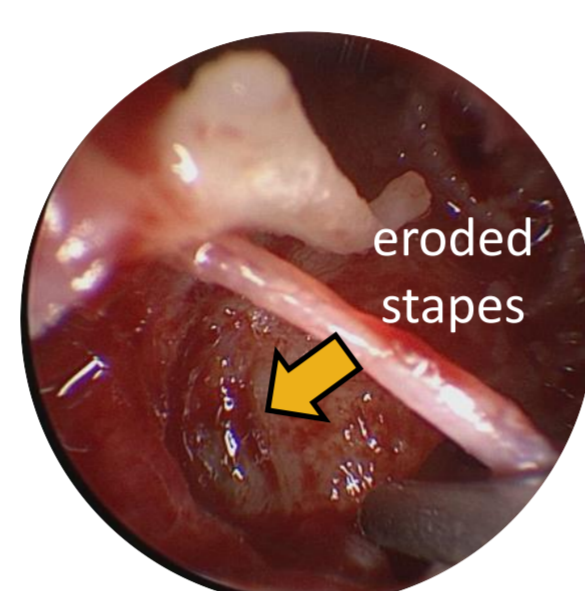
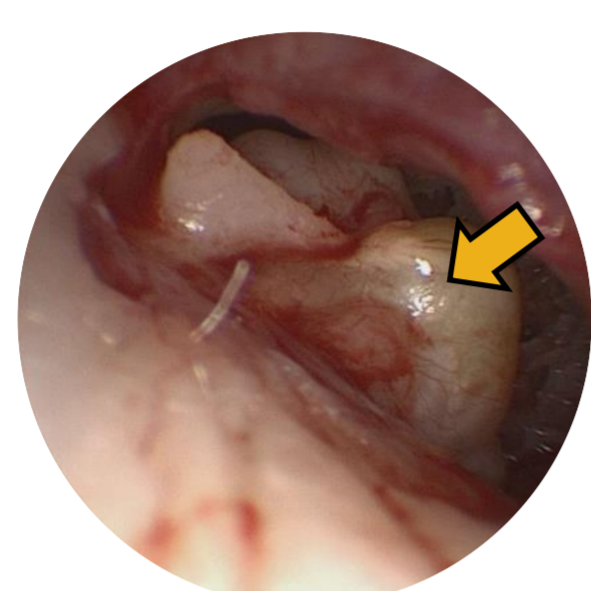
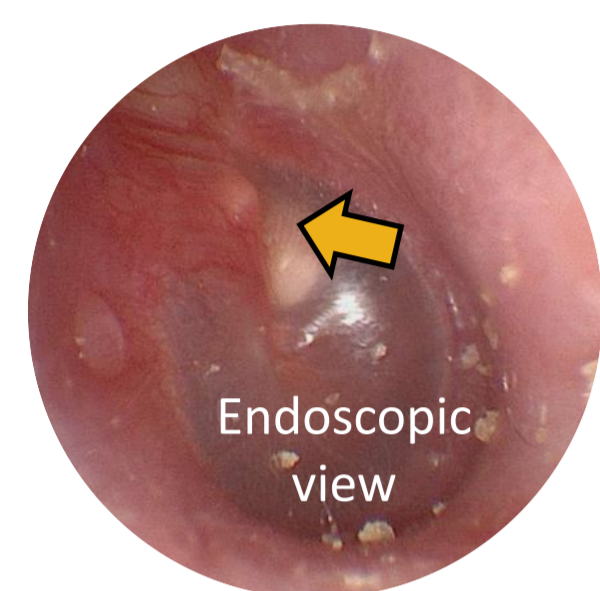


IMPORTANCE

- Transcanal endoscopic ear surgery (TEES) provides minimally invasive transcanal access to the middle ear and improves middle ear visibility during cholesteatoma resection. However, the literature on outcomes following TEES alone for the removal of congenital cholesteatoma (CC) is lacking and limited to small series.



OBJECTIVES

- To assess outcomes of TEES for CC limited to the middle ear and/or mastoid antrum and to explore the risk factors associated with recidivism (ie, recurrent and/or residual cholesteatoma).

DESIGN, SETTING, AND PARTICIPANTS

- This cohort study evaluated retrospective, multicenter data for 271 children with CC who underwent TEES at 9 tertiary referral hospitals in South Korea between January 1, 2013, and December 31, 2021, and had a follow-up of at least 6 months after surgery.
- The characteristics of CC : Potts stage (AOHNS. 2002;128(9):1009-1012)

Stage I	Confined to a single quadrant (Q)
Stage II	Multiple Qs, no ossicular involvement or mastoid extension
Stage III	Ossicular involvement, no mastoid extension
Stage IV	Mastoid involvement

- Outcomes included the incidence of residual cholesteatoma and audiometric data after TEES. A multivariable analysis using Cox proportional hazards regression models was used to assess associations between cholesteatoma characteristics and recidivism, with hazard ratios (HRs) and 95% CIs reported.

