**PET diagnostic activity in lung cancer**
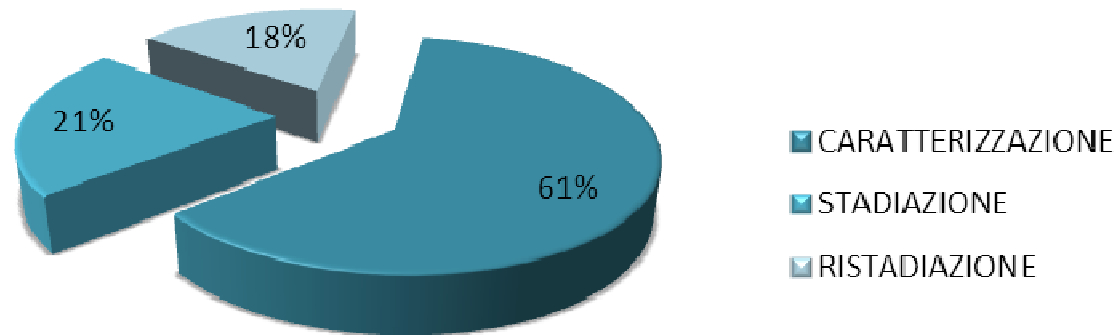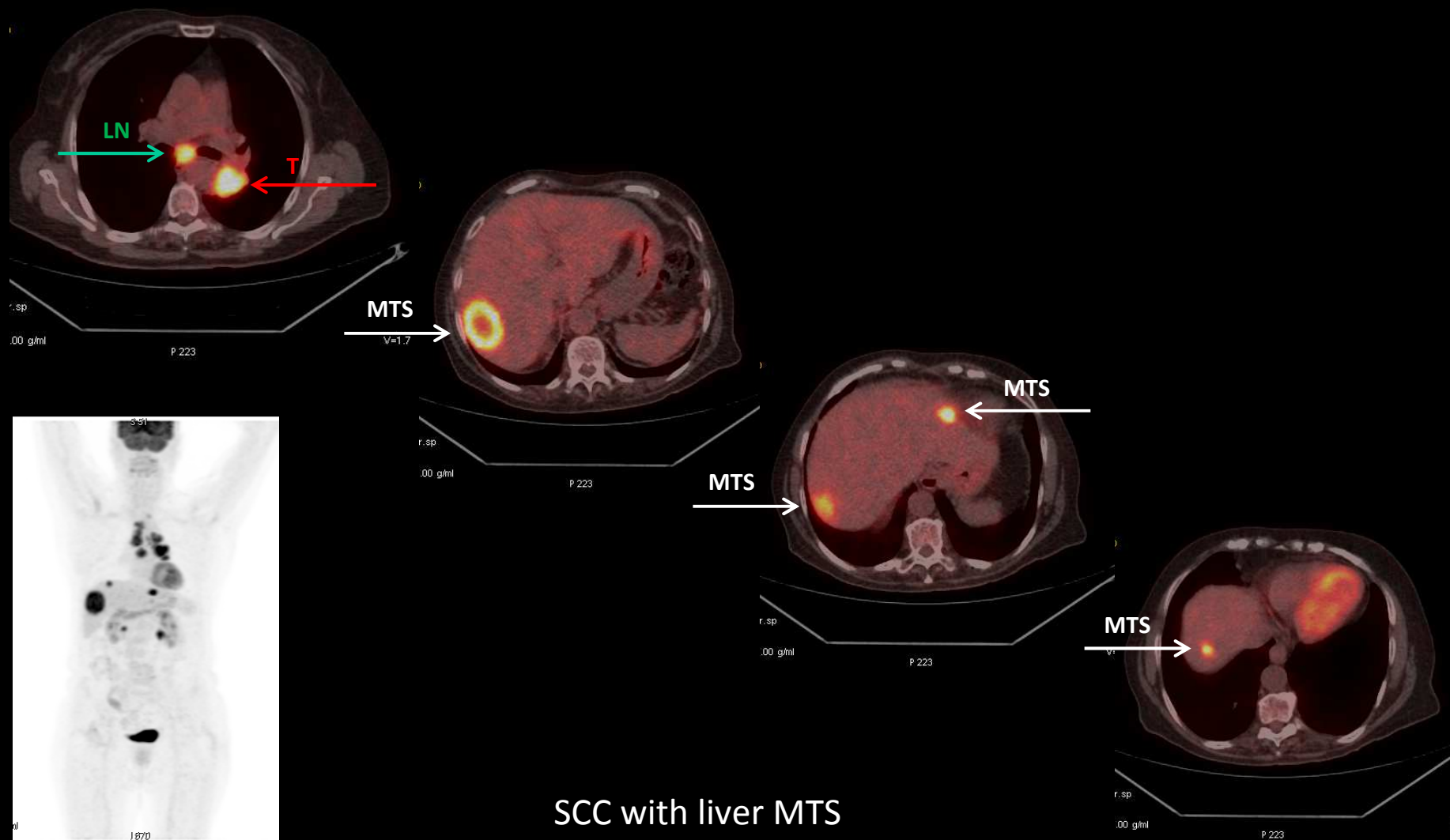**Nuclear Medicine Department of AOU-PR (2009-2015 Nov)**

