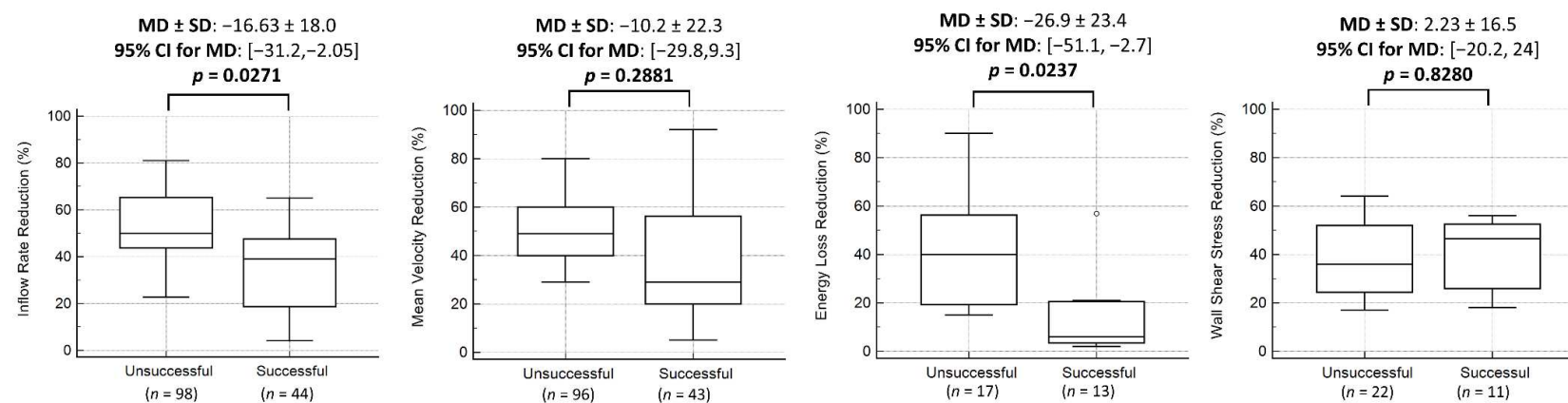
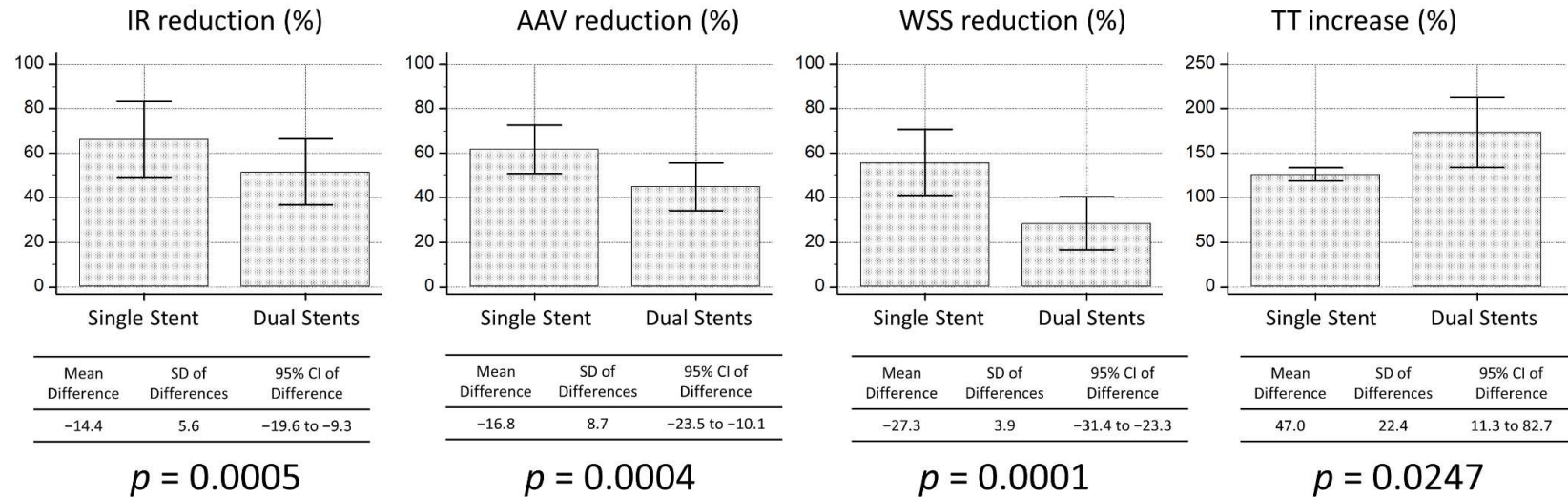


