Supplementary data

Supplementary Table 1. Summary of the findings of the double kissing crush (DKCRUSH I-VI) trials.

Moving image 1. Abridged images of steps from a DK crush two-stent bifurcation PCI for a Medina 1,1,1 bifurcation lesion in the mid left anterior descending artery.

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	DKCRUSH-I [3]	DKCRUSH-II [4]	DKCRUSH-III [5,6]	DKCRUSH-IV [7]	DKCRUSH-V [8]	DKCRUSH-VI [9]
# of patients	311	370	419	75	482	320
Trial design	Multicentre, prospective, randomised controlled trial	Multicentre, prospective, randomised controlled trial	Multicentre, prospective, randomised controlled trial	Single-centre, prospective, randomised controlled trial	Multicentre, prospective, randomised controlled trial	Multicentre, prospective, randomised controlled trial
Comparison	Classic crush vs DK crush in true bifurcation lesions (LAD-diagonal; distal LM; LCx-OM; distal RCA)	DK crush or provisional stenting in true bifurcation lesions	DK crush vs culotte for unprotected distal LM bifurcation lesions	Haemodynamic changes in FFR with DK crush vs provisional stenting for true bifurcation lesions	DK crush vs provisional stenting for distal LM bifurcation lesions	Angiographic vs FFR-guided SB stenting in provisional stenting of true bifurcation lesions
Primary endpoint	Major adverse cardiac events (MACE) including MI, cardiac death, target lesion revascularisation (TLR) by either PCI or CABG at 8 months	MACE including cardiac death, MI, or target vessel revascularisation (TVR) at 12 months	MACE including cardiac death, target vessel MI, or clinically driven TLR at 1 year	Loss of FFR at 8-month follow-up	Composite of target lesion failure (TLF) including cardiac death, target vessel MI or clinically driven TLR at 1 year	MACE including cardiac death, MI, or ischaemia-driven TVR at 1 year
Principal findings	MACE: 24.4% classic crush 11.4% DK crush, p=0.02 TLR-free survival: 75.4% classic crush 89.5% DK crush, p=0.002	MACE: 17.3% provisional stenting 10.3% DK crush, p=0.070 Stent thrombosis: DK crush 2.2% provisional stenting 0.5% p=0.372	MACE: 16.3% culotte 6.2% DK crush, p<0.05 In-stent restenosis in SB: 12.6% culotte 6.8% DK crush, p=0.037	Late (8-month) loss in SB FFR: –0.06±0.11, DK crush –0.002±0.07 provisional stenting Acute gain in SB FFR: 0.18±0.15 DK crush	TLF: 10.7% provisional stenting 5.0% DK crush (HR 0.42, 95% CI: 0.21-0.85, p=0.02) Target vessel MI:	MACE: 18.1% in both groups (hazard ratio: 0.91, 95% CI: 0.48 to 1.88; p=1.00) 1-year TVR: 6.9%, angio-guided 5.6%, FFR-guided (p=0.82)

		Angiographic restenosis: MB: DK crush 3.8% provisional stenting 9.7% *p*=0.036 SB: DK crush 4.9% provisional stenting 22.2% *p*<0.001 TVR: DK crush 6.5% provisional stenting 14.6% *p*=0.017	3-year MACE results later reported: 23.7% culotte 8.2% DK crush, *p*=<0.001	0.12±0.18 provisional stenting	2.9% provisional stenting 0.4% DK crush, *p*=0.03 Definite or probable stent thrombosis: 3.3% provisional stenting 0.4% DK crush, *p*=0.02	1-year stent thrombosis: 1.3%, angio-guided 0.6%, FFR-guided (*p*=0.56)
Limitations	? While multicentre in nature, this series enrolled predominantly from China - there could be limits to generalising findings to patients and practices outside of this region. ? Intracoronary imaging guidance was not used in the majority of procedures, which could have optimised/altered results in either arm. ? Angiographic follow-up could have generated TLR events, though the aim was to wait until after the follow-up period if possible. ? DKCRUSH-II was limited by stenting quality issues and constraints of FFR-lesion measurement interactions.					

Moving image legend

Moving image 1. Moving image showing abridged images of steps from a DK crush two-stent bifurcation PCI for a Medina 1,1,1 bifurcation lesion in the mid left anterior descending artery (LAD). The first image illustrates a significant lesion affecting the proximal to mid LAD and the first diagonal (D1). The MV and SB were both wired and predilated. Predilation led to small dissections in both vessels which were diseased and of relatively small calibre. The second image shows a stent being deployed in the diagonal with protrusion into the LAD. A balloon is positioned in the LAD, ready for SB stent crushing. The third moving image shows crushing of the SB stent; in this case, the SB wire was intentionally jailed. The fourth moving image shows the first kissing inflation of the DK crush after SB re-wiring and eventual passage of a balloon through the crushed stent, which required initial predilation with a 1.25 mm balloon. The fifth moving image shows deployment of the LAD stent. At this point, the diagonal wire had been removed. The sixth moving image shows the second kissing balloon inflation, which was completed after POT of the LAD stent and after re-wiring of the SB and passage of an SB balloon. The seventh moving image shows re-POT of the MV stent. The eighth moving image shows the final result.