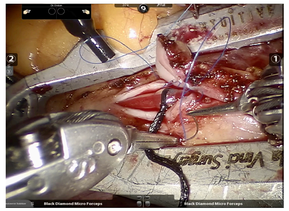
Sutured vs Stapled Coronary Anastomosis in Robotic TECAB: Does the Anastomotic Technique Matter?

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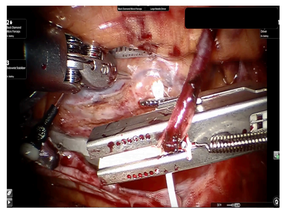
BACKGROUND

In robotic off-pump TECAB, the anastomosis is the most critical part of the procedure. In our experience, an automated distal anastomotic stapler was the primary anastomotic technique until it became commercially unavailable, after which we switched to a sutured approach. We sought to compare between these two anastomotic techniques by reviewing outcomes in all patients undergoing bypass grafting with exclusively one of these two approaches. Because the stapler can only create an end-to-side anastomosis, we compared this group to patients receiving solely end-to-side grafts created using a robotic sutured technique.

Surgical Technique



Robotic Sutured anastomosis



Flex-A Connector anastomosis (left) & device (right)

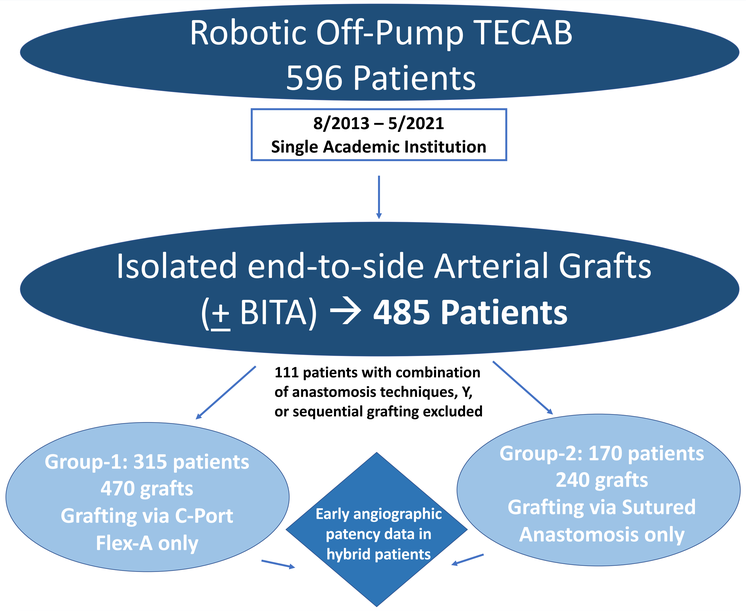


All operations were performed totally endoscopically using the Da Vinci Si
Port placement was standard TECAB.

RESULTS

Group Characteristics	Group-1 (N=315)	Group-2 (N=170)	P-Value
Age (years), mean ± SD	66 ± 11	66 ± 11	0.690
Female Gender, n (%)	91 (29)	39 (23)	0.159
Hypertension, n (%)	259 (82)	150 (88)	0.083
Atrial Fibrillation, n (%)	37 (12)	21 (12)	0.845
Prior MI, n (%)	90 (29)	31 (18)	0.012
Prior Cardiac Surgery, n (%)	6 (1.9)	10 (5.9)	0.044
STS Score, mean ± SD	1.86 ± 3.0	1.40 ± 1.9	0.065

PATIENTS AND METHODS



Graft and Target Characteristics	Group-1 (N=315)	Group-2 (N=170)	P-Value
Total Grafts	470	240	
LITA Conduit Use, n/total grafts (%)	297 (63)	153 (64)	0.082
LITA-LAD, n (%)	226 (72)	120 (71)	0.788
LITA Flow, mean ± SD	81 ± 38	94 ± 50	0.002
LITA PI, mean ± SD	1.4 ± 0.5	1.4 ± 0.4	0.313
RITA Flow, mean ± SD	71 ± 32	84 ± 40	0.004
RITA PI, mean ± SD	1.5 ± 0.5	1.5 ± 0.5	0.816
LITA target size, mean ± SD	1.9 ± 0.5	1.9 ± 0.4	0.688
RITA target size, mean ± SD	1.9 ± 0.4	2.0 ± 0.3	0.006

PERI-OPERATIVE RESULTS & GRAFT PATENCY

Intraoperative Characteristics	Group-1 (N=315)	Group-2 (N=170)	P-Value
Robotic Operative Time (min), mean ± SD	230 ± 80	264 ± 85	<0.001
Mean Grafts per Patient, mean ± SD	1.49 ± 0.5	1.41 ± 0.5	0.091
Multivessel BIMA Grafting, n (%)	155 (49)	70 (41)	0.091
Concomitant Procedures, n (%)	39 (12)	32 (19)	0.056
Cardiopulmonary Bypass Use, n (%)	4 (1.3)	3 (1.8)	0.679
Sternotomy Conversion, n (%)	1 (0.3)	0 (0.0)	0.318
Intraoperative Blood Transfusion, n (%)	29 (9.2)	10 (5.9)	0.200
Extubation in OR, n (%)	150 (48)	74 (44)	0.421

Post Operative Outcomes	Group-1 (N=315)	Group-2 (N=170)	P-Value
Extubation in 24 hrs, n (%)	309 (98)	170 (100)	n/a
Hospital LOS (days), mean ± SD	2.9 ± 1.3	2.3 ± 1.1	<0.001
ICU LOS (days), mean ± SD	1.3 ± 0.7	1.2 ± 0.5	0.008
Postoperative Blood Transfusion, n (%)	39 (12)	18 (11)	0.560
Atrial Fibrillation, n (%)	45 (14)	18 (11)	0.249
Wound Infection, n (%)	0 (0.0)	0 (0.0)	n/a
Postoperative Bleeding, n (%)	3 (0.9)	1 (0.6)	0.651
Readmission, n (%)	21 (6.6)	11 (6.5)	0.663
Mortality, n (%) O/E	4 (1.3) 0.70	1 (0.6) 0.42	0.430

Early Graft Patency Data	Group-1 (N=314)	Group-2 (N=163)	P-Value
ITT Hybrid Revascularization, n (%)	126 (40)	81 (48)	0.105
Time to angiogram, mean ± SD	1.5 ± 1.8	1.6 ± 1.8	0.620
Overall Patency, n/total (%)	126/130 (97)	85/87 (98)	0.494
LITA-LAD Patency, n/total (%)	59/61 (97)	44/45 (98)	0.774
Overall LITA Patency, n/total (%)	78/80 (98)	52/54 (96)	0.688
Overall RITA Patency, n/total (%)	48/50 (96)	33/33 (100)	n/a

CONCLUSIONS

During robotic beating-heart TECAB, grafts constructed using either an automated stapler or sutured technique were equivalent in producing excellent graft patency and clinical patient outcomes. A sutured anastomotic technique was associated with longer operative times. Further studies are warranted.

DISCLOSURES

Husam H Balkhy is a proctor for Intuitive Surgical.