Endoscopic Ear Surgery for Cholesteatoma Reduces Operating Time when Compared to Binocular Microscopy

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ABSTRACT

Objectives: Endoscopes are now being used for cholesteatoma surgery. One concern with endoscopic approaches is the inefficiency of one-handed dissection. We hypothesize that endoscope only cholesteatoma procedures have equivalent total operating room (OR) and procedural times due to decreased need for post-auricular incision and mastoidectomy, while maintaining equivalent outcomes.

Study Design: Retrospective review of patients undergoing endoscopic ear surgery for cholesteatoma.

Methods: Consecutive adult cases of endoscopic ear surgery for cholesteatoma were reviewed. Cases were divided into endoscope only cases (group A) versus binocular microscopy cases (group B). Rates of conversion to binocular microscopy, complications, and recurrent disease were documented.

Results: Forty-one patients, (group A = 23, group B = 18) were identified. Age (46.4 vs. 46.5 years, p=0.98) and gender (48% vs. 33% male, p=0.52) were not different between groups. Rate of conversion to microscope was 39.1% (9/23) in group A. Reason for conversion was extension of cholesteatoma into mastoid antrum (9/9). Mean total OR times (minutes): group A 188.6 versus group B 228.8 (Fig 2). There was one recurrence in each group.

Conclusions: Endoscopic only cases appear to be faster than microscope approaches, with similar rates of recurrence. Principal reason for conversion was cholesteatoma extension into the antrum. Further research is needed, such as a radiologic classification system, to preoperatively select ideal patients for endoscopic only approaches.

INTRODUCTION

• Endoscopic ear surgery (EES) is the application of endoscopes for transcanal otologic procedures.
• Endoscopes are now used for transcanal cholesteatoma removal.
• Advocates of EES espouse its wide-field view, high image resolution, improved magnification, and the ability to “look around corners”
• EES has remained controversial since its first description in the 1960s mainly because of the need for one-handed dissection and concerns for longer operative times.

Hypothesis:

We hypothesize that endoscope only cholesteatoma procedures have equivalent total operating room (OR) and procedural times when compared to equivalent cases using the microscope, while maintaining equivalent intraoperative outcomes. This may be due to the decreased need for a post-auricular incision and mastoidectomy

METHODS & MATERIALS

• The Institutional Review Board of the Massachusetts Eye and Ear Infirmary approved review of patient data
• Consecutive adult cases of endoscopic ear surgery for cholesteatoma were reviewed
• Cases were divided into endoscope only cases (Group A) versus binocular microscopy cases (Group B)
• Total operating room time (total OR time) is defined as the time when the patient enters the OR until the time the patient leaves the OR
• Procedure time is defined as the time from when the procedure starts, typically skin incision, to when the surgeon designates the procedure as complete, typically time of skin closure
• Rates of conversion to binocular microscopy from endoscopic cases, complications, and recurrent disease were documented
• Statistical analysis included chi-squared tests, ANOVA, and Student Paired T test; values <0.05 were considered statistically significant

RESULTS

Patient Demographics

• Forty-one patients, (group A = 23, group B = 18) were identified
• Average age in group A was 46.4 versus 46.5 years old in group B, p=0.98
• Group A and group B had a similar gender breakdown (48% vs. 33% male, p=0.52)

Conversion to Microscope-based Cases

• Total OR time for group A converted to binocular microscope was 261.9 minutes, p<0.001
• On average, conversion to binocular microscope resulted in an additional 80.5 minutes over endoscope only cases (Fig 4 and 5)
• Conversion to microscope exceeded standard binocular microscopy cases by 39.2 minutes, p<0.001

CONCLUSION

• Endoscopic only cases appear to be faster than microscope approaches, with similar rates of recurrence
• A significant addition in mean OR time should be expected for cases requiring conversion to the microscope
• Principal reason for conversion was cholesteatoma extension into the antrum
• Further research is needed, such as a radiologic classification system, to preoperatively select ideal patients for endoscopic only approaches

REFERENCES


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