## Supplementary Figure 1



**Supplementary Figure 1.** Comparison of haemodynamic changes between the successfully and unsuccessfully treated cases, in terms of (1) the inflow rate, (2) intra-aneurysmal velocity, (3) energy loss, and (4) wall shear stress, all relative to the untreated condition. n refers to the number of aneurysms included in each comparison group. MD: mean difference; SD: standard deviation; and CI: confidence interval. The boxplots present the minimum, first quartile, median, third quartile, and maximum (excluding outliers) of each such dataset, with an orange circle indicating the outlier.

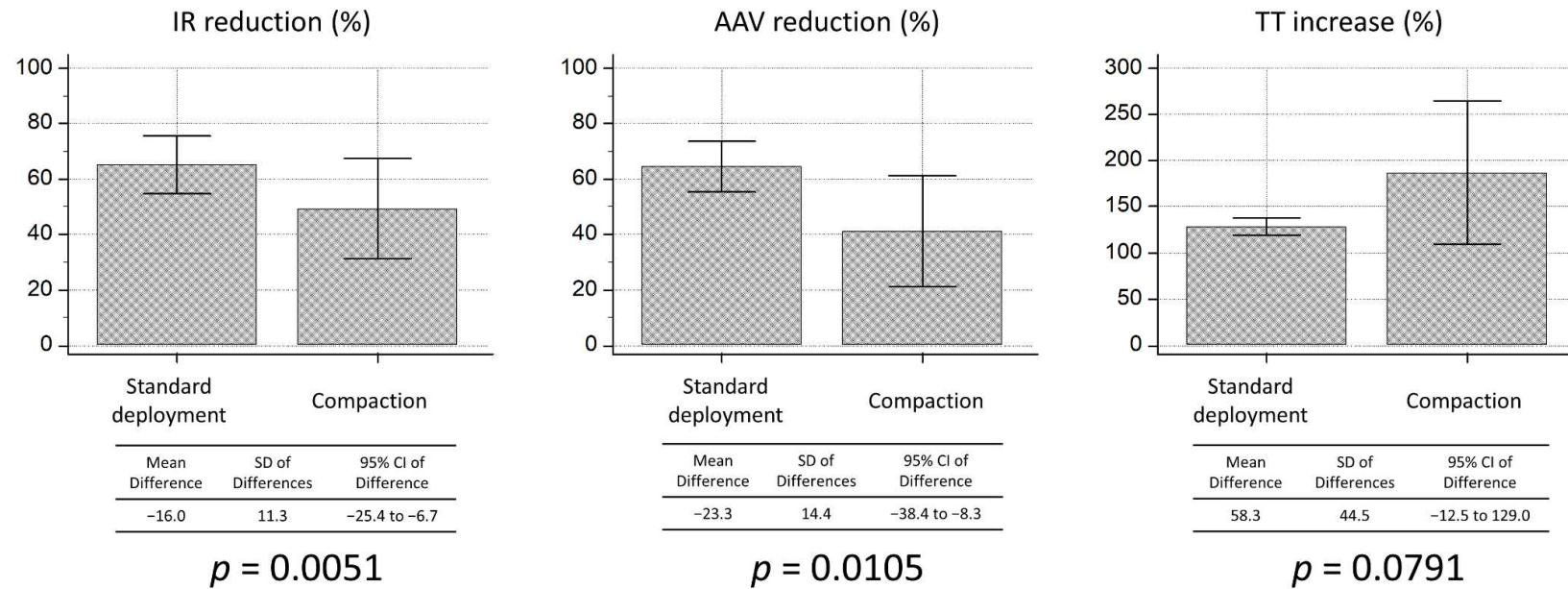
## Supplementary Figure 2



**Supplementary Figure 2.** Comparison of haemodynamic differences between treatments using a single stent and using two overlapping stents, in terms of (1) the inflow rate, (2) intra-aneurysmal velocity, (3) wall shear stress, and (4) turnover time, all relative to the untreated condition. SD: standard deviation; and CI: confidence interval. Error bars indicate the standard deviation of each dataset.

