



Population Demographics and Procedural Characteristics (N=60)	
Demographics	Result ± SD (%)
Age	67.65 ± 10.4
Gender (Male)	46 (76.6)
Diabetes Mellitus	32 (53.3)
HTN	53 (88.3)
HLD	47 (78.3)
Hx of Stroke	3 (5)
Hx of MI	20 (33.3)
Hx of PCI	23 (38.3)
Hx of CABG	21 (35.0)
Echocardiograms	N = 47 (78.3)
Ejection Fraction	50.1 ± 14.1
Less than 30%	6
30% to 50%	14
50% or greater	27
Procedural Characteristics	Result ± SD (%)
IVUS	59 (98.3)
Access	
Femoral	58 (96.7)
Radial	2 (3.3)
Location of Target lesion	N = 134 (% of patient population)
Prox RCA	30 (50.0)
Mid RCA	35 (58.3)
Distal RCA	24 (40.0)
PDA	1 (1.7)
Left Main	6 (10.0)
Prox LAD	5 (8.3)
Mid LAD	4 (6.7)
Prox LCx	19 (31.7)
Mid LCx	11 (18.3)
Number of vessels targeted per case	
1	51 (85.0)
2	9 (15.0)
Burr Size	
1.75	53 (88.3)
2.0	7 (11.7)
Stents per case	
0	5 (8.3)
1	15 (25.0)
2	15 (25.0)
3	18 (30.0)
4	6 (10.0)
5	1 (1.7)
Type of Stent used by case	N=55
DES	49 (89.1)
BMS	6 (10.9)
Sheath size (Fr)	
6	20 (33.3)
7	22 (36.7)
8	18 (30.0)
Final TIMI flow	
3	60 (100)
Procedural Support	
IABP	4 (6.7)
LVAD (Impella)	3 (5.0)
Outcomes	
Temporary pacing wire activated	9 (15.0)

CRT-100.32
Predictors of Procedural Complication During Rotational Atherectomy vs. Orbital Atherectomy in Calcified Coronary Artery Disease: A Contemporary Retrospective Comparative Analysis (ROCC study)

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BACKGROUND Severe coronary calcification adversely influences success of percutaneous coronary intervention. Rotational atherectomy (RA) (Boston Scientific) and orbital atherectomy (OA) (Diamondback 360® (CSI)) are used to modify plaque and help facilitate stent delivery to improve clinical outcomes. We sought to identify predictors of procedural complications (PC) while performing coronary atherectomy.

METHODS Between June 2010 and July 2015, all patients at a single center who had attempted treatment with RA or OA were retrospectively evaluated. Demographic, procedural, and clinical data were collected by chart review. Two interventional cardiologists independently reviewed each cineangiography to record lesion traits and angiographic outcomes. Predefined PC were noted including: dissection, perforation, reduced or no TIMI flow, or side branch loss. Univariate analyses were conducted to see which variables significantly related to any PC. After a Bonferroni correction, multivariate logistic regression analysis was performed to find a model that predicted PC.

RESULT A total of 62 procedures out of 274 had PC. In the OA group 32 patients and in the RA group 29 patients suffered such complication. Significant differences in PC were found based on univariate analyses presented in the Table. Significant predictors on multivariate analysis included TIMI Flow Post Wire ($p < 0.003$) and having a clinical complication ($p < 0.004$). While type of device was not a significant predictor ($p = 0.121$), the odds of having a procedural complication were 42% lower for those who received the RA.

CONCLUSION Successful wiring of severely calcified coronary artery stenosis is the most important predictor of having uncomplicated successful coronary atherectomy procedures. The modality of atherectomy does not predict procedural complications.

Procedural data, procedural complications, clinical complications and 6 months outcome			
	Orbital atherectomy (n=127)	Rotational atherectomy (n=147)	p value
Primary endpoint- procedural success*	114 (92.7)	131 (91.6)	0.746
Unsuccessful passing of atherectomy device	1 (0.8)	6 (4.1)	0.083
Successful stent delivery	117 (92.9)	133 (91.7)	0.728
Guide extender used	32 (25.4)	5 (3.4)	<0.001
Any complications** post atherectomy	28 (22.4)	18 (12.8)	0.038
Any complications** post stent	1 (0.9)	7 (5.1)	0.053
Any clinical complications***	23 (18.3)	19 (13.1)	0.159
Follow up data available	106 (84.1)	118 (81.4)	0.551
Angina free at 6 months follow up	81 (76.4)	94 (79.7)	0.335
MACE (TLR/TVR/MI/Death)	25 (23.6)	24 (20.3)	0.335

*Procedural success: successful atherectomy device passing & deployment of stent with <50% residual stenosis
 **Any complications include a composite of: reduced TIMI flow, perforation and dissection
 ***Clinical complications include asystole, bradycardia, cardiac death, STEMI, TVR, TLR or CVA/TIA.

Predictors of Procedural complication on Univariate logistic regression analysis		
	X ² (df)	p
Clinical Presentation	11.74 (3)	0.008
Stenosis Diameter	13.95 (3)	0.003
Calcification Severity	6.63 (1)	0.010
Calcification on both sides	6.26 (1)	0.012
Lesion Length	4.58 (1)	0.032
Length of Calcification	4.94 (1)	0.026
Baseline TIMI Flow	12.92 (1)	0.000
TIMI Flow Post Wire	28.42 (1)	0.000
TIMI Flow Post PTCA	38.56 (1)	0.000
Access Site	4.90 (1)	0.027
Impella Device Used	7.68 (1)	0.006
Complications Post Wire	12.14 (1)	0.000
Complications Post PTCA	11.03 (1)	0.001
Any Clinical Complications	11.74 (1)	0.001