

Retrocollis as Cervical Dystonia in Parkinson's Disease and Effect of DBS: Case Series

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Abstract

Introduction: Dystonia can be seen in 30% or more of patients suffering with Parkinson's disease (PD) and sometimes can precede overt parkinsonism. However, prevalence and clinical features of cervical dystonia (CD) in PD patients have not been well characterized and retrocollis is even rarely seen among these PD+CD cases. Pathological basis of association between CD and PD is not well understood while interplay of subthalamic nucleus (STN) and globus pallidus interna (GPi) is playing central role in both diseases' pathophysiology. Interestingly, DBS for PD can cause dystonia such as blepharospasm and bilateral pallidal DBS for dystonia can result in features of parkinsonism. We aim to present case series of PD with retrocollis as CD and effect of deep brain stimulation (DBS) surgery on retrocollis.

Method: We performed a single-center retrospective analysis of PD patients who underwent DBS surgery at our center and had retrocollis as a dystonic feature. Study included patients aged >18 years who were admitted between January 2024 and February 2025 for DBS surgery (n = 3). For each case, preoperative med-on and med-off UPRDS evaluations and postoperative patient records are evaluated.

Results: Only 5 patients had minor skin problems which necessitated. Case 1 was 61 years old male patient with right side onset PD, using levodopa+carbidopa (LD+CD) and clonazepam for hand tremor and cervical retrocollis. Operated for bilateral STN DBS. During programming sessions, patient had better response on lower contacts and higher frequency (180 Hz). It was possible to stop clonazepam and to reduce dosage of LD+CD after DBS. Case 2 was 55 years old female patient with right side onset PD, using LD+CD and rivotril for tremor, dyskinesia and cervicothoracic retrocollis. She had PD for 14 years. She operated for bilateral GPi DBS. During even second programming session, her dystonia ceased and it was possible to stop clonazepam and to reduce dosage of LD+CD after DBS. Case 3 was 61 years old male patient with left side onset PD. He had PD for 5 years and using levodopa+benserazid. His main complaints were tremor and cervi-

cal retrocollis which are responsive to challenge test. He had operated for bilateral STN DBS. After surgery, he especially benefited from tremors and also had a decrease in cervical retrocollis, although he still had to actively correct his posture while walking.

Conclusions: CD is a frequent symptom in PD and our findings suggest that retrocollis as CD also can be seen in PD. Pathological bases of CD and PD in the GPi may explain how development and treatment of PD can ameliorate symptoms of CD. However, STN-DBS also can be useful in suppressing CD in PD patients, most probably due to interplay of STN with GPi. This has even more importance in tremor dominant PD cases. Frequency of retrocollis in PD, effect of STN-DBS on retrocollis and best programming parameters for this challenging symptomatology still needs studies with larger cohorts.

References

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