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, temporoparieto-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

