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Case Report

Intraspinal Leakage of Cement During Vertebroplasty for an Elderly Woman with Osteoporotic Burst Fracture: A Case Report and Short Review of Prevention and Management

為患有骨質疏鬆性爆裂性骨折的老太太，進行椎體成形術卻出現骨水泥在椎管內滲漏：病例報告和回顧其預防和處理

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ABSTRACT

Osteoporotic spine fracture is very common nowadays due to the aging population. It may result in prolonged immobilization due to significant back pain. Cement vertebroplasty helps to relieve pain, provides immediate stability and allows early mobilization. Intraspinal leakage of cement is a rare complication but it may lead to catastrophic neurological injuries. Evidence-based management guidelines for this complication are lacking. This is a case report about intraspinal leakage of cement during vertebroplasty for an 85-year-old woman with osteoporotic burst fractures over the lumbar spine. Urgent exploration and decompression was performed. No neurological injury was found after the operation and the patient recovered from osteoporotic back pain uneventfully.

中 文 摘 要

由於人口老化，骨質疏鬆性脊柱骨折是很常見。當中的背部疼痛可以導致患者活動受限制。骨水泥椎體成形術有助於緩解疼痛，提供即時的穩定性，並允許提早活動。椎管內滲漏的骨水泥是一種罕見的併發症，但它可能會導致災難性的神經損傷。處理這一併發症的循證管理指引很缺乏。本報告是關於一個85歲老太太，患有腰椎骨質疏鬆性爆裂性骨折，在進行椎體成形術時出現骨水泥椎管內滲漏。醫生立時進行緊急勘探和減壓手術。術後病人沒有神經損傷，也從骨質疏鬆性腰痛順利康復。

Introduction

Cement vertebroplasty is an effective treatment for painful osteoporotic collapse. It can be performed percutaneously in a minimally invasive manner, which is particularly beneficial in the elderly. Leakage of cement into the spinal canal is a rare complication and there are just a few case reports about this potentially devastating problem.[1,2] Resultant neurological injury can be permanent and it is due to the mechanical, thermal, and chemical effect of the cement.[1] By contrast, the standard assessment and management of this complication is seldom addressed in the literature. In this article, we are going to present a case of intraspinal cement leakage during a two-level vertebroplasty followed by a short review on the prevention and treatment of this complication.

Case report

An 85-year-old woman was admitted on 28th December 2013 due to mechanical low back pain for 3 days. She had a past history of right total hip replacement in 1993 and left total knee replacement in 2005; otherwise she enjoyed good past health. She was able to walk with a frame before admission. She suffered from spontaneous onset mechanical low back pain for 3 days with no history of injury. There was no radiating pain to the lower limb or any sphincter problem. She denied any fever or constitutional symptoms. On examination, local tenderness over L1 and L3 associated with paraspinal muscle spasm was noted. Lower limb neurological examination was unremarkable. She had normal anal

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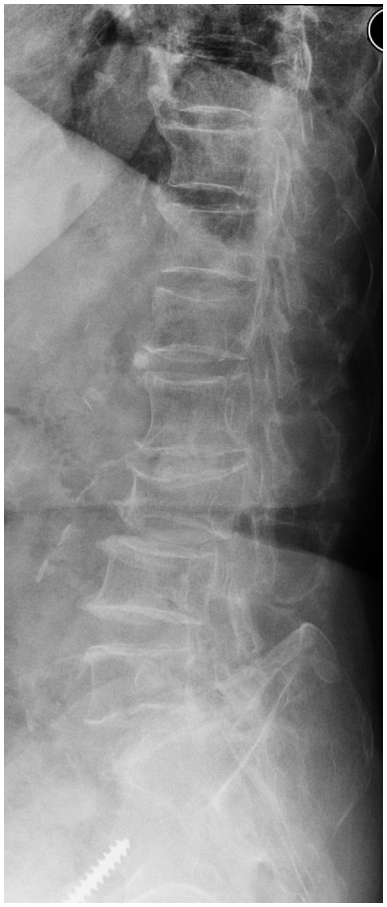

Figure 1. Lateral lumbosacral spine X-ray showing collapsed L1 and L3.

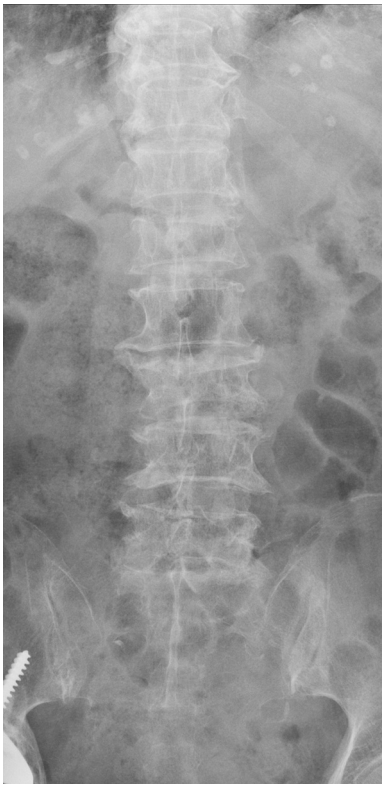

Figure 2. Anteroposterior view of the lumbosacral spine.

tone and perianal sensation. The hemoglobin level, white cell count, platelet count, and bone profile were normal. Radiographs of the lumbosacral spine showed collapse L1 and L3 with degenerative changes (Figures 1 and 2). Computed tomography (CT) of the lumbosacral spine was performed and it showed collapse L1 with intravertebral cleft with minor degree of retropulsion (Figures 3 and 4). Pedicles and posterior elements remained intact.

The patient was treated conservatively with thoracolumbosacral orthosis, oral analgesics, and physiotherapy. However, she did not respond well and still could not get out of the bed after 10 days of conservative treatment. Magnetic resonance imaging of the lumbosacral spine showed features of recent osteoporotic collapse over L1 with minimal retropulsion and slight encroachment of the spinal canal. There was also old osteoporotic collapse over L3

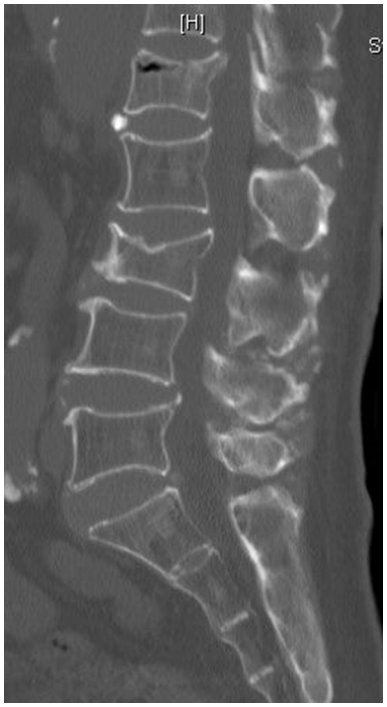

Figure 3. Sagittal CT view showing collapsed L1 with intraverterbal cleft.

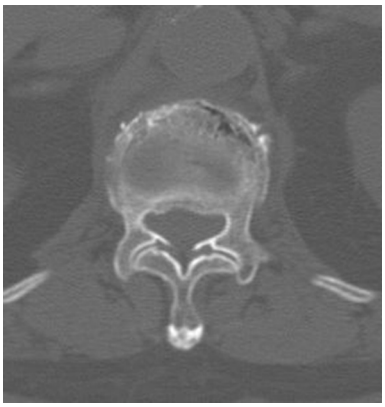

Figure 4. Axial CT view of L1 showing collapse with intraverterbal cleft.