Lung cancer  1120
SPN  410
RT planning 15
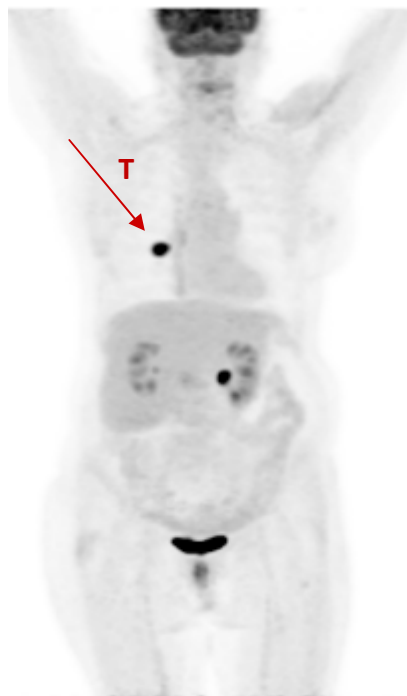Staging-Restaging  695

1. T designation
2. N designation
3. M designation
4. Prognostic stratification

PET/CT
*Tracer: 18F-FDG*

LN

T

MTS

MTS

MTS

MTS

SCC with liver MTS

# Early diagnosis: characterization of lesion



SUVmax 9.3

F 65 yrs
CT: solid nodule

