



### H31 When Thromboembolism is Inevitable — A Case Report of a Lung Cancer Patient's Unexpected Death

*Alberto Alongi\**, University of Palermo Section of Legal Medicine, Via del Vespro, 129, Palermo 90127, ITALY; *Emiliano G. Maresi*, University of Palermo, Via del Vespro 129, Palermo 90100, ITALY; and *Antonina Argo*, Via Del Vespro 127, Palermo 90100, ITALY

The goal of this presentation is to share an uncommon thromboembolism case in a patient suffering from a Large-Cell Lung Carcinoma (LCC).

This presentation will impact the forensic science community by highlighting how pulmonary thromboembolism, a well-known complication of lung cancer, could give access to a medical legal litigation for “unexpected death.”

**Case:** A 49-year-old Caucasian female was taken by ambulance to the hospital after complaining of uneasiness. On this occasion, pulmonary embolism was diagnosed using an angio Computed Tomography (CT) that also detected the presence of solid lesions and parenchymal thickenings, suggestive of an etheroplastic process. The biopsy, performed by bronchoscopy, diagnosed an anaplastic LCC. Moreover, during her hospital stay, venous thrombosis was detected in the lower limbs. Anticoagulant treatment with EBPM followed by warfarin therapy was initiated. After obtaining a good clinical response, the patient was released. Over the next four days, due to leg pain in the lower left side, new tests were conducted and an International Normalized Ratio (INR) of 1.99 was found (range 1.5–2.5). The patient was taken to the emergency room and exhibited blood pressure of 120/60mmHg, a heart rate of 119bpm, and oxygen saturation of 95%; after new hematochemical examinations, an incalculable INR and a positive result of D-dimer (75.2µg/mL) were found. The cardiological and the vascular surgery examinations highlighted the thrombosis of the left popliteal vein. The patient then chose to leave the hospital the same day. After again feeling ill, she arrived at the emergency room and died a few minutes later.

The autopsy findings were a fibrinous saddle thromboembolus present inside the pulmonary trunk; this is a known complication of severe, advanced lung cancer, from which the patient suffered. Cancer thrombosis pathogenesis is complex and involves multiple factors, including general factors, factors related to the inflammatory response of the tumor, and specific properties of cancer cells; the latter, in fact, release substances that induce inappropriate activation of blood coagulation, favoring thrombosis. A patient with an incalculable INR means that the blood was hyperthinned. In cases of deep venous thrombosis/embolism, the therapy is based on anticoagulation and, in this particular case, the drug therapy was over-effective. The presence of very effective anticoagulation (INR incalculable), as in this case, would not have allowed the use of other pharmacological/mechanical therapies.

This clinical scenario, framed as an unexpected death, has given rise to legal litigation. The case presented is not unusual, clinically speaking; in fact, in the absence of a clinical history, the case was treated as an expected death by the public prosecutor.

#### Unexpected Death, Lung Cancer, Thromboembolism