

Frequency of electrode migration after cochlear implantation in the early postoperative period. What are associated risk factors?

Xueying Goh¹, Laura Harvey², Patrick Axon¹, Neil Donnelly¹, James Tysome¹, Daniele Borsetto¹, Matthew Smith¹, and Manohar Bance¹

¹Addenbrooke's Hospital

²University of Cambridge

November 15, 2022

Abstract

Objectives: To investigate the prevalence and risks factors associated with electrode migration in cochlear implant (CI) recipients. **Design:** Retrospective cohort study of all CIs performed between 1 January 2018-1 August 2021 in a single tertiary adult and paediatric cochlear implant centre in the UK. **Main outcome measures:** The primary aim is to determine the prevalence of electrode migration, based on comparing intraoperative surgeon report and results of a routine plain X-ray performed 2 weeks after surgery. Electrode migration is defined as the detection of movement of 2 or more electrodes out of the cochlea from time of surgery. Multivariate analysis was performed to investigate risk factors including preoperative factors and intraoperative factors that might predispose to migration. **Results:** 465 patients, having 516 distinct surgery sessions, with 628 implants were analyzed. Electrode migration occurred in 11.5% of all implants. Pre-existing cochlear abnormality was an independent associated risk factor for electrode migration (OR:3.40<1.20-9.62> p=0.021). Demographics, surgical technique, usage of a precurved electrode, CSF leak, surgeon seniority and intraoperative telemetry did not influence risk of migration. There were 5 implants which migrated later than 2 weeks, median: 263days, for which head injury was a common precipitating factor. There was some difference between different lateral wall electrodes **Conclusion:** Electrode migration in the early postoperative period is a common occurrence and is more likely in implant recipients with obstructed or malformed cochleae. **Keywords :** Cochlear implants, Electrode migration, Risk factors, Cochlear abnormalities, Postoperative X-ray

Hosted file

Electrode migration Paper finale shortened.docx available at <https://authorea.com/users/522829/articles/595092-frequency-of-electrode-migration-after-cochlear-implantation-in-the-early-postoperative-period-what-are-associated-risk-factors>

Hosted file

tables and figures final.docx available at <https://authorea.com/users/522829/articles/595092-frequency-of-electrode-migration-after-cochlear-implantation-in-the-early-postoperative-period-what-are-associated-risk-factors>