# Type of PET-CT acquisition



QC

SUVmax 2.6

LN

SUV 3.2

SUV 6.8
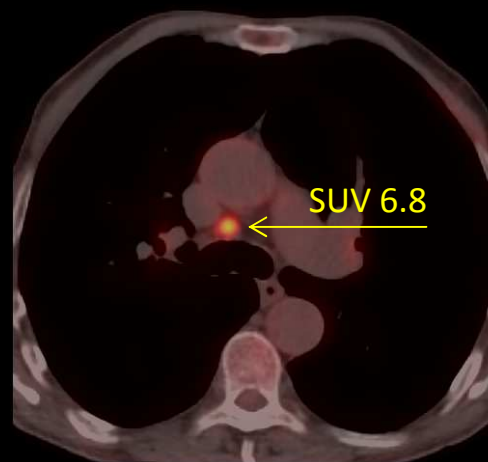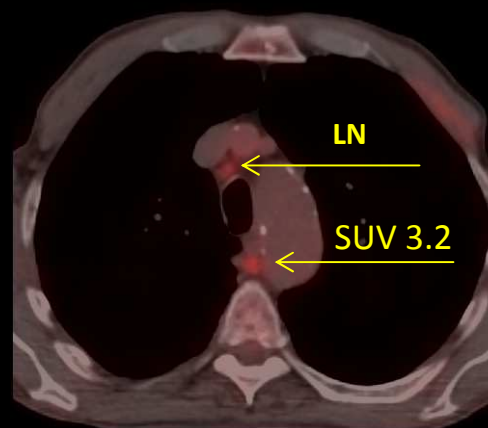
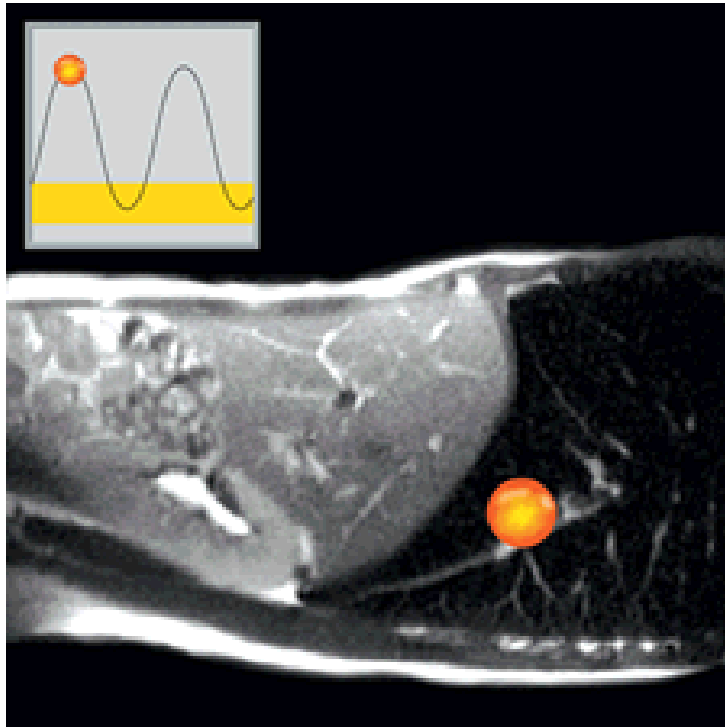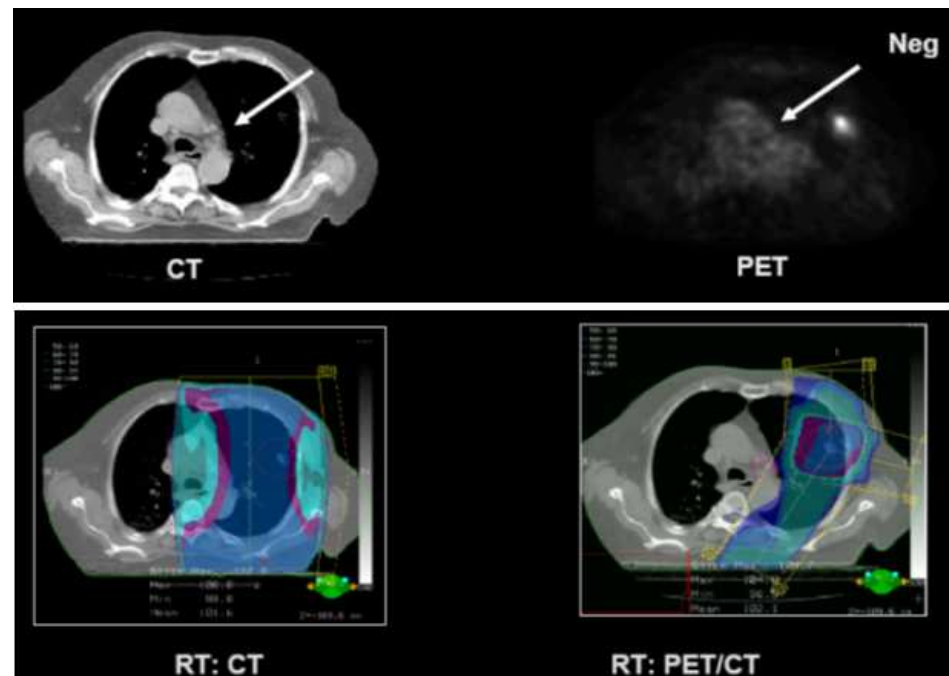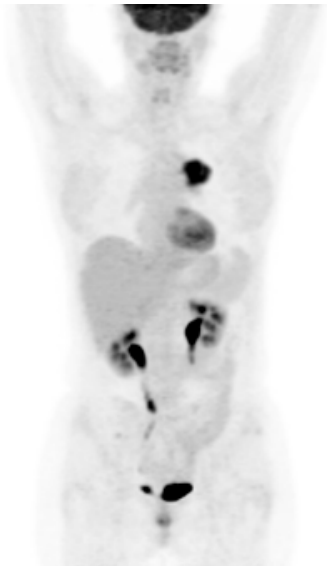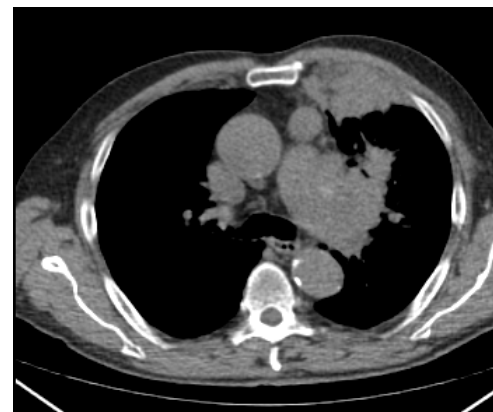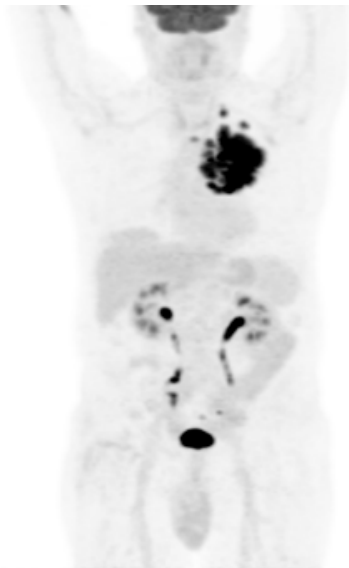QClear

