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Patient with Parkinson's Disease Treated with Implanted Deep Brain Stimulators for Laparotomy

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Case Presentation: A 72-year-old woman with Parkinson's disease was evaluated in our preoperative clinic prior to laparotomy for a complex ovarian mass.

Bilateral deep brain stimulators (DBS) had been implanted for progressive rigidity and tremor despite maximal medical therapy. At the time of implantation, these devices were not covered by her insurance and she is still paying out of pocket for the 1996 procedure. She is happy with the outcome 11 years later and has had no specific problems with the DBS other than need for battery replacement. She reports her stiffness and immobility worsen if the battery is low or if the device is turned off for medical interventions (example: electrocardiogram).

Discussion: Our large academic hospital does not currently implant these devices, and her treating neurologist is based at another hospital. Was it appropriate to proceed at our hospital?

Preparation for surgery was coordinated by our anesthesia preoperative clinic. This involved discussions between the anesthesiologists, our neurology department, the outside treating neurologist, the device company, the gynecologic surgeon, and the service that had originally implanted the DBS. It was decided that the patient could be safely managed at our hospital if the device company provided technical support. The patient elected to stay with her chosen surgeon.

Case (continued): Surgery was performed under general anesthesia with the device turned off. Mechanical ventilation was continued until she met extubation criteria. Of note, muscle rigidity was severe enough to restrict tidal volumes to < 150 cc and was rapidly reversed with DBS reactivation. The recovery period was uneventful with discharge home on postop day 5.

Conclusion: We continue to do surgery in patients with DBS and developed the following clinical pathway:

- a dedicated team from anesthesia and neurology to manage these patients
- administration of prophylactic antibiotics
- general anesthesia and mechanical ventilation while the device is turned off to manage the respiratory compromise caused by the rigidity
- electrocautery precautions
- device management by the technician from the company
- all of the above under the coordination of our preoperative assessment clinic.

Our poster discusses the case, focusing on Parkinson's disease and its treatment with special attention to DBS and their perioperative management for unrelated surgeries. Details of our clinical pathway for the safe management of these patients are presented.

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