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## Percutaneous cryoablation of lung tumors: One year follow-up

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**Purpose:** To report the data of one year follow-up with CT-guided percutaneous cryoablation (PCA) in patients with primary and secondary pulmonary tumors.

**Method and Materials:** CT-guided PCA was performed on 46 lung masses (18 NSCLC=39%; 28 secondary lung malignancies=61%) in 40 consecutive patients (28 men and 12 women; mean age 65±10 years) not suitable for surgical resection. Lung masses were treated using three types of cryoprobes: IceRod, IceSfere and IceSeed capable of obtaining different size of iceball. The number of probes used ranged from 1 to 5 depending on the size of the tumor. After insertion of the cryoprobes into the lesion, the PCA were performed with two cycles each of 12 minutes of freezing followed by a 4 minutes active thawing phase and a 4 minutes passive thawing phase for each one for all treatments.

**Results:** All cryoablation sessions were successfully completed. All tumors were ablated. No procedure-related deaths occurred. Morbidity consisted of 20% (8 of 40) pneumothorax, 7% (3 of 40) pleural effusion and 3% (1 of 40) cases asymptomatic small pulmonary hemorrhage, respectively, all of CTCAE grade 1 (Common Terminology Criteria for Adverse Events). Low density of entire lesion, central necrosis and solid mass appearance were identify in 32 (70%), 8 (17%) and 6 (13%) of cryoablated tumors, respectively. Technical success (complete lack of enhancement) was achieved in 80%, 95%, 91% and 85% of treated lesions at 1-, 3-, 6-, and 12-months CT follow-up scan, respectively. Comparing the tumor longest diameter between the baseline and at 6 and 12 months CT images, technical success was revealed in 91% and 83% cases, respectively.

**Conclusion:** Our preliminary experience suggests that PCA is a feasible and safe treatment option. Well-designed clinical trials with a larger patient population are necessary to further investigate the long-term results and prognostic factors.

**Clinical Relevance/Application:** Cryoablation of the lung tumors is a safe and effective procedure capable of obtaining complete ablation of the tumor in a high number of patients after one year follow-up.

## Biography

Claudio Pusceddu (photo) was born in 1958 in South Sardinia (Cagliari). He graduated in Medicine and Surgery at the University of Cagliari in the same university he specialized in Diagnostic Radiology and Science of Images (1994) and Medical Oncology (2001). Since 1991, lends his work at the Department of Radio-Oncology, Oncology Hospital "A. Businco" of Cagliari where in recent years has gained considerable experience with some extra-vascular interventional radiology techniques used in the treatment of cancer, including Thermoablation radiofrequency, cryoablation, osteoplasty in bone metastases, and the combination of some of the procedures listed.

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