PET/CT at AOU-PR
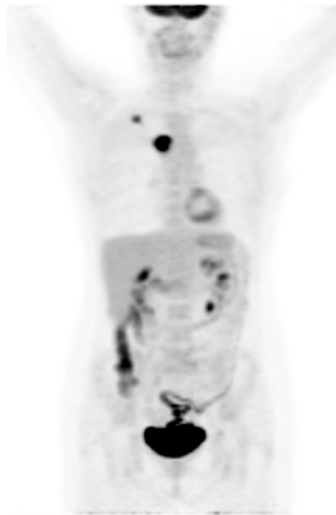- 3D
- Q-freeze
- Gated

GATED IMAGES

# Treatment management



Lung AD
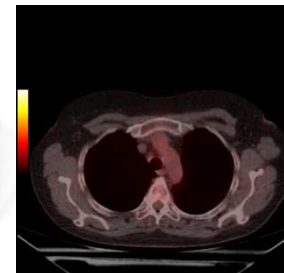Surgery

Lung AD
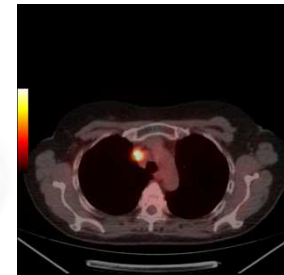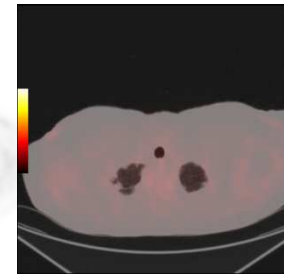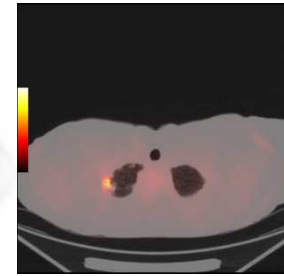Cht-RT

# Monitoring treatment response: CR

Lung ADC T3N2M0
III stage



Pre-therapy

After targeted
therapy
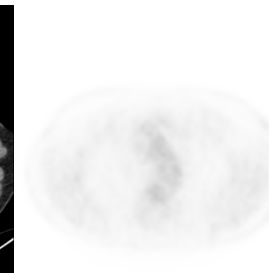
## Metabolic tumour burden

