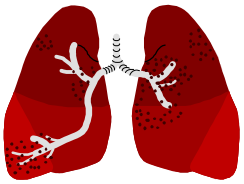
NUCLEAR MEDICINE OF THE LUNG



Practice

Radioisotopes for lung scintigraphy

99mTc → T1/2: 6 hr

generator product

140 keV gamma

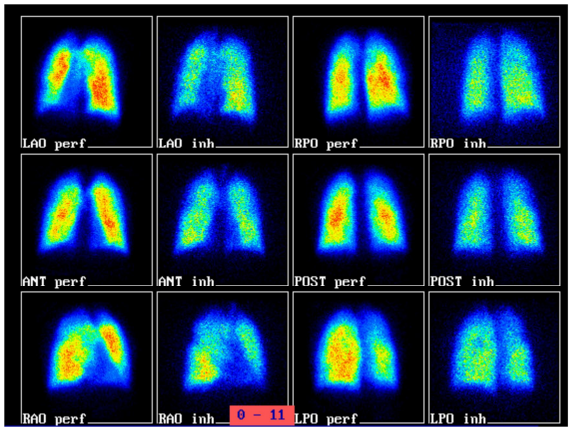
Perfusion:
- *macroaggregates*
- *microspheres*

Ventillation:
- *aerosol (Tc-99m)*
- *noble gases (eg. Kr-81m)*

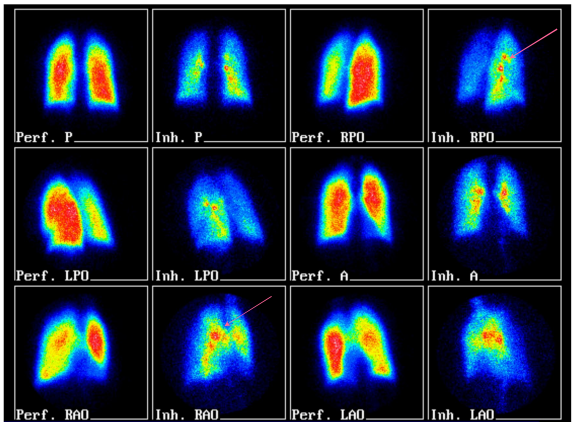
Clinical applications

- Pulmonary embolism:
  Perfusion & ventillation, from 6 views
- Lung tumor before operation:
  Quantitative estimation of breath capacity
- Congenital abnormality of the pulmonary artery:
  Perfusion scintigraphy
- Obstructive lung diseases:
  Dynamic inhalation lung study
- Interstitial lung diseases, alveolitis:
  Dynamic inhalation lung study

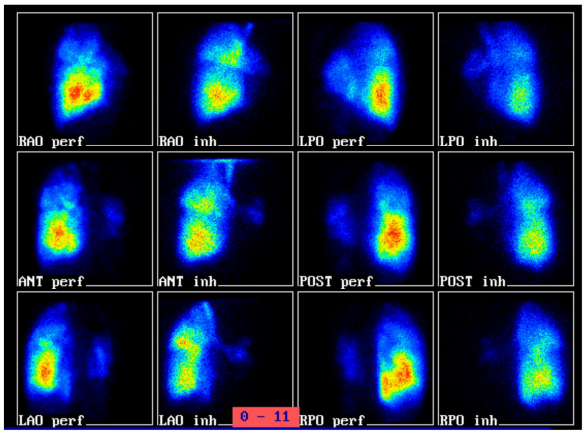
Normal 99mTc-MAA perfusion & 81mKr ventillation



