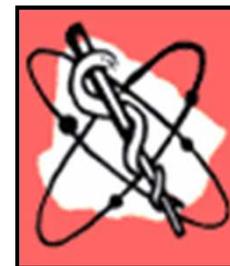


# 68 year-old male

Progressive cognitive impairment

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## Clinical statement

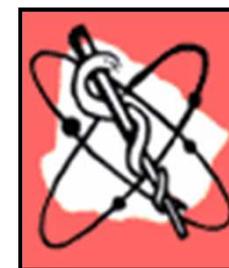
- 68 y/o male
- Progressive cognitive impairment
- Frontal syndrome
- Parkinsonism
- Positive VDRL
- AD? Lewy body disease? FTD?

## **74 year-old female**

Cognitive impairment with frontotemporal profile in neuropsychological study

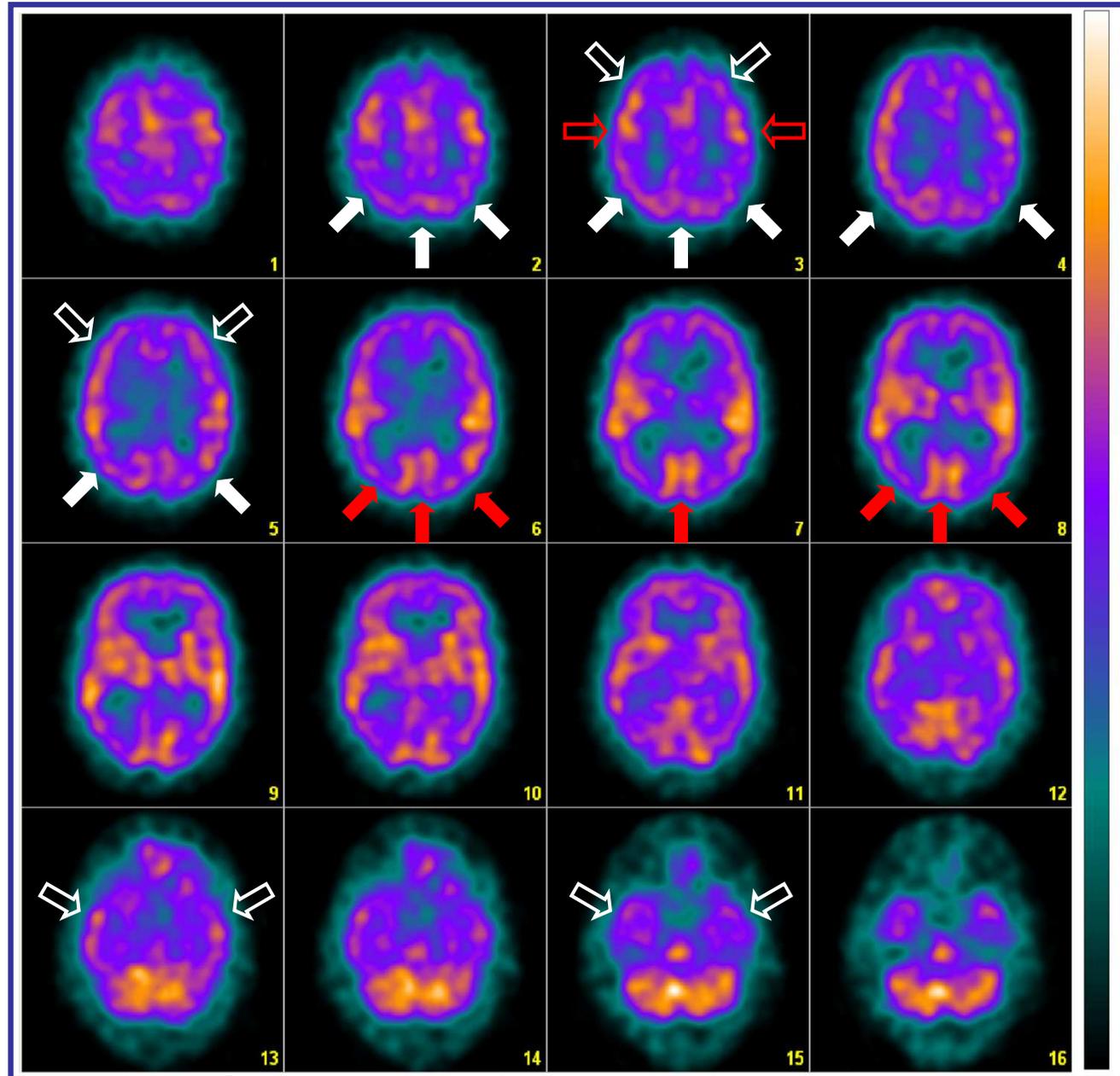
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- Brain SPECT is indicated for further evaluation in a patient with cognitive impairment and clinical features that may support different etiologies.
- Images were acquired in a dual head gammacamera 60 min. p.i. of  $^{99m}\text{Tc}$ -ECD (925 MBq).
- 128 steps, 25 seconds each.  $128 \times 128$  matrix. 2.9 mm pixel size. No scatter correction was performed.
- OSEM reconstruction (5 cycles 2 subsets). Prefiltering with Butterworth order 10, cut-off frequency 0.25. Attenuation correction  $12 \text{ cm}^{-1}$ . Transaxial slices parallel to AC-PC line.

Bilateral posterior  
 parietal-  
 temporoparietal  
 and bilateral  
 precuneus-  
 posterior cingulate  
 hypoperfusion  
 (white arrows).  
 Bilateral prefrontal  
 and temporal  
 hypoperfusion.  
 (white).  
 Bilateral occipital  
 (mesial and lateral)  
 hypoperfusion  
 (red).  
 Preservation of  
 primary sensorio-  
 motor cortex (red)



# Interpretation

- Images are consistent with LBD.

## Discussion

- Posterior cortical involvement with mesial extension and primary sensorimotor cortex preservation (similar pattern to AD).
- Occipital hypoperfusion with lateral and mesial involvement.
- Prefrontal hypoperfusion usually more prominent in early stages than AD.
- Bilateral temporal hypoperfusion, sometimes with less mesial involvement than AD (not seen in this patient).
- Occasional basal ganglia hypoperfusion (not clear in this patient).

## Conclusion

- Occipital involvement is the most typical feature in LBD. It has been added to the new clinical guidelines as a suggestive criteria.
- LBD is a frequent cause of dementia but difficult to diagnose.
- 3 major criteria (cognitive fluctuations, hallucinations and parkinsonism) are present in the minority of the patient.

# Teaching points

- Brain SPECT in the diagnosis of LBD
- Differential diagnosis between AD, LBD and FTD.

## References

- McKeith IG, Dickson DW, Lowe J, et al. Diagnosis and management of dementia with Lewy bodies: third report of the DLB Consortium. *Neurology*. 2005;65(12):1863-72.
- Colloby SJ, Fenwick JD, Williams ED, et al. A comparison of (99m)Tc-HMPAO SPET changes in dementia with Lewy bodies and Alzheimer's disease using statistical parametric mapping. *Eur J Nucl Med Mol Imaging*. 2002;29(5):615-22.
- Claassen DO, Parisi JE, Giannini C, Boeve BF, Dickson DW, Josephs KA. Frontotemporal dementia mimicking dementia with Lewy bodies. *Cogn Behav Neurol*. 2008;21(3):157-63.