



# Cryoablation of mCRC in the Lung Located Adjacent to the Aorta

**Dr Thierry de Baere**

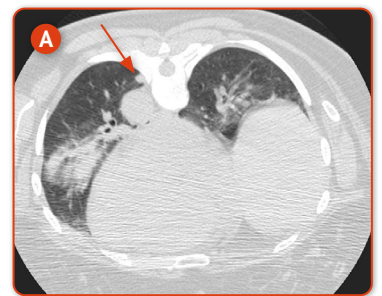
*Gustave Roussy Cancer Institute, Villejuif, France*

*“ Cryoablation allows technically challenging lung tumours to be treated safely and effectively. ”*



## PRESENTATION

- 57-year-old female with history of lung metastases from colorectal cancer
  - Video-assisted thoracic surgery 20 months previously for wedge resection of single 1.2cm lung metastasis in right upper lobe
- New 1cm lung metastasis identified in the left lower lobe **A**

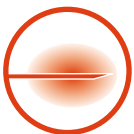


**Presentation:** CT in the prone position under general anaesthesia shows a 1cm lung nodule close to the aorta



## TREATMENT PLAN

- Tumour board decided on thermal ablation
  - Cryoablation was selected from the thermal ablation techniques available due to the proximity of the nodule to the aorta, which rendered it difficult to target with an expandable needle
  - For successful cryoablation, the metastasis would need to be moved away from the aorta to avoid both the possible damage to the aorta from the ice and the heat-sink effect that would reduce the chances of complete ablation



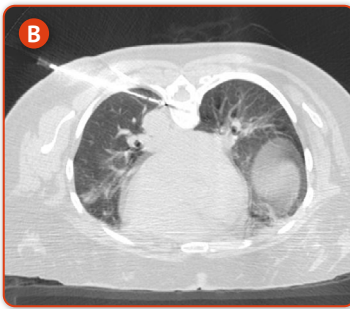
## TREATMENT

- One IceSphere™ 1.5 needle was placed in the target tumour under CT guidance **B**
- 50ml of CO<sub>2</sub> was injected into the pleural space using a spring-loaded needle **C**
- The IceSphere™ 1.5 needle was activated for 30 seconds at 20% maximum power to stick the needle to the tumour (“stick-mode”) to allow the needle and tumour to be gently pulled back by 3cm **D**
- An additional 250ml CO<sub>2</sub> was then injected and the needle pulled back a few centimetres further **E**
- With the tumour isolated in the middle of CO<sub>2</sub>-filled pleural cavity, away from vulnerable neighbouring structures, ablation could be completed safely
- Freeze and thaw cycles were completed per lung protocol

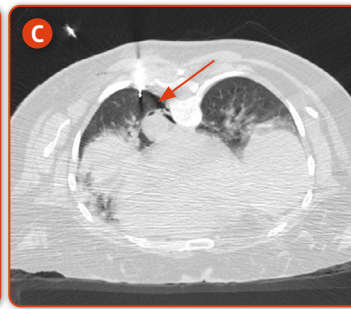


# Cryoablation of mCRC in the Lung Located Adjacent to the Aorta

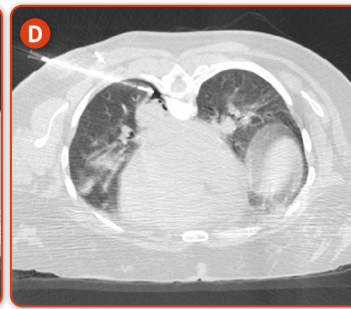
Doctor Thierry de Baere, Gustave Roussy Cancer Institute, Villejuif, France



**Cryoablation:** CT (axial view) showing single puncture for placement of IceSphere™ 1.5 needle in the target tumour



**Cryoablation:** CT (axial view) showing 50ml of CO<sub>2</sub> injected into pleural space. Some CO<sub>2</sub> visible in the pleural space (arrow)



**Cryoablation:** After 30 seconds of activation at 20% maximum power, the IceSphere™ needle is gently pulled back by 3cm

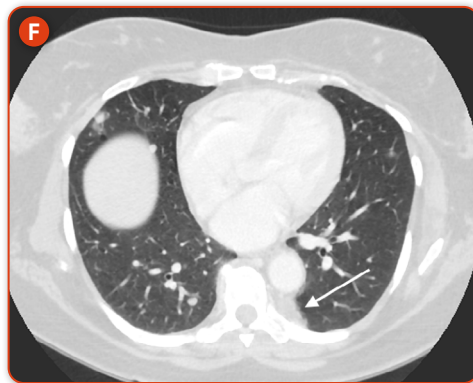


**Cryoablation:** Additional 250ml of CO<sub>2</sub> is injected and the needle pulled back by a few more centimetres to isolate the tumour



## OUTCOME

- One-month follow-up CT showed condensation at the location of the cryoablation **F**
- One-year follow-up CT showed near-complete regression of the ablation zone but unfortunately also confirmed progression of metastatic disease with appearance of multiple distant nodules **G**



**Post cryoablation:** One-month follow-up CT (axial view) shows condensation in the location of the cryoablation (arrow)



**Post cryoablation:** One-year follow-up CT shows nearly complete regression of the ablation zone (arrow) and multiple distant metastases.



## CONCLUSION

- The unique “stick-mode” feature offered by cryoablation allows the tumour to be moved away from vulnerable adjacent organs, and consequently for technically challenging lung tumours to be treated safely and effectively

CT: Computed tomography  
CO<sub>2</sub>: Carbon dioxide  
mCRC: Metastatic colorectal cancer

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PI-883803-AA

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