

# Cement Embolism after Vertebroplasty

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**Abstract.** Vertebroplasty consists of injection under image guidance of a cement polymer, commonly polymethylmethacrylate, into the vertebral body to improved stability. Vertebroplasty is essentially safety. However whether vertebral compression or (micro)fractures occur during the procedure, the high vascularization and the anatomic network of the paravertebral and extradural venous plexuses, can facilitate migration of cement fragments into the systemic venous circulation. We described the case of cement pulmonary embolism in a 75-year-old-female after vertebroplasty. A chest CT scan showed a multiple and spontaneous hyperdensities suggesting cement pulmonary-emboli. There are different therapeutic approach depending of the clinical severity. For asymptomatic patients clinical surveillance or prophylactic LMWH. Active treatment has been suggested only for symptomatic cases. ([www.actabiomedica.it](http://www.actabiomedica.it))

**Key words:** cement embolism, chest pain, vertebroplasty

## Introduction

Vertebroplasty was first introduced in 1984 at the Amiens University Hospital, in France(1) Since then, it has become of large use in therapeutic intervention for secondary vertebral compression fractures to both osteoporosis and malignancy. Vertebroplasty is essentially safety, (2) however the high vascularization of the vertebral bodies and the anatomic network of the paravertebral and extradural venous plexuses, can facilitate the migration of cement fragments into the systemic venous circulation in case of vertebral compression or fractures.

## Case report

We described the case of 75-year-old-female admitted to our ward for severe dyspnea. She had a several comorbidities including hypertension, atsmha and previous ovarian cancer. She had undergone percutaneous vertebroplasty for vertebral compression

fracture of L2-L3. A chest CT scan with intravenous contrast was performed to rule out secondary Pulmonary Embolism (PE). No thromboembolic PE was detected, but multiple, small, spontaneous (before the contrast injection) and hyperdense images depicts cement pulmonary-emboli (cPE) of the right upper and left lobe pulmonary vasculatures.

Based on the current literature, we started a prophylactic-mono-die dose of Low-molecular-weight heparin (LMWH) to prevent secondary embolism. Patient was hemodynamically stable. Invasive and non-invasive positive pressure ventilation were not required. She rapidly improved and was slowly weaned off oxygen. After 9 days she was discharged with six days of prophylactic mono-die dose of LMWH.

The incidence of cPE was about 0.9%.(3) Patients are often asymptomatic,(4) however symptoms can occur and may include dyspnoea, tachypnoea, palpitations and chest pain.(5) Emboli were immediatly detected by a non-contrast chest CT, that showing a radio-opaque cement in the culprit pulmonary arteries. Rarely chest X-ray may show cement emboli as

a tubular or branching high-density lines of pulmonary vessels. There are different therapeutic approaches depending of the clinical severity. For asymptomatic patients the only clinical surveillance or prophylactic-mono-die dose of LMWH can be the best choice. However active treatment has been suggested only for symptomatic patients and including full anticoagulation (with bidie dose of LMWH adjusted for weight and renal function), endovascular retrieval or open heart surgery for extraction of emboli (6).

**Conflict of Interest:** Each author declares that he or she has no commercial associations (e.g. consultancies, stock ownership, equity interest, patent/licensing arrangement etc.) that might pose a conflict of interest in connection with the submitted article.

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