

Early Experience with Intraoperative "O-Arm" Use During DBS Surgery

Arnold B. Vardiman MD; Bradley Dengler MD

Department of Neurosurgery

University of Texas Health Science Center San Antonio



Introduction

Enhancing outcome in DBS implants depends largely on achieving precise anatomic implant of the electrode. Intraoperative confirmation of DBS electrode postion allows immediate verification of placement and helps avoid the need for a seperate surgical revision.

Methods

We used the Medtronic O arm device in 14 consecutive DBS cases. All cases were imaged intraoperatively with O arm data confirmed by post operative conventional CT scanning.

Results

14 cases provided an excellent demonstration of the utility of the device. Immediate confirmation of lead position proved simple and relaible. An unanticipated benefit was the ability to resolve the MER electrode which resulted in a much improved "second pass" MER signature when required, since the additional pass could be optimized by knowing your initial position exactly. The only functional impediment was perfecting positioning which is addressed in another abstract.

Conclusions

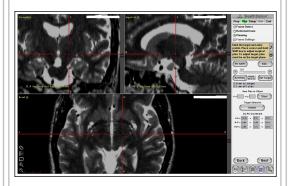
Intraoperative use of the O arm device has provided efficient and relaible confirmation of DBS lead position. Additional benefits include the ability to resolve MER electrode position. The ability to utilize the device in spine cases furthers the devices cost effectiveness.

Learning Objectives

Demonstrate the feasibility and utility of the O arm device for intraoperative imaging during Deep Brain Stimulation implant procedures.



Intraoperative Image: Planning imaging merged with intraoperative "O Arm" image. Colored lines represent the preoperative plan. Pale white demonstrates actual lead position.



Intraoperative image of MER electrode in place. Knowledge of precise position of the MER electrode helps direct a second pass when initial MER data is suboptimal. Decreasing the number of MER passes has been a benefit of real time intraoperative imaging.

References