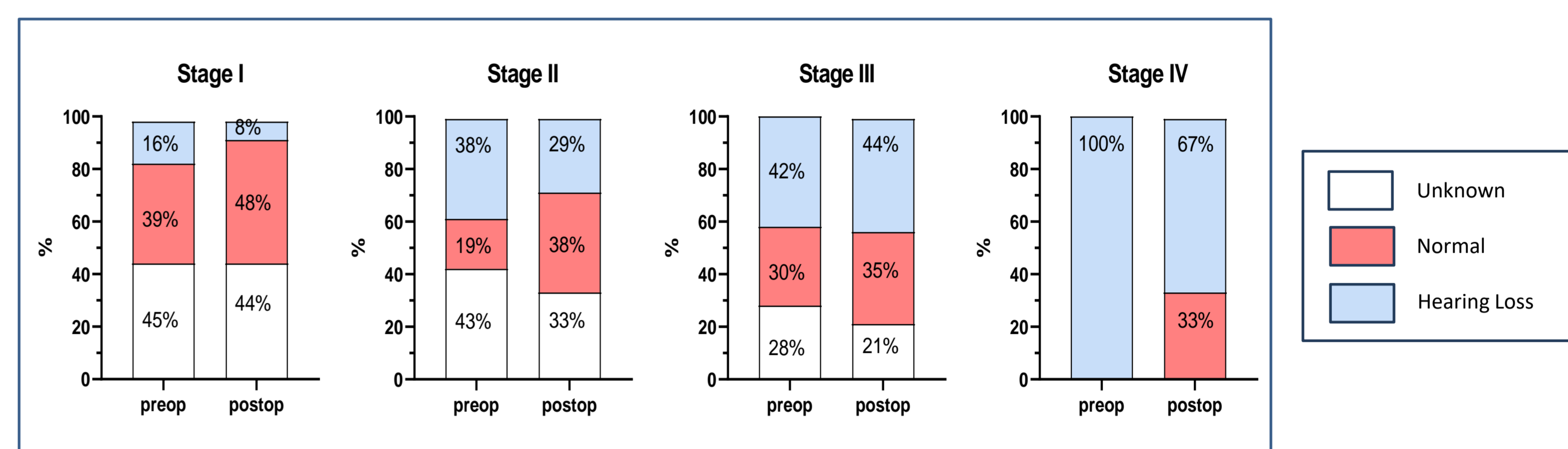
RESULTS - Surgical Procedures

- Of the 271 patients (mean [SD] age, 3.5 [2.9] years; 194 [71.6%] boys, 77 [28.4%] girls), 190 had Potts stage I CC (70.1%), 21 (7.7%) had stage II, 57 (21.0%) had stage III, and 3 (1.1%) had stage IV. Thirty-six patients (13.3%) with residual cholesteatoma were found, including 15 (7.9%) with Potts stage I, 3 (14.3%) with stage II, and 18 (31.6%) with stage III.

	Total (n=271)	Stage I (n=190)	Stage II (n=21)	Stage III (n=57)	Stage IV (n=3)
TM reconstruction	27 (10%)	12 (6.3%)	2 (9.5%)	13 (22.8)	0 (0%)
Second-look op	56 (21%)	20 (10.5%)	5 (24%)	30 (53%)	1 (33%)
Ossiculoplasty	37 (14%)	1 (0.5%)	1 (5%)	32 (56%)	3 (100%)
POR	10 (27%)	1 (100%)	1 (100%)	8 (25%)	0 (0%)
TOR	27 (73%)	0 (0%)	0 (0%)	24 (75%)	3 (100%)

