Perioperative Management of Anticoagulation and Antiplatelet Therapy in Elective Otologic Surgery

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Introduction

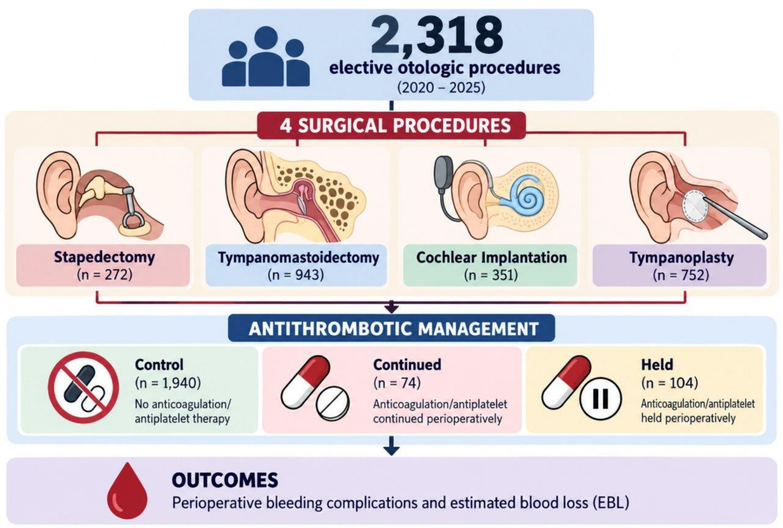
Anticoagulant and antiplatelet therapies reduce thromboembolic risk but can complicate surgery by increasing bleeding risk if continued or thromboembolic risk if stopped [1–3]. Otologic procedures are associated with minimal blood loss, however even limited bleeding within the confined operative field can impair visualization and increase technical difficulty [4,5].

Evidence based management of perioperative antithrombotic medication in otologic surgery remains limited, with existing studies restricted to cochlear implantation and endoscopic ear surgery [6–8].

This study evaluated perioperative bleeding outcomes among patients undergoing common elective otologic procedures based on continuation, temporary discontinuation, or absence of antithrombotic therapy. We hypothesized that continuation would not increase clinically meaningful perioperative bleeding.

Objectives

- Compare perioperative bleeding outcomes among patients who continued, held, or were not receiving antithrombotic therapy during elective otologic surgery.
- Evaluate differences in estimated blood loss (EBL) according to perioperative antithrombotic management.
- Determine whether continuation of antithrombotic therapy is associated with clinically meaningful bleeding across common otologic procedures.



Methods

Design: Retrospective cohort study at a single tertiary academic center (2020–2025).Population: Adults ≥18 years undergoing elective stapedectomy, tympanomastoidectomy, cochlear implantation, or tympanoplasty, identified by CPT codes.

Antithrombotic groups

- Control: No anticoagulant or antiplatelet therapy
- Continued: Therapy continued perioperatively
- Held: Therapy temporarily discontinued before surgery

Exclusion: Patients with bleeding disorders.

Outcomes: Perioperative bleeding complications, defined as hematoma, postoperative hemorrhage, return to the operating room for bleeding control, or an ED visit for bleeding, and estimated blood loss(EBL).

Statistics: Fisher's exact test for categorical variables and Kruskal–Wallis test with Dunn's post hoc comparisons for EBL. Statistical significance was defined as $p < 0.05$.

Results

- 2,318 procedures were included: 272 stapedectomies, 943 tympanomastoidectomies, 351 cochlear implantations, and 752 tympanoplasties.
- Bleeding complications were rare: 2/943 (0.2%) tympanomastoidectomies and none following the other procedures.
- EBL differed significantly between antithrombotic groups for tympanomastoidectomy (p = 0.003), cochlear implantation (p = 0.012), and tympanoplasty (p = 0.017), but not stapedectomy (p = 0.061).
- Despite statistical significance, absolute EBL differences were small and not clinically meaningful (≤5 mL for cochlear implantation; <4 mL for tympanomastoidectomy).

Procedure	Control	Continued	Held
Stapedectomy	266	3	3
Tympanomastoidectomy	858	29	56
Cochlear Implant	278	32	41
Tympanoplasty	738	10	4

Table 1. Anticoagulation Distribution

Procedure	N	Mean Age	Female (%)	White (%)
Stapedectomy	272	51.0 ±14.1	68.2	65.4
Tympanomastoid ectomy	943	50.1 ±16.7	44.3	78.7
Cochlear Implant	351	62.2 ±15.9	56.1	76.9
Tympanoplasty	752	47.4 ±17.0	55.1	68.8

Table 2. Patient Demographics by Surgical Procedure

Procedure	Bleeding Events, n (%)	Bleeding p-value	Mean EBL (Control) mL	Mean EBL (Continued) mL	Mean EBL (Held) mL	EBL p-value
Stapedectomy	0	—	5.9	6.7	10.0	0.061
Tympano-mastoidectomy	2 (0.2)	0.064	16.2	19.1	15.4	0.003
Cochlear Implantation	0	—	12.2	12.0	17.2	0.012
Tympanoplasty	0	—	7.4	4.5	13.8	0.017

Table 3. Bleeding Outcomes According to Perioperative Anticoagulation Management

Conclusion

Perioperative bleeding complications were exceedingly rare regardless of antithrombotic management. Continuation of anticoagulant or antiplatelet therapy was not associated with increased clinically meaningful bleeding despite small statistical differences in estimated blood loss. These findings are limited by the retrospective, single-center design and reliance on surgeon-reported EBL, which is subject to estimation variability.

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