Normal 99mTc-MAA perfusion & DTPA aerosol ventillation



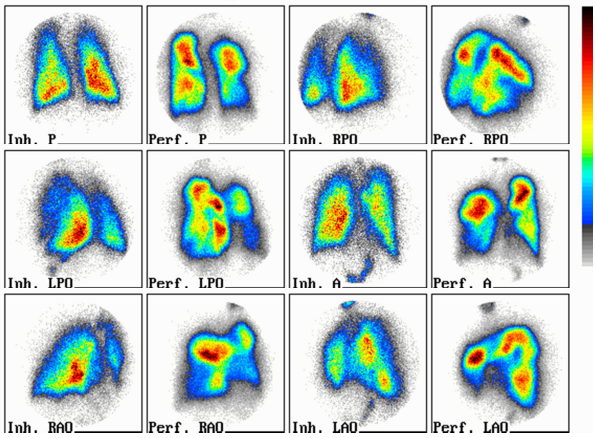
Central lung tumour



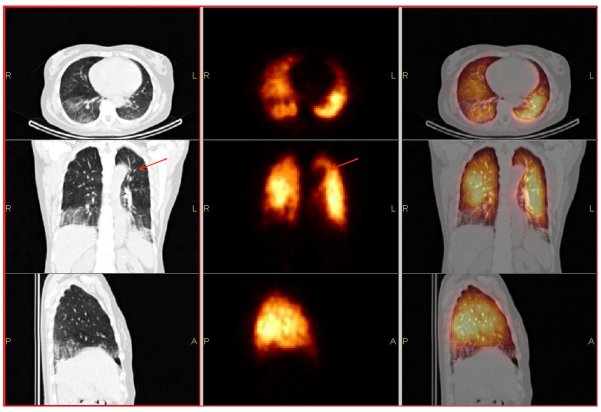
Acute pulmonary embolism

- Perfusion: (multi)segmental defect
- Ventillation: normal
- „Ventillation-perfusion mismatch"

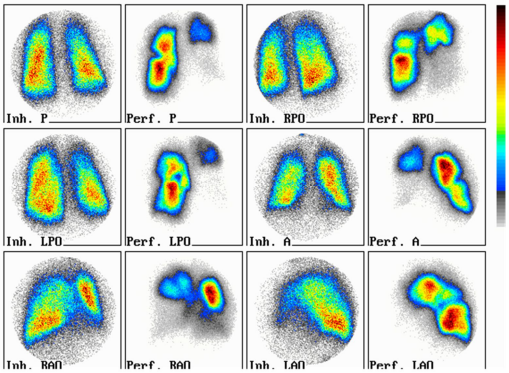
Embolism:
ventillation-perfusion mismatch



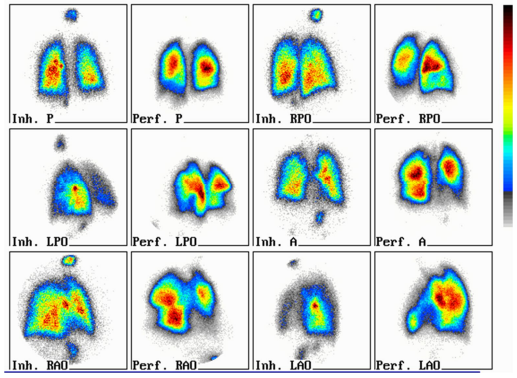
Role of SPECT – CT in lung scintigraphy



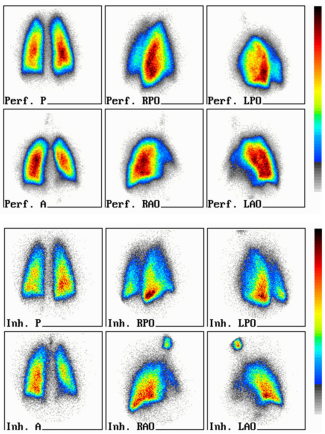
Lung #1



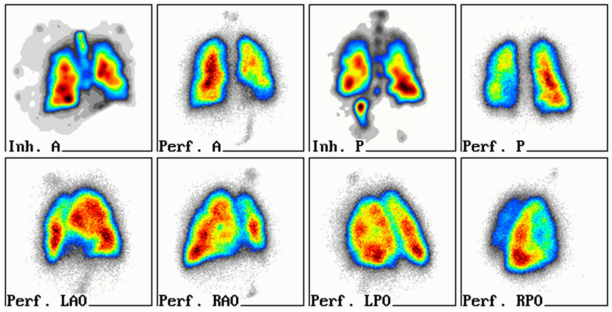
Lung #2



T020036



T_020040



Lung #3