

Computed Tomography Perfusion

A New Method to Evaluate Response to Therapy in Lung Cancer

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A 60-year-old man with lung adenocarcinoma, judged inoperable, underwent perfusion computed tomography (pCT) scan before and after 3 and 6 months of conventional and antiangiogenic chemotherapy (Paclitaxel 175 mg/mq and Bevacizumab 7.5 mg/kg). The treatment started immediately after the first pCT examination and was repeated every 21 days for 6 months (Figures 1 and 2).

pCT parameters adopted by applying dedicated perfusion software were blood flow, blood volume, time to peak, and permeability.¹

Objective response in clinical practice is evaluated by RECIST, measuring only the maximal axial diameter of the lesions.

Changes, as demonstrated in this case, suggest that pCT should be considered as part of the response evaluation with antiangiogenesis agents.

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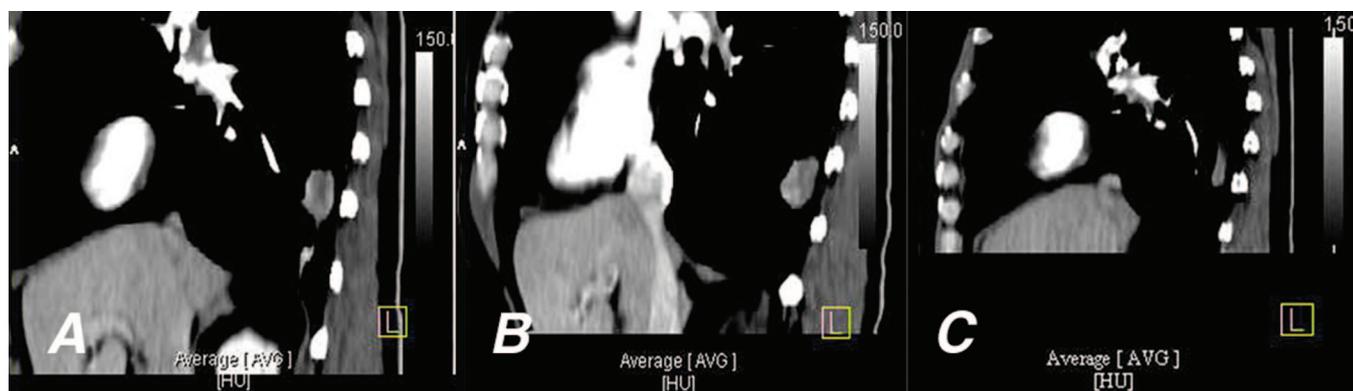


FIGURE 1. CT sagittal image shows that the maximal diameter of the lesion was 19 mm (A) before starting therapy (January 2010). After 3 months, the lesion showed a stable diameter (B); after 6 months, there was a decrease in morphology (C).

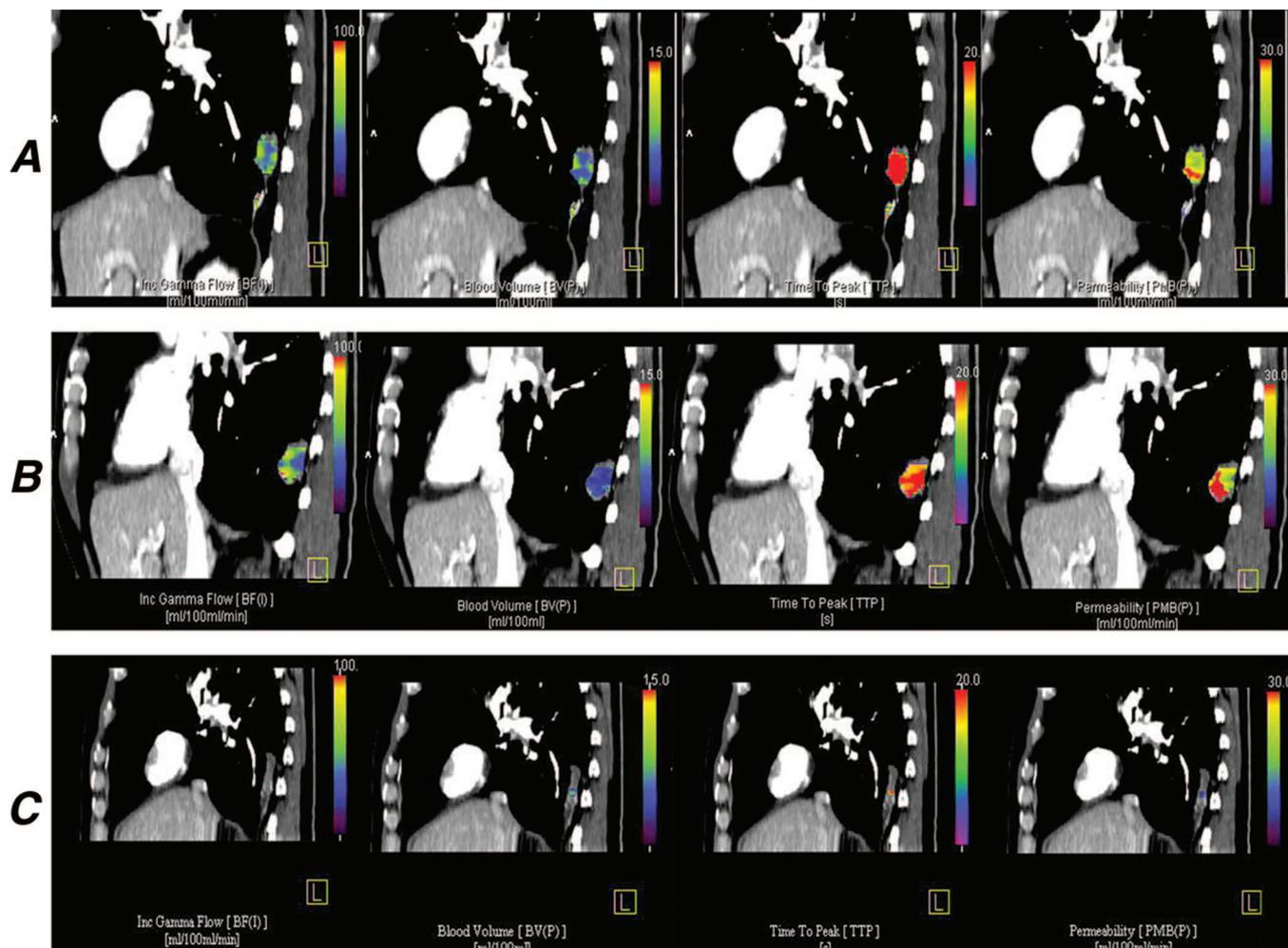


FIGURE 2. pCT sagittal image of the same patient shows an inhomogeneous vascularity (A), measured by color-coded maps of perfusional parameters (from blue to red), before starting therapy. After 3 months, there was a decrease of vascularity (B), whereas after 6 months, there was a decrease in morphology with a loss in vascularity (C).