Acute Subdural Hematoma: A Potential Complication of Cochlear Implantation

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ABSTRACT

Objectives: Cochlear implantation (CI) is a commonly performed surgical procedure for treatment of sensorineural hearing loss. Rates of intracranial bleeding after CI are reported to be <1%. We report a case of subdural hematoma recognized in the recovery room, which adds to the small number of existing literature reports. We intend to increase awareness of this potential complication.

Study Design: Case Report with literature review

Methods: Case Report - A 65 year old female underwent a right-sided cochlear implant, with no unusual bleeding or cerebrospinal fluid encountered. A bony well to house the implant and tie down holes were drilled, without known dural exposure. Post operatively she was noted to have difficulty arousing in the recovery room. Imaging revealed a right-sided subdural hematoma and emergency evacuation and decompression ensued. Her family reported that in the weeks prior to her surgical procedure she was involved in a motor vehicle collision during which she suffered head trauma and did not seek medical attention.

Results: Multiple mechanisms have been postulated as etiologies for intracranial bleeding following CI. Direct injuries to dura/veessels as well as sheering of diploic veins have been described in the literature. With aging, diploic veins become increasing fragile. Perhaps our patient's undisclosed prior head trauma caused vessel weakness predisposing to bleeding.

Conclusion: Acute subdural hematoma may complicate cochlear implant, even without obvious vascular or dural injury noted intraoperatively. Prior head trauma may increase this risk, especially in elderly patients.

INTRODUCTION

Cochlear implantation is a widely used surgical therapy for the treatment of sensorineural hearing loss. It is a relatively safe procedure with both intraoperative and postoperative complications. Frequent causes for reimplantation include device malfunction, scalp flap infection and device extrusion. Intracranial complications of the surgery are rare, and may be potentially life threatening. Intracranial hemorrhage has been sporadically reported, occurring in both the epidural and subdural spaces. These bleeding complications have been described as immediate onset as well as delayed, occurring days after the surgery.

We report the case of acute subdural hematoma that was discovered immediately postoperatively. We discuss potential mechanisms of injury as well as describe various methods and techniques used to secure the device to prevent future migration.

CASE REPORT

A 65 year old female underwent a right-sided cochlear implant, with no unusual bleeding or cerebrospinal fluid encountered intraoperatively. A bony well was drilled to house the implant as well as tie down holes, without known dural exposure. Post operatively she was noted to have difficulty arousing from anesthesia in the recovery room. Imaging obtained revealed an acute right-sided subdural hematoma (Figure 1) and emergency evacuation and decompression ensued after consulting neurosurgery. The implant did not need to be explanted. Her family reported previously undisclosed information that in the weeks prior to her surgical procedure she was involved in a motor vehicle collision during which she suffered head trauma and did not seek medical attention.

DISCUSSION

Cochlear implantation in adults has a relatively low incidence of intraoperative and postoperative complications. Overall complications rates have ranged from 5.7%-42%. Multiple mechanisms have been postulated as etiologies for intracranial bleeding following CI. Direct injuries to dura/veessels as well as sheering of diploic veins have been described in the literature. With aging, diploic veins become increasing fragile. Stamatou et al have recommended that exposure of the dura, as well as cauteryization (including bipolar) be avoided in all patients, especially in elderly patients. Perhaps our patient's undisclosed prior head trauma caused vessel weakness predisposing to bleeding.

CONCLUSIONS

Acute subdural hematoma may complicate cochlear implant, even without obvious vascular or dural injury noted intraoperatively. Prior head trauma may increase this risk, especially in elderly patients.

REFERENCES