

# Osteoporose Após Lesão Medular: Relato de Caso

## Osteoporosis Following a Spinal Cord Lesion: Case Report

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### Resumo

A lesão medular (LM) é uma causa secundária de osteoporose. A perda de massa óssea após uma LM ocorre em todo o esqueleto com maior acometimento dos membros inferiores. Essa perda óssea é mais rápida nos primeiros 4 meses após uma lesão medular. Continua, no entanto, em menor grau, ao longo dos anos. Um paciente do sexo masculino de 56 anos que sofreu um acidente automobilístico em 1986 com uma fratura-luxação concomitante das vértebras C5-C6 da qual resultou uma LM - classificado como Tetraplegia B na American Spinal Cord Injury Association Scale (ASIA), com C4 como nível neurológico. O paciente foi internado num Centro de Reabilitação a 11 de maio de 2020 para uma reabilitação integral e multiprofissional. Em 22 de junho de 2020, o paciente apresentou crepitação na coxa esquerda após ter ouvido um “pop” durante a mobilização passiva do quadril. O especialista em reabilitação pediu uma radiografia. O paciente foi diagnosticado com uma fratura diafisária em espiral do fêmur esquerdo - fratura por fragilidade por osteoporose sublesional. Em 29 de junho o paciente foi submetido a redução aberta e fixação interna com haste longa anterógrada. O paciente voltou ao Centro de Reabilitação em 7 de julho, onde foi medicado com 70 mg de alendronato oral semanalmente. A 5 de agosto, as radiografias de controle não mostraram sinais de consolidação óssea. Até hoje, não há diretrizes para tratar a osteoporose após lesão medular. Existem estudos na fase aguda da LM, mas faltam evidências quando evolui para a cronicidade. Os bisfosfonatos são uma classe de osteoporose com perda óssea mediada por anti-osteoclastos

que têm apresentado bons resultados na DMO, principalmente o alendronato oral, mas nenhum demonstrou diminuição do risco de fratura.

**Palavras-chave:** Lesões da Medula Espinal/complicações; Osteoporose/etiologia

### Abstract

*Spinal cord injury (SCI) is a cause of secondary osteoporosis. The loss of bone mass after a SCI happens throughout the skeleton with greater affection of inferior extremities. This loss of bone is quicker in the first 4 months following a SCI. It continues, however to a lesser degree, over the years. A 56-year-old male patient suffered an automobile accident in 1986 with a concomitant fracture-luxation of C5-C6 vertebrae from which resulted a SCI - classified as a Tetraplegia B in the American Spinal Cord Injury Association (ASIA) Scale, with C4 as the neurological level. The patient was admitted to an inpatient Rehabilitation Centre on May 11, 2020, for a comprehensive and multiprofessional rehabilitation. On June 22, 2020, the patient presented with a left thigh crepitation after had been heard a “pop” during passive mobilization of the hip. The Rehabilitation Specialist asked for a radiography. The patient was transferred to an Emergency Department, being diagnosed a spiral diaphyseal fracture of the left femur - a fragility fracture due to sublesional osteoporosis. On June 29, the patient was submitted to an open reduction and internal fixation with an antegrade long nail. The patient returned to the Rehabilitation Centre on July 7 where 70 mg of oral alendronate weekly was introduced. On August 5,*

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control radiographs showed no signs of bone consolidation. Until today, there are no guidelines to treat osteoporosis after a SCI. There are studies in the acute phase of the SCI but there is a lack of evidence when it evolves to chronicity. Bisphosphonates are a class of anti-osteoclast-mediated bone loss osteoporosis who have presented good results on the BMD, especially oral alendronate, but none demonstrated a diminishing of the fracture risk.

**Keywords:** Osteoporosis/etiology; Spinal Cord Injuries/ complications

## Introduction

Spinal cord injury (SCI) is one of several causes of secondary osteoporosis. The loss of bone mass after a SCI happens throughout the skeleton with greater affection of the inferior extremities – distal femur and proximal tibia are the most affected areas.<sup>1</sup>

This loss of bone is quicker in the first 4 months following a SCI. Bone mineral loss continues, but to a lesser degree, in the pelvis and lower extremities over the next 10 years.<sup>2</sup>

Low-impact fractures in these individuals usually occur by forces that normally do not cause any fracture. The most common sites of fracture are the femoral shaft, proximal tibia and fibula.

