



# Clinical Outcomes of Double Balloon Enteroscopy (DBE) : An 8-Year Tertiary Center Experience



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## INTRODUCTION

- The objectives of this study are to examine clinical characteristics of patients undergoing anterograde and retrograde double balloon enteroscopy (DBE) and to assess factors predicting 6-month readmission

## METHODS

- We conducted a retrospective cohort study of patients (n=1162) who underwent DBE at an academic tertiary care center between November to December 2020.
- Baseline patient data as well as DBE related variables were collected.
- Outcome variables included readmission rates, diagnostic and therapeutic yield.
- Measures of central tendency and frequency distributions were used for univariate analysis.
- Chi-square and student 2 sample t-test were performed to compare patient characteristics.
- Logistic regression was used for outcome variable analysis

## RESULTS

- Of the 1162 DBE procedures, 50.95% were male (n= 592) with a mean age of 61.29 (15.33, SD).
- The most common indications for procedure being GI bleed (61%) and abnormal video capsule endoscopy findings (30%).
- The cohort's rate of positive diagnostic yield was 65% and 57% for therapeutic yield.

Fig1: Univariate and Multivariable Logistic Regression Analysis predicting 6-month readmission rate

6-month readmission	Univariate Analysis		Multivariate Analysis	
	OR [95% CI]	P value	OR [95% CI]	P value
Female	0.93 [0.69-1.26]	0.649	-	-
Age	0.99 [0.98-1.00]	0.158	0.99 [0.98-1.00]	0.253
Retro	0.85 [0.59-1.23]	0.383	-	-
Diagnostic Findings	0.76 [0.57-1.02]	0.072	0.79 [0.57-1.10]	0.160
BMI<25	1.09 [0.80-1.50]	0.572	-	-
<b>Inpatient</b>	<b>3.91 [2.87-5.33]</b>	<b>0.000</b>	<b>3.56 [2.59-4.89]</b>	<b>0.000</b>
<b>Procedure minutes</b>	<b>1.01 [1.01-1.02]</b>	<b>0.000</b>	<b>1.01 [1.00-1.01]</b>	<b>0.026</b>
Antiplatelet	0.84 [0.60-1.19]	0.335	-	-
<b>Anticoagulation</b>	<b>1.74 [1.17-2.59]</b>	<b>0.006</b>	1.29 [0.84-1.99]	0.243

Table 1: Patient Characteristics and outcome variables stratified based on procedure type (Anterograde vs Retrograde )

Variable		Anterograde (n=900)	Retrograde(n=262)	P-Value
Sex	Male	459 (51%)	133 (51%)	.95
	Female	441 (49%)	129 (49%)	
Age, Range:	35-93, Mean (SD)	61.17 (15.30)	61.69 (15.49)	.629
Patient Type	Outpatient	571 (63%)	187 (71%)	.018
	Inpatient	329 (37%)	75 (29%)	
BMI	Less than 25	304 (34%)	77 (29%)	.183
	25 or more	596 (66%)	185 (71%)	
Altered Anatomy	No	695 (77%)	234 (89%)	.000
	Yes	205 (23%)	28 (11%)	
Anticoagulation	No	780 (87%)	230 (88%)	.636
	Yes	120 (13%)	32 (12%)	
ESRD	No	858 (95%)	247 (94%)	.485
	Yes	42 (5%)	15 (6%)	
Anesthesia Type	General	809 (90%)	97 (37%)	.000
	Mac	91 (10%)	165 (63%)	
Total procedural time	Mean (SD)	38.67 (20.45)	43.70 (23.70)	.0008
Therapeutic Yield	No	361 (40%)	141 (54%)	.000
	Yes	539 (60%)	121 (46%)	
Positive Finding	No	305 (34%)	99 (38%)	.244
	Yes	595 (66%)	163 (62%)	
Readmission 30-day	No	791 (88%)	238 (91%)	.187
	Yes	109 (12%)	24 (9%)	
Readmission 6 Month	No	731 (81%)	219 (84%)	.383
	Yes	169 (19%)	43 (16%)	

## RESULTS

- The mean procedural time was 39.80 (21.31, SD) minutes, and 77% of DBE patients received anterograde procedures. Compared to retrograde procedures, a higher proportion of DBE patients with anterograde procedures had positive diagnostic yield (66% vs. 62%, p=.254) (table 1). Readmission rates at 30 days and 6 months were 11% and 18% respectively. Anterograde procedures were more likely to be inpatient (37% vs 29%, p=0.018) and associated with shorter procedure time (38.67 ± 204.5 vs 43.7 ± 23.7 minutes, p=0.0008) and higher therapeutic yield (60% vs 46%, p=0.00) (Fig 1).
- Univariate analysis depicted inpatient status, total procedure minutes, and anticoagulation use to be associated with 6-month readmission (all P< 0.05). After controlling for each variable through multivariable analysis, inpatient status [OR:3.56, 95% CI (2.59-4.89), p=0.00] and total procedure minutes [OR:1.01, 95% CI (1.00-1.01), p=0.03] remained significant predictors of 6-month readmission (table 2)

## CONCLUSION

- DBE procedures has high efficacy for both diagnostic and therapeutic yield while evaluating GI bleed, abdominal pain, iron deficiency anemia, as well as performing ERCP in patients with altered upper GI anatomy. Patients undergoing anterograde DBE are associated with shorter procedure time and higher therapeutic yield compared to patients undergoing retrograde DBE. DBE patients who are inpatients and higher procedural times are more likely to be readmitted in 6 months