

## Septic Pulmonary Embolism: Possible Undetected Complication of Central Venous Catheter-Related Bloodstream Infection (CRBSI)

Tibullo L<sup>\*1</sup>, Nunziata M<sup>1</sup>, Puca I<sup>1</sup>, Casoria A<sup>2</sup>, Mastroianni M<sup>1</sup>, Iorio V<sup>1</sup>, Amitrano M<sup>1</sup>

<sup>1</sup>Internal Medicine Ward, San Giuseppe Moscati Hospital, Avellino, Italy

<sup>2</sup>Internal Medicine Ward, Federico II University, Naples, Italy

**Background:** Septic pulmonary embolism represents a rare form of non-thrombotic pulmonary embolism in which emboli containing pathogens and purulent material mixed with fibrin thrombi enter the pulmonary circulation through the pulmonary artery, resulting in stenosis or complete obstruction of small vessels, resulting in the development of infection. There is a correlation between the onset of infections related to the central venous catheter and pulmonary septic embolism.

**Case history:** We report the case of a 50-year-old man in nutritional therapy parenteral home (NPD) through a central venous catheter as suffering from gastric adenocarcinoma treated surgically with total gastrectomy. Caregivers had received written and oral information on the aseptic management of the catheter and the recognition of complications related to its use.

Diagnosis of catheter-related bloodstream infection (CRBSI) was made as expected on two blood samples (one from peripheral vein and one from catheter) that must meet the diagnostic criteria for catheter-related bacteremia for quantitative blood cultures. The germ found on the samples was methicillin-resistant *Staphylococcus Aureus*. At the time of diagnosis of infection, the patient had undergone trans-thoracic echocardiography, annulated vessel echo color-Doppler and high-resolution chest CT. After 15 days of antibiotic therapy, a post-treatment chest CT was performed, showing complete resolution of the infected lesions.

**Discussion:** Central venous catheters represent an important health care tool that has revolutionized the clinical management of different types of patients. Infection of the device with the development of bacteremia (CRBSI) represents the most frequent and severe complication of long-term home parenteral nutrition, often requiring hospitalization to be managed properly. Septic pulmonary embolism is one of the possible complications of CRBSI. GRAM + bacteria were more frequently associated with a secondary lung location. Pulmonary septic embolization can occur independently of the coexistence of endocarditis in the course of bacteremia related to the central venous

catheter. Septic emboli can move from the primary site of infection to the lung, being transported by the blood flow of the pulmonary artery. When this happens, the affected patients may not present any specific symptoms, and therefore, the diagnosis is delayed with poor clinical outcomes of the therapy. If not promptly diagnosed, this complication can extend the duration of treatment and hospitalization. Suspicion of septic lung metastases arises from the persistence of fever despite antibiotic therapy. Confirmation by chest CT results in an enhancement or modification of therapy with its prolongation. In cases at high risk of severe infections, performing a chest CT scan allows for early detection of this secondary localization, preventing therapeutic failure and the development of other complications; in fact, chest CT is the most appropriate investigation for the early diagnosis of septic pulmonary embolism.

In conclusion, pulmonary septic embolism is a possible unrecognized complication of catheter-related infection; early diagnosis of SPE improves the outcome of patients with catheter-related bacteremic infection.

### References

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