

PARKINSON'S DISEASE AND THE SWALLOW TAIL SIGN

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A 67-year-old man presented with lower limb stiffness for 5 months and worsening symptoms over that period. He denied previous surgeries, medication use, other illnesses, and similar symptoms in family members. On physical examination, he exhibited short steps, in bloc movements with reduced arm swing, and resting tremor. Brain magnetic resonance imaging revealed the loss of the swallow tail sign (STS) in nigrosome 1 (Fig. 1, loss of the normal bright signal – green arrows). The constellation of findings is consistent with Parkinson's disease (PD). The patient was started on levodopa and physical therapy with no further progression of symptoms.

The primary pathological change in PD is dopaminergic nigrostriatal degeneration. The STS is a focal hyperintense area, oval or linear in shape, located in the dorso-lateral part of the *substantia nigra* (SN) (Fig. 1, red arrows). Histology-MRI correlation studies confirmed that this hyperintensity in the dorsolateral region of the SN corresponds to nigrosome-1, which is the first area to be severely affected in PD. Thus, STS can be observed in healthy individuals but is difficult to identify in patients with PD. The abnormal appearance of nigrosome-1 on MRI (loss of the hyperintense signal) demonstrates high sensitivity (89.7-98.5%) and specificity (85.0-93.7%) for PD.

Figure 1 |

