

Ventricular Fibrillatory Arrest and Endo-aortic Balloon Occlusion in Redo Robotic Totally Endoscopic Mitral Valve Surgery

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BACKGROUND

The utilization of the robotic approach for redo mitral valve surgery has been increasing ¹. We reviewed the outcomes of patients undergoing redo robotic totally endoscopic mitral valve surgery either by endo-aortic balloon occlusion (EAO) or ventricular fibrillatory arrest (VF).

PATIENTS

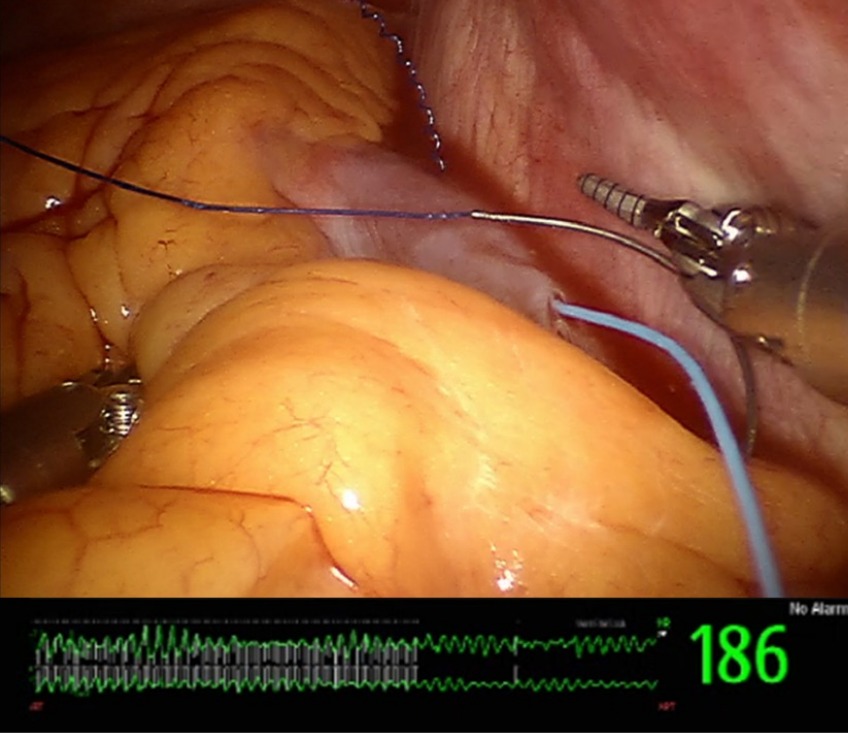
July 2013 – November 2023
Robotic totally endoscopic mitral valve surgery, N = 533
Patients with previous cardiac surgery, N = 45 (8.5 %)
3 patients treated with trans-thoracic clamp were excluded from the analysis.

[Arrest techniques]

