

Supplementary Material

Supplementary Table 1: The Modified Ellis Criteria

Type	Description
I	The development of an extraluminal crater without brisk extravasation.
II	Pericardial or myocardial blushing without brisk extravasation.
III	Breach in the arterial wall that results in an extravasation jet through a frank perforation (width of ≥ 1 mm).
IV	Accumulation of blood into another anatomical cavity.
V	Synonymous with a distal perforation.

Supplementary Table 2: Comparison of angiographic and procedural characteristics between No CP and CP

Variable	No CP (n = 9633)	CP (n = 68)	P-value
<i>Lesion complexity (ACC/AHA)</i>			
Type A, n (%)	331 (3)	0	N/A
Type B1, n (%)	1619 (17)	14 (21)	0.406
Type B2, n (%)	2198 (23)	10 (15)	0.112
Type C, n (%)	4280 (44)	44 (65)	<0.001
<i>CTO attempted, n (%)</i>	993 (10)	16 (24)	<0.001
<i>In-stent Restenoses, n (%)</i>	918 (10)	8 (12)	0.532
<i>IVUS, n (%)</i>	541 (6)	12 (18)	<0.001
<i>Rotablation, n (%)</i>	363 (4)	5 (7)	0.123
<i>Cutting Balloon Angioplasty, n (%)</i>	98 (1)	3 (4)	<0.001
<i>Hydrophilic wires, n (%)</i>	1454 (15)	24 (35)	<0.001
<i>Multivessel stenting, n (%)</i>	3488 (36)	18 (26)	0.096
<i>GPIIb/IIIa inhibitors, n (%)</i>	2875 (30)	14 (21)	0.096

ACC/AHA, American College of Cardiology/ American Heart Association; CTO, chronic total occlusion; IVUS, intravascular ultrasound

Supplementary Table 3: Mechanisms of Perforation for Cohort A (1 January 2010 - 2 July 2015) and Cohort B (3 July 2015 and the 31 December 2020)

Perforation cause	Cohort A, (n = 24)	Cohort B, (n = 44)	P-value
<i>Guidewire</i>			
Hydrophilic wire, <i>n (%)</i>	4 (17)	13 (30)	0.241
Work Horse wire, <i>n (%)</i>	4 (17)	10 (23)	0.555
<i>Cutting balloon, n (%)</i>	0	2 (5)	NA
<i>Coronary stent, n (%)</i>	5 (21)	10 (23)	0.857
<i>Balloon inflation</i>			
Pre-dilatation with NC balloon, <i>n (%)</i>	1 (4)	2 (5)	0.942
Post-dilatation with NC balloon, <i>n (%)</i>	10 (42)	6 (14)	0.009
Pre-dilatation with SC balloon, <i>n (%)</i>	0	1 (2)	NA
Post-dilatation with SC balloon, <i>n (%)</i>	0	0	NA

NC, Non-Compliant; SC, Semi-Compliant