16 **Supplementary Figure 3**

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**Supplementary Figure 3.** Comparison of haemodynamic differences between standard deployment of a FD stent and deployment with a compaction technique applied, in terms of (1) the inflow rate, (2) intra-aneurysmal velocity, and (3) turnover time, all relative to the untreated condition. SD: standard deviation; and CI: confidence interval. Error bars indicate the standard deviation of each dataset.

24 **Supplementary Table 1**

25 **Supplementary Table 1.** Information on studies included in the quantitative analysis for differences between the single- and dual-stent treatments, and between  
 26 deployments with and without a compaction technique applied.

Author, year	Number of aneurysms	Location of aneurysms	Types of aneurysm	Aspect ratios (mean)	FD stent model	Virtual stenting technique	Multiple FD stents deployed	Compaction technique applied
Li et al., 2018	2	ICA	SW		<i>PED</i>	Porous medium	*	
Uchiyama et al., 2018	1	ICA	SW		<i>PED</i>	Generalised Cylinder	*	
Zhang et al., 2017	2	ICA	SW		<i>Silk</i>	Spring-mass		*
Damiano et al., 2017	3	1 BT, 2 ICA	1 FU, 2 SW		<i>PED</i>	Finite Element Analysis	*	*
Wang et al., 2016	3	ICA	SW	1.56	<i>PED</i>	Simplex	*	
Xiang et al., 2015	4	1 VA, 3 ICA	1 FU, 3 SW	1.32	<i>PED</i>	Finite Element Analysis	*	
Damiano et al., 2015	1	ICA	SW		<i>PED</i>	Finite Element Analysis	*	
Janiga et al., 2015	1	ICA	SA	1.10	<i>Silk</i>	Generalised Cylinder		*
Ugron et al., 2014	2	ICA	SW	1.55	<i>PED</i>	Porous medium	*	
Xiang et al., 2014	1	BT	SW		<i>PED</i>	Finite Element Analysis		*
Ma et al., 2014	2	1 ACA, 1 BT	1 FU, 1 SW	2.14	<i>PED</i>	Finite Element Analysis		*

27 ICA: internal carotid artery; BT: basilar trunk; VA: vertebral artery; ACA: anterior cerebral artery; SW: side-wall; and FU: fusiform.

28 Haemodynamic data summarised from those studies are presented in Supplementary Table 2.

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30 **Supplementary Table 2**

31 **Supplementary Table 2.** Summary of haemodynamic changes (relative to the untreated condition) after deployment of an additional stent or when a single stent  
 32 was deployed with a compaction technique applied, in comparison to standard deployment of a single stent.

Author, year	Multiple FD stents deployed	Compaction technique applied	IR reduction (%)		AAV reduction (%)		WSS reduction (%)		EL reduction (%)		TUT increase (%)	
			S-MCR	H-MCR	S-MCR	H-MCR	S-MCR	H-MCR	S-MCR	H-MCR	S-MCR	H-MCR
Li et al., 2018	*		35	25					4	2		
"			45	35					17	11		
Uchiyama et al., 2018	*				71	58						
Zhang et al., 2017		*	45	10	55	20			20	2		
"			65	40	65	40			40	15		
Damiano et al., 2017		*	70	50	60	30	55	15			130	220
"		*	82	78	80	70	77	50			120	140
"		*	70	68	60	58	45	57			130	150
"	*			60		50		30				160
"	*			60		61		42				160
"	*			50		30		18				210
Wang et al., 2016	*				60	45	50	25				
Xiang et al., 2016	*		80	61	80	61	68	42			125	163
Damiano et al., 2015	*		80	70	60	30	40	15				
"				60		20		10†				
Janiga et al., 2015		*			76	67						
Ugron et al., 2014	*				38	25						
"					50	45						
Xiang et al., 2015		*			67	29					134	237
Ma et al., 2014		*	64	43								
"			50	38								

33 IR: inflow rate; AAV: intra-aneurysmal average velocity; WSS: wall shear stress; EL: energy loss; TUT: turnover time; S-MCR: standard metal coverage ratio  
 34 (following treatment with a single stent deployed in a standard manner); and H-MCR: higher metal coverage ratio (following treatment using two stents or  
 35 treatment using a single stent deployed with a compaction technique applied).

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