EAO is chosen primarily

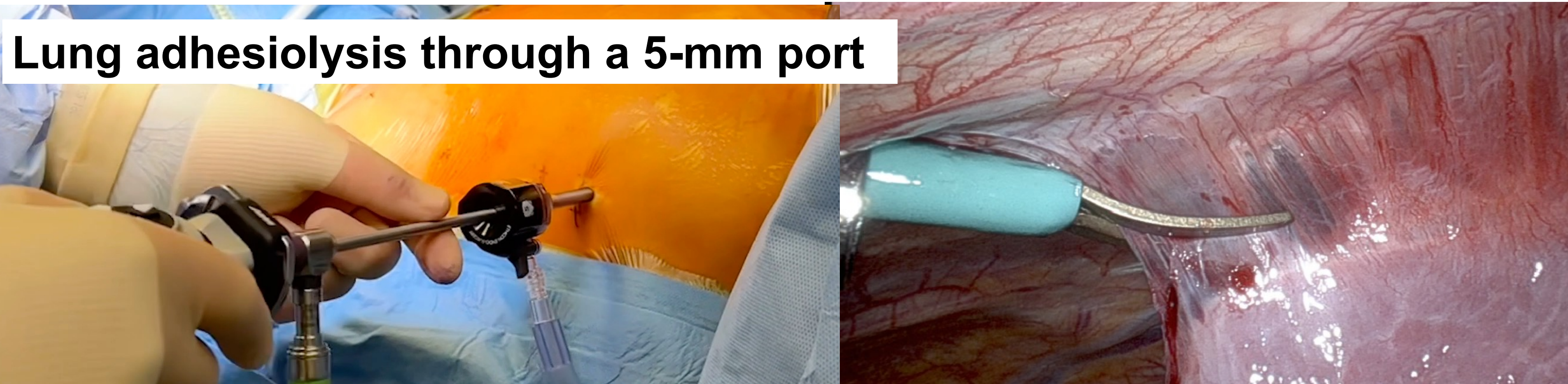


VF is considered when a patient has small femoral arteries or patent ITA graft



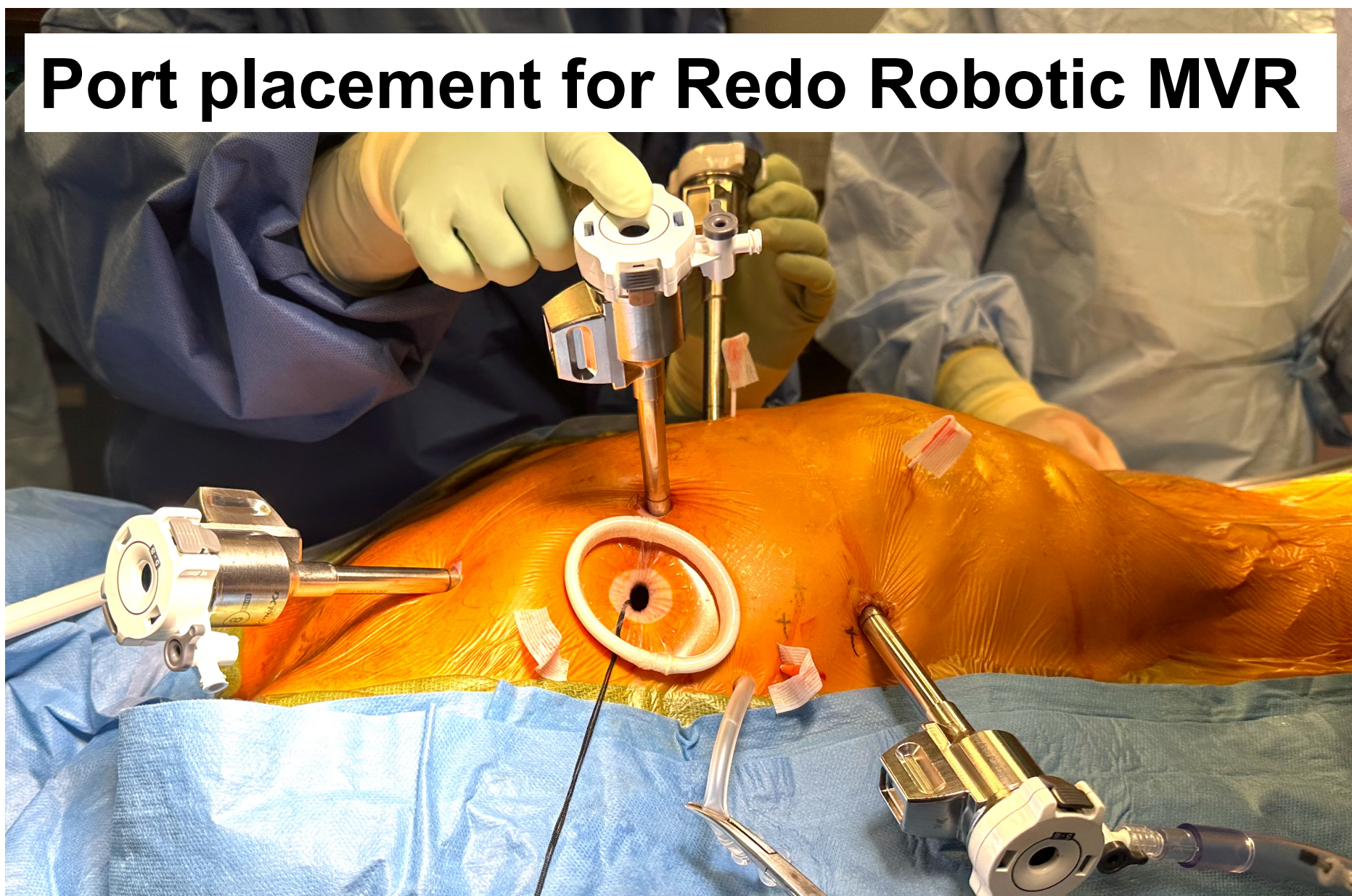
SURGICAL TECHNIQUES

Lung adhesiolysis through a 5-mm port



A 5-mm port is inserted away from the previous scar
Performing lung adhesiolysis until clear the space for robotic port placement

Port placement for Redo Robotic MVR



Left arm, Working port, Right arm in 2nd, 4th, 6th ICS mid-axillary line
Camera in 4th ICS anterior axillary line, Retractor port in 5th ICS parasternal



RESULTS

Baseline characteristics	EAO, N = 29	VF, N = 13	P value
Age (years), mean ± SD	60 ± 13	72 ± 6.5	0.003
STS score, mean ± SD (n=84)	3.9 ± 4.2	3.6 ± 1.9	0.801
BMI >30, n (%)	6 (21)	3 (23)	1.000
Ejection fraction <40%, n (%)	3 (10)	1 (8)	1.000
Previous MV surgery, n (%)	19 (66)	0 (0)	0.001

Intraoperative data	EAO, N = 29	VF, N = 13	P value
Mitral valve repair, n (%)	18 (62)	10 (77)	0.485
CPB time, mean ± SD	229 ± 52	214 ± 49	0.418
Cardiac arrest time, mean ± SD	136 ± 37	96 ± 28	0.002
Conversion to sternotomy, n (%)	0 (0)	0 (0)	-

Postoperative outcomes	EAO, N = 29	VF, N = 13	P value
Blood transfusion use, n (%)	14 (48)	6 (46)	1.000
Acute kidney injury, n (%)	2 (7)	0 (0)	1.000
Myocardial infarction, n (%)	0 (0)	0 (0)	-
New atrial fibrillation, n (%)	2 (7)	3 (23)	0.162
Stroke, n (%)	1 (3.4)	0 (0)	1.000
Re-exploration for bleeding, n (%)	1 (3.4)	0 (0)	1.000
ICU length of stay, mean ± SD	2.0 ± 2.8	1.4 ± 0.7	0.507
Hospital length of stay, mean ± SD	4.2 ± 5.6	3.1 ± 1.6	0.537
30-day mortality, n (%)	1 (3.4)	0 (0)	1.000

CONCLUSIONS

In redo robotic mitral valve surgery, the outcomes of EOA and VF are comparable and both would be a suitable arrest technique minimizing aortic adhesiolysis and decreasing the risk of redo surgery.

DISCLOSURES

Husam H Balkhy is a proctor for Intuitive Surgical.

REFERENCES

- Murphy DA, et al. Endoscopic Robotic Mitral Valve Surgery in Patients With Previous Sternotomy Cardiac Surgery. Innovations (Phila). 2022 Jul-Aug;17(4):297-303.