

Background

- Rubber band ligation (RBL) is a common and effective office-based procedure for symptomatic hemorrhoids.
- Major bleeding following RBL is rare but clinically significant when it occurs.
- Anticoagulant therapy has traditionally been viewed as a relative contraindication due to the presumed risk of post-procedure hemorrhage.
- The true incidence of bleeding among anticoagulated patients undergoing RBL remains unclear.

Objective

- Determine whether anticoagulant use increases the risk of clinically significant bleeding after hemorrhoid RBL.

Study Design

- **Type:** Retrospective cohort study
- **Setting:** Single tertiary care institution under board-certified colorectal surgeons
- **Period:** June 2013 – May 2023
- **Population:**
 - Adult patients who underwent office-based RBL
 - Excluded: patients on antiplatelet agents
- **Outcome Measure:**
 - Post-procedure hemorrhage within 30 days (defined as bleeding requiring blood transfusion, unplanned procedure, or hospital admission)

Results

- **Procedures analyzed:** 1,634 RBL procedures performed in 927 patients
- **Median age:** 53 years
- **Anticoagulation status:**
 - 1,559 procedures in non-anticoagulated patients
 - 75 procedures in anticoagulated patients
 - Most patients continued anticoagulation pre- and post-procedure

Results

Table 1. Patient Demographics

	Non-AC group (n=1,559)	AC group (n=75)	Total (n=1,634)	p-value
Age, years, median (IQR)	53 (43.0-63.0)	72 (62.5-80.5)	54 (44.0-64.0)	<0.001*
Sex, n (%)				0.4
Male	908 (58.2)	40 (53.3)	948 (58.0)	
Female	651 (41.8)	35 (46.7)	686 (42.0)	
Racial Identity, n (%)				0.001*
White	866 (55.5)	50 (66.7)	916 (56.1)	
Black	407 (26.1)	24 (32.0)	431 (26.4)	
Asian	111 (7.1)	0 (0.0)	111 (6.8)	
Other	71 (4.6)	1 (1.3)	72 (4.4)	
Unspecified	104 (6.7)	0 (0.0)	104 (6.4)	

Table 2. Characteristics of Hemorrhoids

	Non-AC group (n=1,559)	AC group (n=75)	Total (n=1,634)	p-value
Hemorrhoid grade, n (%)				0.09
Grade I	23 (1.5)	2 (2.7)	25 (1.5)	
Grade II	596 (38.2)	31 (41.3)	627 (38.4)	
Grade II-III	5 (0.3)	1 (1.3)	6 (0.4)	
Grade III	547 (35.1)	21 (28.0)	568 (34.8)	
Grade IV	67 (4.3)	7 (9.3)	74 (4.5)	
Unspecified	321 (20.6)	13 (17.3)	334 (20.4)	
Number of bands placed, n (%)				0.3
1	1,292 (82.9)	67 (89.3)	1,359 (83.2)	
2	228 (14.6)	8 (10.7)	236 (14.4)	
3	38 (2.4)	0 (0.0)	38 (2.3)	
4	1 (0.1)	0 (0.0)	1 (0.1)	

Table 3. AC Used in RBL Patients

	AC group (n=75)
Type of Anticoagulants, n	
Warfarin	37
transition with enoxaparin	5
Apixaban	27
Rivaroxaban	9
Enoxaparin	2
Periprocedural Interruption of AC, n (%)	14
AC Held Pre-Procedure	
Within 1 day	4
3 days	4
5 days	1
6 days	1
AC Held Post-Procedure	
2 days	1
5 days	1
7 days	4
15 days	2

Results

Table 4. Post-Procedure Hemorrhage by Procedure

	Non-AC group (n=1,559)	AC group (n=75)	Total (n=1,634)	p-value
Post-procedural hemorrhage, n (%)	1 (0.1)	1 (1.3)	2 (0.1)	0.13
Blood transfusion	1	0	1	
Admission	1	1	2	
Procedure	0	0	0	

Bleeding events:

- 2 total cases of post-procedure hemorrhage (0.1%)
- event in non-anticoagulated group, 1 in anticoagulated group
- No significant difference between groups (1.3% vs 0.1%; $p = 0.13$)
- Both required hospitalization; 1 required transfusion (non-anticoagulated)
- No patient required re-intervention or surgery for bleeding control

Limitations

- Single-center retrospective design
- Small sample size in the anticoagulated group limits statistical power

Conclusion

- Rubber band ligation appears **safe in patients maintained on anticoagulation**.
- No significant difference in post-procedure bleeding rates between anticoagulated and non-anticoagulated patients.
- Findings support the **continuation of anticoagulant therapy** during RBL when clinically appropriate.

Key Takeaways

- ✓ Post-procedure bleeding was rare (0.1%)
- ✓ No difference in bleeding risk between groups ($p = 0.13$)
- ✓ No cases required reoperation or intervention
- ✓ Supports individualized, evidence-based anticoagulation management