our cases. Fracture of long bones like radius, femur and tibia were the most common to occur in our cases. Co-infection of hepatitis B virus and development of osteomyelitis (*Staphylococcus aureus* was isolated by culture) were seen in two cases each. Majority of our cases showed improvement (n = 12) while one left against medical advice and the outcome is unknown. All the 13 cases are summarized in Table 1.

When we compare the general population to people living with HIV (PLHIV), it was found that fractures occur approximately 10 years earlier in the latter.<sup>[2]</sup> Jespersen *et al.* reported that the increased incidence of osteoporosis occurs in PLHIV, especially in 41–50 and >51 years of age groups.<sup>[4]</sup>

The known risk factors for the occurrence of osteoporosis and fractures in PLHIV include age, ethnicity, past history of fractures, low body mass index, lifestyle, poor nutrition, hypogonadism, menopause, comorbidities, drugs, fall, HIV infecting immune and bone cell, direct effect of ART, gut microbial dysbiosis, bone mineral density changes and co-infections with hepatitis C or B. ART regimen, especially tenofovir disoproxil fumarate, is known to contribute to bone loss.<sup>[2-4]</sup>

We observed that fractures occurred more commonly in males of older age groups and involved predominantly long bones in PLHIV. To prevent fractures in PLHIV, bone fragility assessment of clinical risk factors along with the implementation of general preventive measures such as the promotion of physical activity and prevention of fall is recommended.<sup>[2,3]</sup> Furthermore, Vitamin D or calcium should be supplemented along with the initiation of ART and bisphosphonates can be used if anti-osteoporotic drug is indicated.<sup>[2]</sup>

**Table 1: Demographic information, clinical presentation, diagnosis, treatment, outcome, co-infection, and complications of 13 cases of human immunodeficiency virus-infected individuals with fractures**

Case number	Age	Sex	k/c/o HIV	HAART treatment	Cause	Diagnosis	Treatment	Patient outcome	Co-infection with		Complications
									HBV	HCV	
1	58	Male	Yes	Yes	Accidental fall	Fracture intertrochanteric left femur	Nonoperative with de-rotation boot application with slab	Improved	NR	ND	-
2	45	Male	-	-	Accidental fall	Fracture left tibia	Intramedullary nail with distal screw	Improved	Reactive	ND	Osteomyelitis ( <i>S. aureus</i> )
3	55	Female	-	-	Accidental fall	Open fracture of both right forearm bones middle 1/3	Nonoperative with above-elbow slab	Improved	NR	ND	-
4	28	Male	Yes	-	Road traffic accident	Fracture shaft of the left femur	Conservatively with ICU observation with Thomas splint, not willing for surgery	LAMA	NR	ND	-
5	63	Male	-	-	Road traffic accident	Fracture shaft of the left femur	Interlocking intramedullary locking nailing for the left femur	Improved	NR	ND	-
6	23	Male	-	-	Road traffic accident	Fracture shaft of the right tibia	Below-knee cast	Improved	NR	ND	Osteomyelitis ( <i>S. aureus</i> )
7	46	Male	-	-	Road traffic accident	Fracture left zygomatic-maxillary complex	ORIS with stainless miniplates and screws	Improved	NR	ND	-
8	45	Female	-	-	Accidental fall	Fracture distal end of radius	Reduction with primary closure	Improved	Reactive	NR	-
9	30	Female	Yes	-	Road traffic accident	Fracture right zygomatic arch and right lateral orbital rim	Conservative management	Improved	NR	NR	-
10	45	Male	-	-	Accidental fall	Fracture right distal radius comminuted fracture and intra-articular fracture of the right calcaneum	Conservative management	Improved	NR	ND	-
11	39	Male	Yes	Yes	Road traffic accident	Fracture supracondylar of the right humerus with open fracture of both bones of the right forearm	Underwent CRIF with rush nailing of the right forearm and above-elbow slab and closed reduction with slab application	Improved	ND	ND	-
12	22	Male	-	-	Road traffic accident	Intra-articular fracture of base of the right 5 <sup>th</sup> metacarpal	ORIF with K-wiring	Improved	NR	ND	-
13	45	Male	-	-	Accidental fall	Fracture intra-articular distal right radius	Closed reduction and cast application	Improved	NR	ND	-

k/c/o=Known case of; HAART=Highly active antiretroviral therapy; HBV=Hepatitis B virus; HCV=Hepatitis C virus; TB=Tuberculosis; NR=Nonreactive; ND=Not done; LAMA=Left against medical advice; CRIF=Closed reduction and internal fixation; ORIF=Open reduction and internal fixation; ICU=Intensive care unit; *S. aureus*=*Staphylococcus aureus*

**Financial support and sponsorship**

Nil.

**Conflicts of interest**

There are no conflicts of interest.

Jutang Babat Ain Tiewsoh<sup>1,2</sup>, Beena Antony<sup>1</sup>

<sup>1</sup>Department of Microbiology, Father Muller Medical College, Mangalore, Karnataka, <sup>2</sup>Division of Bacteriology, ICMR-National Institute of Cholera and Enteric Diseases, Kolkata, West Bengal, India

**Address for correspondence:**

Dr. Beena Antony,  
Department of Microbiology, Father Muller Medical College,  
Kankanady, Mangalore - 575002, Karnataka, India.  
E-mail: beenafmmc@gmail.com

**References**

- World Health Organization (WHO). HIV Factsheet. Available from: <https://www.who.int/news-room/fact-sheets/detail/hiv-aids>. [Last accessed on 2022 Oct 14].
- Biver E. Osteoporosis and HIV infection. *Calcif Tissue Int* 2022;110:624-40.
- Starup-Linde J, Rosendahl SB, Storgaard M, Langdahl B. Management of osteoporosis in patients living with HIV-A systematic review and meta-analysis. *J Acquir Immune Defic Syndr* 2020;83:1-8.
- Jespersen NA, Axelsen F, Dollerup J, Nørgaard M, Larsen CS. The burden of non-communicable diseases and mortality in people living with HIV (PLHIV) in the pre-, early- and late-HAART era. *HIV Med* 2021;22:478-90.
- National AIDS Control Organization. Ministry of Health and Family Welfare, Government of India: National Guidelines for HIV Testing; 2015. Available from: [http://naco.gov.in/sites/default/files/National\\_Guidelines\\_for\\_HIV\\_Testing\\_21Apr2016.pdf](http://naco.gov.in/sites/default/files/National_Guidelines_for_HIV_Testing_21Apr2016.pdf). [Last accessed on 2022 Oct 14].

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

**Access this article online****Quick Response Code:****Website:**

[www.ijstd.org](http://www.ijstd.org)

**DOI:**

10.4103/ijstd.ijstd\_104\_22

**How to cite this article:** Tiewsoh JB, Antony B. Fractures occurring in human immunodeficiency virus-infected individuals observed in coastal Karnataka: A series of 13 cases. *Indian J Sex Transm Dis* 2023;44:182-4.

**Submitted:** 21-Oct-2022

**Revised:** 17-Mar-2023

**Accepted:** 28-Mar-2023

**Published:** 06-Dec-2023

© 2023 Indian Journal of Sexually Transmitted Diseases and AIDS | Published by Wolters Kluwer - Medknow