54 year-old female

Parestesic and hypoestesic episodes of the left hemibody

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Clinical statement

- 54 y/o female
- Behcet's Disease
- Parestesic and hypoestesic episodes of the left hemibody of hours of duration, 4 months of evolution
- Normal CT scan

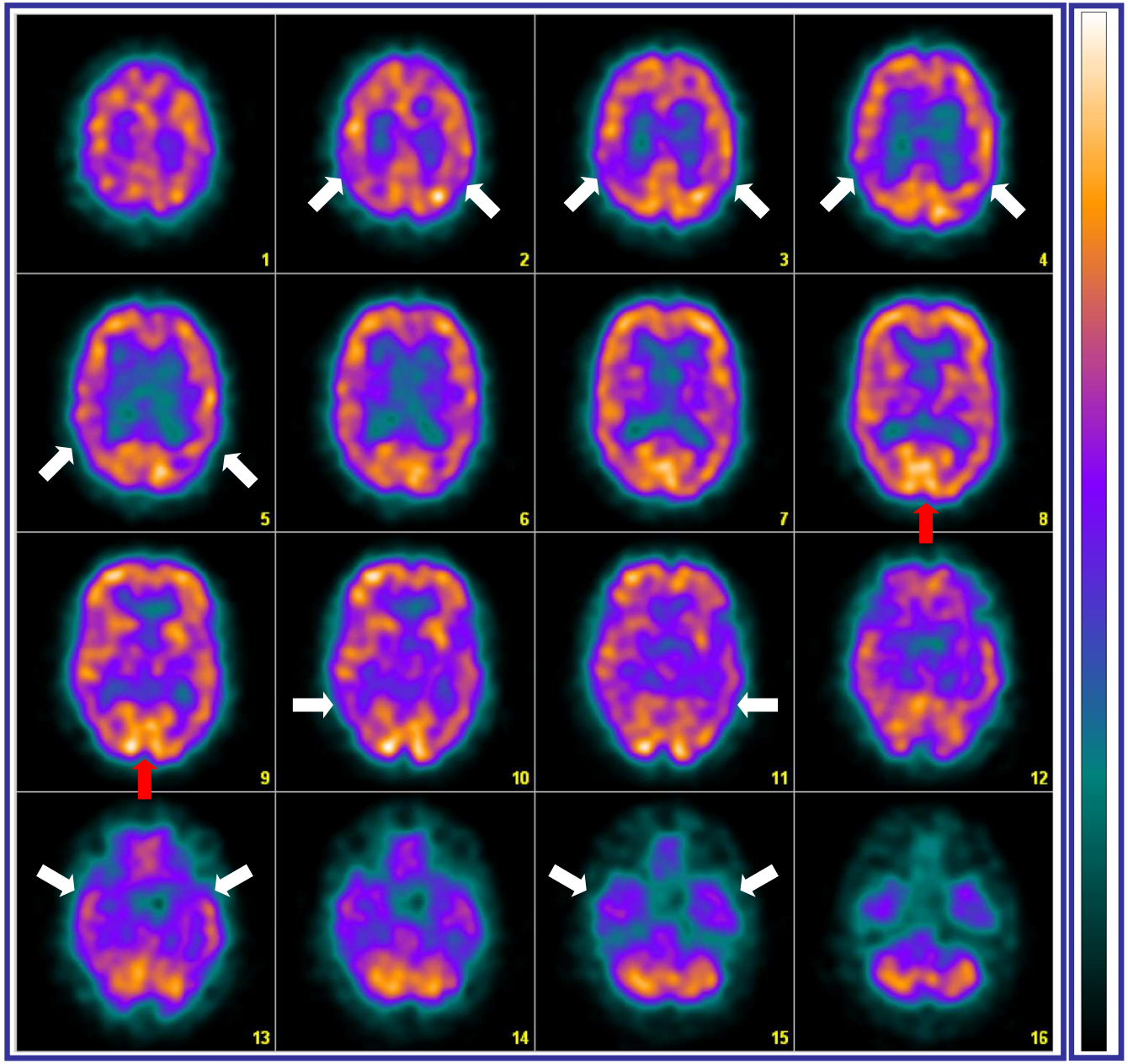
- Brain SPECT is indicated for evaluation of possible SNC involvement in a patient with Behcet's Disease.

- Images were acquired in a dual head gammacamera 60 min. p.i. of 99mTc-ECD (925 MBq).

- 128 steps, 25 seconds each. 128×128 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 cm-1. Transaxial slices parallel to AC-PC line.

