Spatially registered pre-therapy CT scans (left), post-therapy CT scans (middle), and pre-therapy PET $^{18}$F-FDG standard uptake value (SUV) maps (right) for two patients who received definitive radiation therapy for esophageal cancer. The patient in the top row did not develop symptomatic radiation pneumonitis (RP), while the bottom row patient succumbed to grade 5 (fatal) RP. The associated paper demonstrates that the addition of dose-dependent standard deviation of pretreatment SUV in the lung parenchyma as a biomarker significantly improves the accuracy with which pre-to-post therapy changes in CT texture features predict RP occurrence. The study suggests that PET $^{18}$F-FDG radiomic features may have a role in identifying patients who have a predisposition to strong inflammatory responses to radiation therapy.

[From Figure 1 in “Incorporation of pre-therapy $^{18}$F-FDG uptake data with CT texture features into a radiomics model for radiation pneumonitis diagnosis” by Al-Hallaq et al., Med. Phys. 44, 3686-3694 (2017)]