Currently, there are no guidelines in the management and treatment of patients with SCI.

## Case Report

A 56-year-old male patient suffered an automobile accident in 1986 with a concomitant fracture-luxation of C5-C6 vertebrae from which resulted a SCI – classified as a Tetraplegia B in the American Spinal Cord Injury Association (ASIA) Impairment Scale (AIS), with C4 as the neurological level.

The patient was admitted to a Rehabilitation Centre on May 11, 2020, for a comprehensive and multi professional rehabilitation program.

On June 22 of 2020, the patient presented with a proximal left thigh crepitation after had been heard a slight “pop” during passive soft mobilization of the hip by a physical therapist. The Rehabilitation Specialist was called to assess and asked for a radiography, suspecting of a bone fracture.

The patient was transferred to an Emergency Department, being diagnosed a spiral diaphyseal fracture of the left femur – a fragility fracture due to sublesional osteoporosis. On June 29, the patient was submitted to an open reduction



**Figure 1** - Spiral diaphyseal fracture of the left femur (anterior view with external rotation)



**Figure 2** - Spiral diaphyseal fracture of the left femur (anterior view)

and internal fixation with a long antegrade femoral nail with 2 proximal and 2 distal screws. Two cerclage cables around the fracture were also placed.

The patient returned to the Rehabilitation Centre on July 7. Then, the patient was started on 70 mg of oral alendronate, weekly, for the treatment of sublesional osteoporosis.

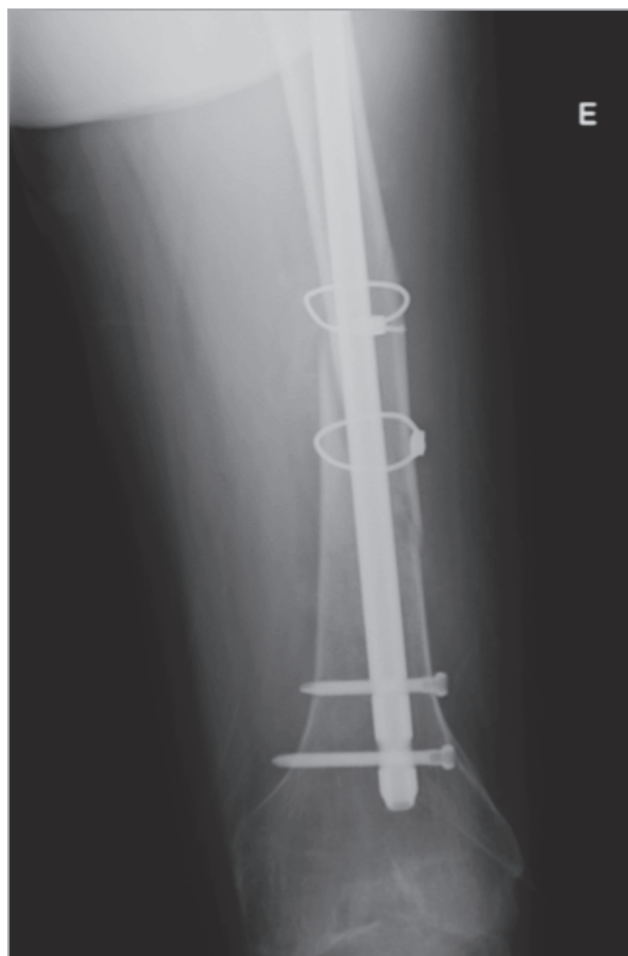
Control radiographs were performed on August 5, showing yet no signs of bone consolidation.



**Figure 3** - Pelvis anterior view post-operative radiography (5/8/2020)

## Conclusion

Until today, there are no guidelines as to how to treat sublesional osteoporosis after a SCI. There are studies in the acute phase of the SCI but there is a clear lack of evidence when it evolves to chronicity. Bisphosphonates are a class of anti-osteoclast-mediated bone loss osteoporosis who have presented good results, especially oral



**Figure 4** - Distal left femur post-operatively radiography (5/8/2020)

alendronate,<sup>3</sup> but none demonstrated a diminishing of the fracture risk.

More studies are necessary in order to effectively prevent and treat osteoporosis following a SCI.

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