

# The Safety of In - Office Laryngological Procedures during Active Antithrombotic Remedy

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## Abstract

**Objectives:** To determine whether patients undergoing in-office laryngologic procedures on antithrombotic therapy are at increased risk for treatment-related complications.

**Methods:** Patients were those who underwent at least one in-office laryngologic procedure with any of three fellowship-trained laryngologists. Procedures were identified by current procedural terminology (CPT) code and included biopsies, excisions, laser ablations, and injections (therapeutic and augmentative). Patients were divided into two groups based on the use of antithrombotic therapy at the time of their procedure. Retrospective chart review was performed to identify any complications, with an average follow-up of 186 days.

**Results:** Five hundred-sixty-four unique individuals were identified with ages ranging from 18 to 93 years old and with a relatively even distribution between females (45%) and males (55%). They underwent 647 procedures in total, 310 of which were performed while on some form of antithrombotic therapy. Sixteen procedures were associated with complications either during or after the procedure. In comparing overall complication rates, there was no significant difference between non-antithrombotic (2.4%) and antithrombotic (3.3%) cohorts (OR 1.09, 95% CI [0.46-2.60],  $P = .8454$ ).

**Conclusions:** In spite of known risks in other settings, antithrombotic agents do not appear to confer increased risk of treatment-related complications during in-office laryngological procedures, obviating the need for cessation of therapy prior to these interventions.

**Keywords:** Antithrombotic; Complications; In-Office; Laryngological; Procedures

## Introduction

In - office laryngological procedures are getting decreasingly popular in the practice of otolaryngology as croakers look for the most effective ways to deliver quality health care to cases with voice, airway, and/ or swallowing dysfunction. Indeed, these procedures are associated with shorter recovery time, hastily return to work, and dropped cost per case compared to the operating room. They're well - permitted, and the avoidance of general anesthesia makes them an implicit option for cases with significant comorbidities [1]. Likewise, the capability in some cases to titrate the goods of intervention grounded on real - time patient response may promote better issues and patient satisfaction. Still, there's some perfection lost in the none - operative setting, and there have been reports of hemodynamic insecurity with topical anesthetic in aged cases. These considerations must be taken into account before any in - office laryngological procedure [2].

Another adding trend over recent decades has been the number of cases on antithrombotic remedy, which includes both antiplatelet and anticoagulant agents. The recommendation for antithrombotic drug is grounded primarily on periodic thromboembolic threat and validated scoring systems like the CHADS2 and CHADS2 - VASc criteria, which stratify cases into low - and high - threat groups. Antiplatelet are one of the primary treatments for cases with acute coronary pattern, which affects about 635000 Americans per time. 19 also, anticoagulants are generally used in atrial fibrillation, the frequency of which is anticipated to rise to 5.6 to 12 million by 2050. Use of mechanical heart faucets and vessel stents is also adding, challenging binary remedy [3, 4].

The increased operation of antithrombotic has led to more complicated clinical decision - timber in terms of the threat/ benefit of office - grounded laryngological procedures, as bleeding in the airway

may come a potentially imperative situation. This highlights the need for further formal recommendations in this environment, and the ensuing study will seek to establish in - office laryngological procedures as legitimately safe in cases on active antithrombotic remedy.

Blessing was attained from the Institutional Review Board. The institution's Research Data Repository was queried for all cases progressed 18 or aged who, from January 2012 through December 2017, passed at least one in - office procedure with any of three fellowship - trained laryngologists. Procedures were linked by Current Procedural language (CPT) law and included necropsies, excisions, ray ablations, and injections (remedial and augmentative). In general, these all involved some form of topical anesthesia with occasional pre - procedural oral diazepam (generally 2-5 mg) per provider and patient preference. No nonstop monitoring of vitals was performed during the procedures unless the case had an oxygen demand, in which case palpitation oximetry was employed. On average, procedures lasted less than 10 twinkles or over to 15 in more delicate cases [5-8].

## Methods

With the study group linked, retrospective map review was also

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performed. Data collection included demographic features (age, gender, race, smoking status) and clinical information (procedure type, follow - up, complications, and issues, antithrombotic if applicable). Complications were defined as any unanticipated event - bleeding - affiliated or else-linked by review of procedure notes, follow - up movables, and telephone hassles. Prior to data analysis, procedures were stratified grounded on the presence or absence of active antithrombotic remedy, which included antiplatelet (fish oil painting, ibuprofen, naproxen, etodolac, cilostazol, dipyridamole, aspirin, clopidogrel) and/ or anticoagulant (enoxaparin, warfarin, apixaban, rivaroxaban) agents of interest. To test for differences between these two groups, Fisher's exact test was used for categorical variables while a Wilcoxon rank - sum test was used for nonstop variables. To explore differences in circumstance of complications, a generalized direct mixed model was used to regard for the correlation among repeated measures on some subjects. Each covariate of interest was first tested in a univariate model for consideration into a multivariate model [9-15].