Bilateral posterior parietal, temporo-parieto-occipital and temporal hypoperfusion (white arrows).
Bilateral prefrontal and temporal hypoperfusion. (white).
Less intense thalamic and basal ganglia hypoperfusion.
Relative preservation of primary occipital cortex (red)



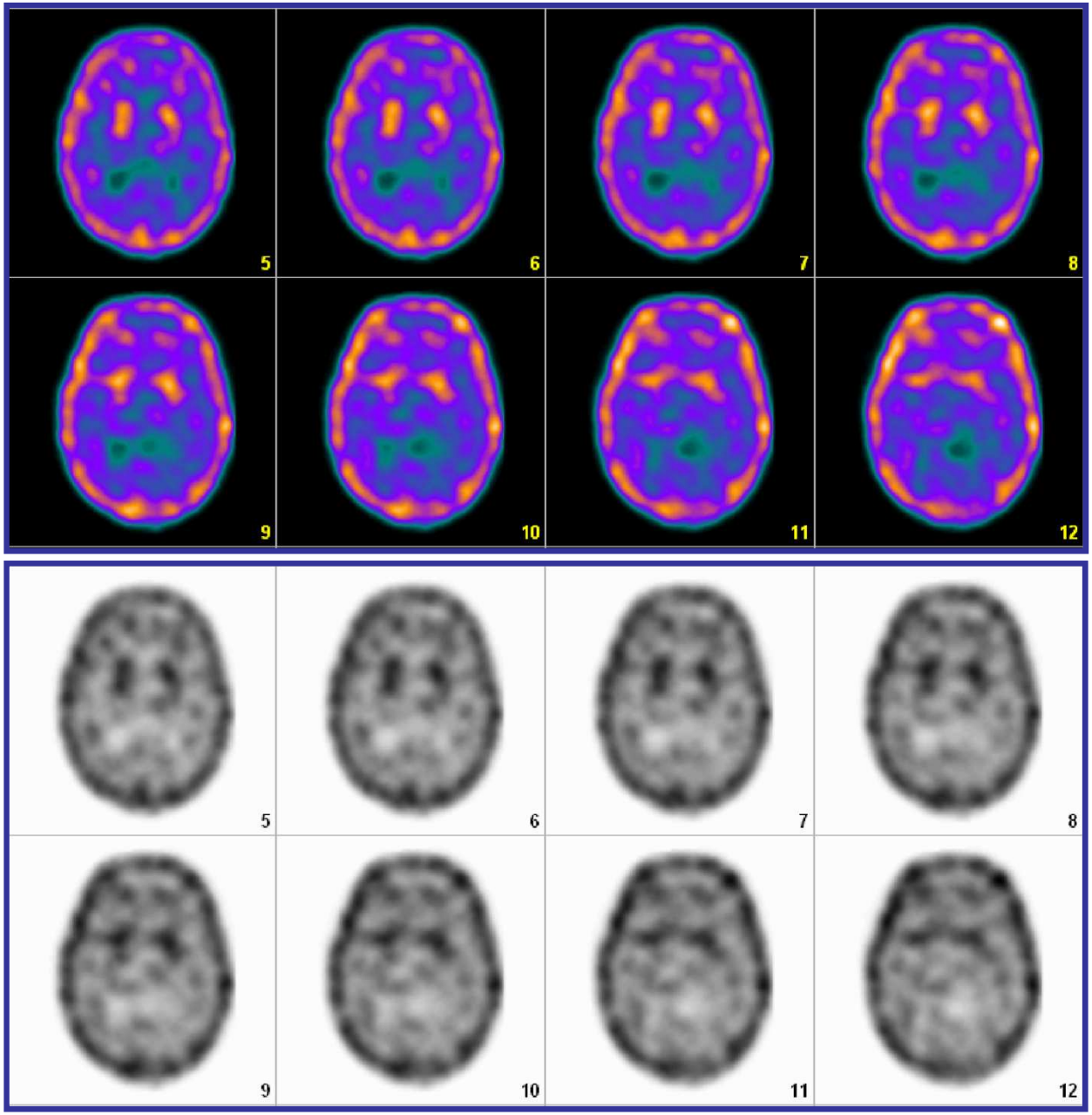
Interpretation

- Pattern suggests AD
- DAT imaging is recommended

- 99mTc-TRODAT-1 SPECT.
- Images were acquired in a dual head gammacamera 4 hs p.i. of 925 MBq.
- 128 steps, 30 seconds each. 128×128 matrix. 3.5 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 cm-1.
- Quantification of specific uptake ratios with ROIs over striatum and occipital cortex. SUR = striatum mean counts/occipital mean counts) -1.

Color (top) and gray (bottom) scale transaxial slices.

SUR:
- Right striatum= 1.26
- Left Striatum=1.21



Interpretation

- Normal study (visual interpretation and bilateral SUR)
- Result supports AD

Discussion

- Thalamic and basal ganglia hypoperfusion probably related to vascular disease
- No suggestive features of LBD. Primary occipital cortex is preserved.
- Parkinsonism probably due to sub-cortical vascular disease
- DAT SPECT is usually abnormal in LBD and normal in AD
- Vascular disease and recent onset parkinsonism make the diagnosis of LBD less likely.

Conclusion

- Brain perfusion SPECT can help in the diagnosis of LBD, mainly if primary occipital involvement is present. It has been incorporated as a supportive criteria in the last revision of the LBD Consortium guidelines (2005).
- Low dopamine transporter striatal uptake is considered a suggestive criteria of LBD (higher diagnostic relevance).
- None of this imaging features are present in this patient.

Teaching points

- Brain perfusion SPECT in the diagnosis of LBD
- DAT SPECT in the diagnosis of LBD

References

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- Walker Z, Costa DC, Walker RW, et al. Differentiation of dementia with Lewy bodies from Alzheimer's disease using a dopaminergic presynaptic ligand. J Neurol Neurosurg Psychiatry. 2002;73:134-40.
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