- **Metabolic Tumor Volume (MTV)** = total tumor volume with SUV > 2.5 or greater
- **Total lesion glycolysis (TLG)** = MTV x SUVmean ($cm^3$*g/ml)
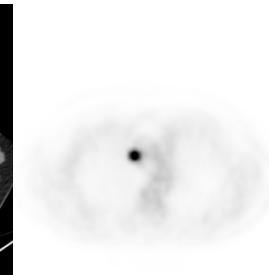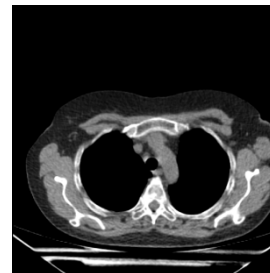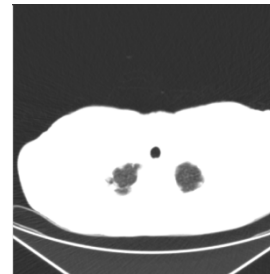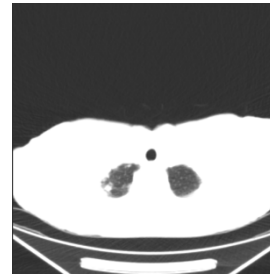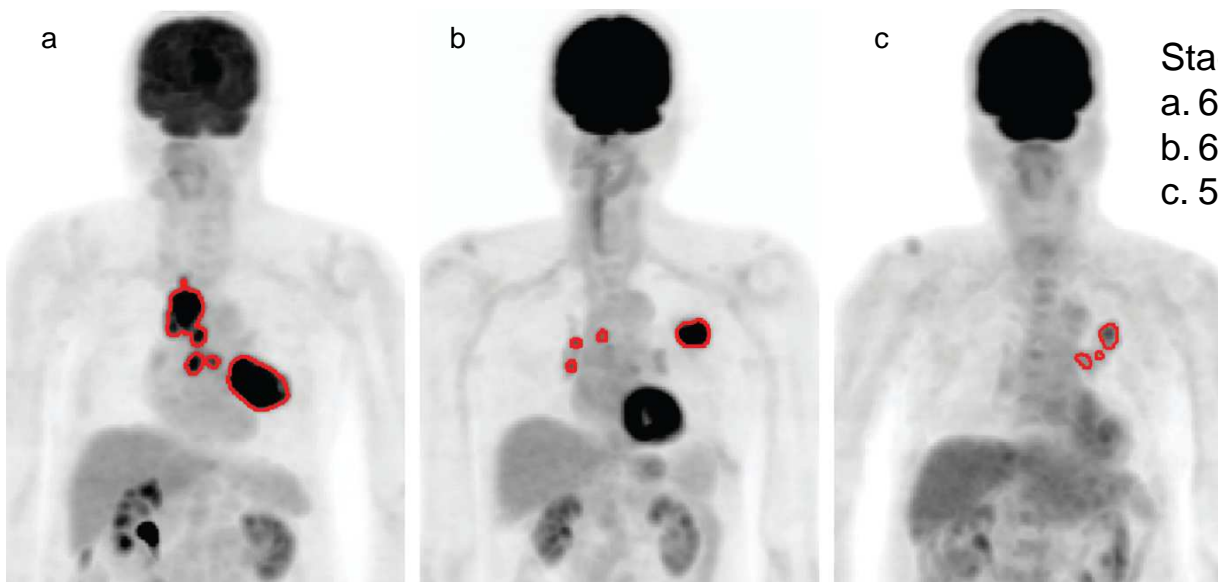
- MTV: total volume of the FDG-avid lesions
- TLG: combines the volumetric and metabolic information of FDG PET and reflects whole-body tumor burden
- Whole-body TLG provides a strong prognostic indicator in patients with NSCLC and could be an important guide for making treatment decisions



Stage IIIB NSCLC
a. 66-year-old man PFS of 3.6 months
b. 69-year-old man PFS of 1.3 years
c. 52-year-old woman PFS of 3.2 years

TLG of 707.4          TLG of 196.8          TLG of 52.77