Individualities on antithrombotic remedy have traditionally been considered at increased threat of complications from surgery related to inordinate bleeding, and hourly recommendations are made to hold antithrombotic remedy beforehand. Doing so, still, isn't without its pitfalls, and the eventuality for thromboembolic events may avert surgery, particularly in further optional cases. In the otolaryngology literature, operative micro laryngeal surgery was shown to have no increased threat of bleeding in cases on antithrombotic. Posterior studies had analogous findings in the office setting and at the bedside, independently, but the lower size of these studies averted them from drawing formal conclusions [16-20].

The present study sought to validate the findings of those before it while establishing definitive recommendations for the performance of in - office laryngological procedures in cases on antithrombotic remedy. Demographically, there were predictable differences among the two cohorts, with manly gender, smoking status, and aged age all associated with antithrombotic operation. Most importantly, cases on antithrombotic were set up to be just as likely to witness a complication as those not on antithrombotic. These findings indicate that active antithrombotic remedy is in fact safe during said procedures. No other variables were associated with complications [21-23].

## Result

A total of 564 unique patients were identified as having undergone 647 in-office laryngologic procedures. Two hundred-seventy-four of these individuals were on antithrombotic therapy at the time, accounting for 310 procedures. Summarizes and compares the demographic features of the two study groups. For the 68 patients who underwent more than one procedure, this table includes demographic information at their first recorded procedure only. The types of procedures performed as well as their distribution are listed in Table 1. Average duration of follow-up was 186 days or approximately 6 months. There were 16 procedures with complications, all of which were self-limited and are detailed in Table

**Table 1:** Type and Distribution of Procedures Performed.

Procedure	Antithrombotic		Total (n = 647)
	No (n = 337)	Yes (n = 310)	
Biopsy	55 (16%)	47 (15%)	102 (16%)
Excision	77 (23%)	45 (15%)	122 (19%)
Laser ablation	18 (5%)	14 (5%)	32 (5%)
Injection	187 (55%)	204 (66%)	391 (60%)
Therapeutic	159 (47%)	159 (51%)	318 (49%)
Augmentation	28 (8%)	45 (15%)	73 (11%)

**Table 2:** Additional Univariate And Generalized Linear Mixed Model Results.

Variable	Odds ratio	95% CI	P-value
Female vs male	1.32	(0.55, 3.15)	.5270
Smoker			.2880
Current vs never	2.54	(0.78, 8.24)	.1196
Former vs never	1.28	(0.47, 3.43)	.6265
Age	1.01	(0.98, 1.04)	.4384
Race nonwhite vs white	1.04	(0.29, 3.71)	.9460
Procedure excision <sup>a</sup> vs injection	0.33	(0.11, 1.01)	.0511

2. Overall complication rates (number of complications/procedures performed) were 2.4% and 3.3% for the non-antithrombotic and antithrombotic groups, respectively. There was no statistically significant difference between these rates on univariate analysis (OR 1.09, 95% CI [0.46-2.60], P = .8454). Summarizes univariate analyses of other clinical variables, none of which were statistically significant, thereby obviating the need to fit a multivariate model.

## Conclusion

In - office laryngological procedures go a number of advantages compared to their operating room counterparts, including avoidance of general anesthesia, shorter recovery, hastily return to work, and lower cost. The current study supports that these procedures are safe to perform while cases are on active antithrombotic remedy with no need for conclusion. Larger cohorts are anticipated to corroborate these findings and may allow for subgroup analysis going forward.

Individuals on antithrombotic therapy have traditionally been considered at increased risk of complications from surgery related to excessive bleeding, and oftentimes recommendations are made to hold antithrombotic therapy beforehand. Doing so, however, is not without its risks, and the potential for thromboembolic events may preclude surgery, particularly in more elective cases. In the otolaryngology literature, operative microlaryngeal surgery was shown to have no increased risk of bleeding in patients on antithrombotics. Subsequent studies by Fritz et al and Dang et al had similar findings in the office setting and at the bedside, respectively, but the smaller size of these studies prevented them from drawing formal conclusions.

The present study sought to validate the findings of those before it while establishing definitive recommendations for the performance of in-office laryngologic procedures in patients on antithrombotic therapy. Demographically, there were predictable differences among the two cohorts, with male gender, smoking status, and older age all associated with antithrombotic usage. Most importantly, patients on antithrombotics were found to be just as likely to experience a complication as those not on antithrombotics. These findings indicate that active antithrombotic therapy is in fact safe during said procedures. No other variables were associated with complications.

Despite these encouraging results, there are some limitations worth mentioning. The identification of complications was reliant on documentation from procedure notes, follow-up visits, and patient telephone encounters. As such, it is possible that inadequate documentation may have led to omissions. There is also a degree of subjectivity in distinguishing expected side effects from true complications, introducing the possibility for observer bias. Moreover, although a major strength of this study rests in its size, it is technically underpowered to detect such a small difference in complication rate between the two cohorts (0.8%), which would require about 5000 patients per group. With the current sample size, the smallest difference that can be detected is about 5%, which the authors would argue is clinically negligible in most cases.

Lastly, subgroup analysis (ie, antiplatelet vs anticoagulant vs dual therapy) was not possible due to the relative paucity of complications.

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#### Conflict of interest

None

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