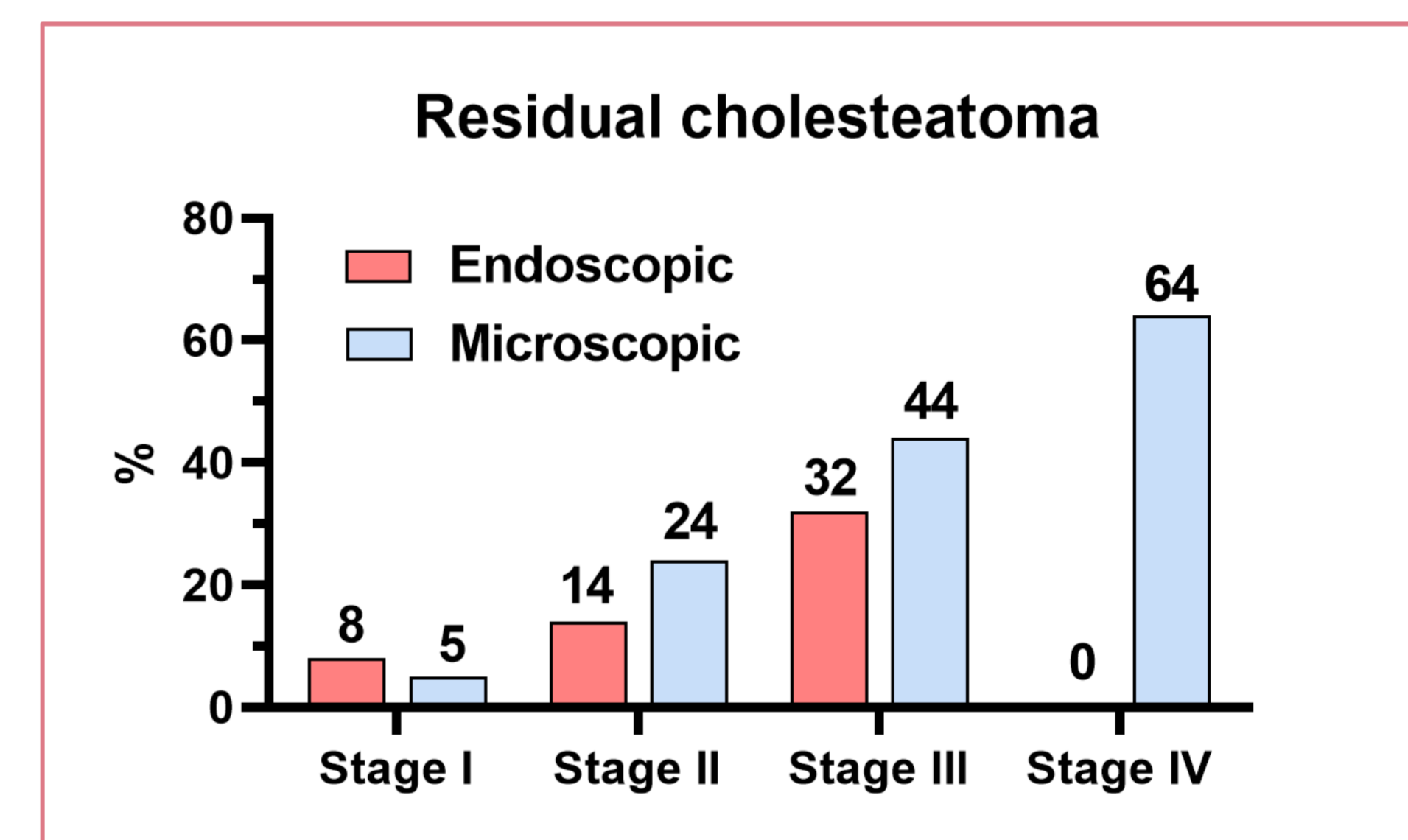
RESULTS - Outcomes

- In the multivariable analysis, invasion of the malleus (HR, 2.257; 95%CI, 1.074-4.743) and posterosuperior quadrant location (HR, 3.078; 95%CI, 1.540-6.151) were associated with the incidence of recidivism. Overall, hearing loss (>25 dB on auditory behavioral test or >30 dB of auditory evoked responses) decreased from 24.4% to 17.7% after TEES.
- In Potts stages I and II, hearing loss decreased from 18.5% to 10.0% after surgery. However, patients with Potts stage III and IV still had 45.0% hearing loss before and after surgery.



- Overall, residual cholesteatoma was found in 36/271 cases (13.3%). These rates compare favorably to those of residual cholesteatoma removed by the microscopic technique. (Stapleton AL et al. AOHNS. 2012;138(3):280-285)

Stage	TEES (current study)		Microscopic	
	Total	Residual	Total	Residual
I	190	15 (8%)	20	5%
II	21	3 (14%)	17	24%
III	57	18 (32%)	34	44%
IV	3	0 (0%)	11	64%



CONCLUSIONS AND RELEVANCE

- The current study involves the largest population to date of CCs removed by TEES.
- The incidence of residual cholesteatoma TEES was 13.3%, with a favorable surgical outcome. Thus, the findings suggest that TEES is effective in treating CC limited to the middle ear and/or mastoid antrum in children.
- Based on our data, invasion of malleus and presence in PSQ of the tympanic cavity predicted significantly higher residual rates. These results may help guide surgeons to achieve optimal results for patients with CC.

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