

Routine use of an Airseal® Utility Working Port in Robotic Cardiac Surgery: A Case Series

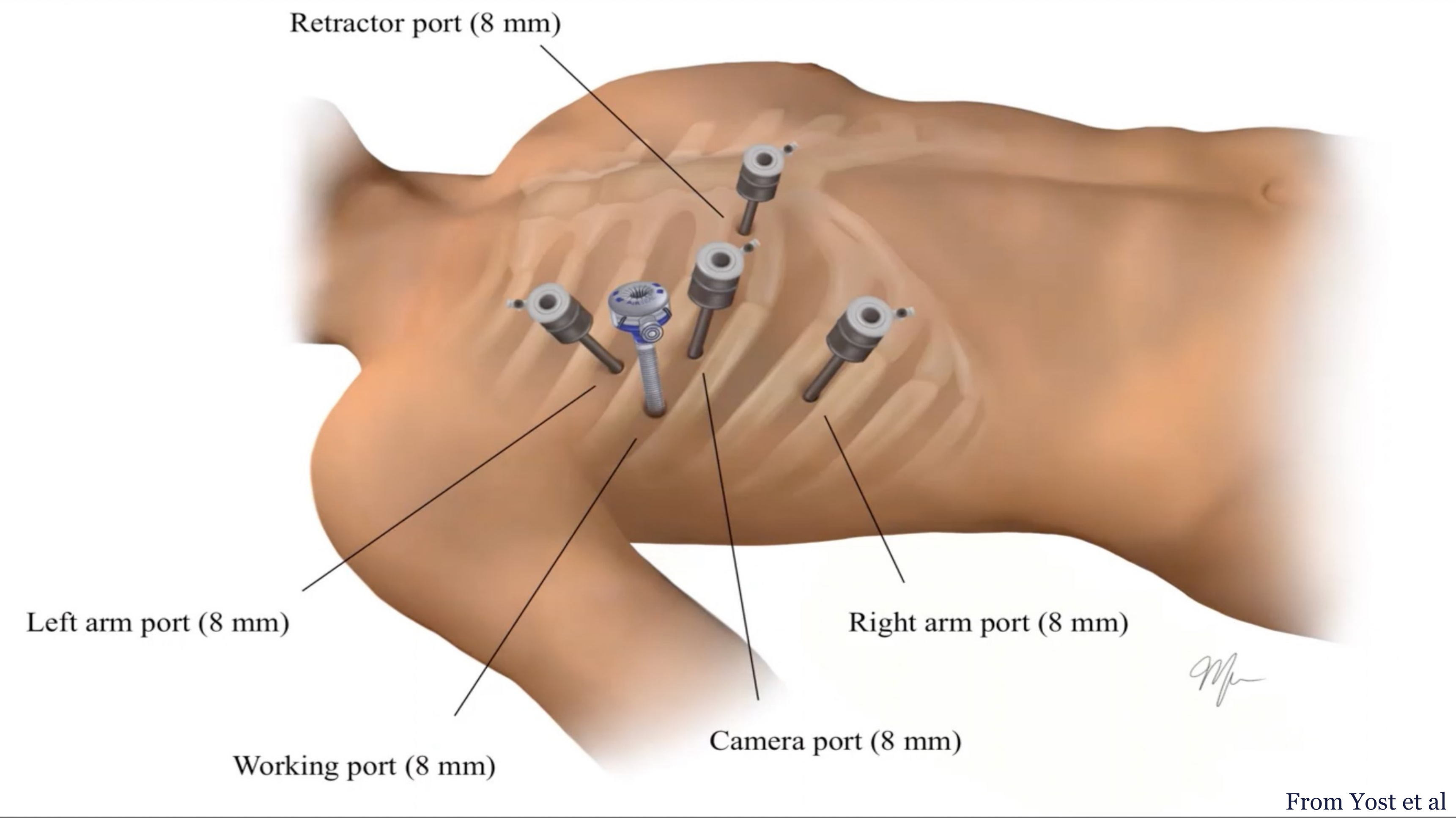
Jenna Mandel BS¹, Jake L. Rosen BA¹, Michelle Schafer¹, Kellen Round BS¹, Colin C. Yost BA¹, Kyle W. Prochno BA¹, T. Sloane Guy MD, MBA²

¹Sidney Kimmel Medical College, Thomas Jefferson University, Philadelphia, PA | ²Division of Cardiac Surgery, Department of Surgery, Thomas Jefferson University, Philadelphia, PA

Background

- AirSeal® iFS is a valveless trocar that enables stable pneumoperitoneum with continuous smoke evacuation during laparoscopic and robotic surgeries.
- To our knowledge, its use has not yet been described for robotic cardiac procedures.
- We seek to demonstrate the use of AirSeal® iFS for robotic cardiac surgery and suggest it may offer a safe alternative to standard CO2 insufflation.

Port Placement



Methods

- A retrospective analysis of 125 patients who underwent robotic cardiac surgery at a single institution with the use of AirSeal® iFS between July 2019 and April 2022 is described.
- Preoperative, intraoperative, and postoperative data were collected and are detailed.
- Continuous variables are reported as median [interquartile range], and categorical variables are presented as percentages of the total number of patients included (n/N).

Patient Characteristics

Patient Characteristics	AirSeal® Insufflation (n=125)
Age, years (median, IQR)	64.5 [55, 72]
Male (n, %)	83 (66.4)
Body Mass Index (median, IQR)	25.7 [23, 30]
Hypertension (n, %)	85 (68)
Coronary Artery Disease* (n, %)	33 (26.4)
Peripheral Artery Disease (n, %)	7 (5.6)
Atrial Fibrillation (n, %)	43 (34.4)
Heart Failure (n, %)	27 (21.6)
Ejection Fraction (median, IQR)	62 [57, 65]
Endocarditis (n, %)	9 (7.2)
Current Smoker (n, %)	10 (8)
Chronic Lung Disease (n, %)	26 (20.8)
Diabetes Mellitus (n, %)	11 (8.8)
Renal Failure (on dialysis) (n, %)	3 (2.4)
Prior Myocardial Infarction (n, %)	8 (6.4)
Prior Cerebrovascular Accident (n,%)	9 (7.2)
Prior Cardiac intervention (n, %)	40 (32)
COVID-19 positive prior to hospitalization (n, %)	11 (8.8)

Operative Details

Variable	AirSeal® Insufflation (n=125)
Mitral Valve Repair (n,%)	98 (78.4)
Mitral Valve Replacement (n, %)	5 (4)
Tricuspid Valve Repair (n, %)	6 (4.8)
ASD Repair (n, %)	2 (1.6)
PFO Repair (n, %)	0 (0.0)
LAA Closure (n, %)	95 (76)
CPB Time, minutes (median, IQR)	113.5 [98, 134]
Aortic Cross-Clamp Time, minutes (median, IQR)	67.5 [72, 85]
Blood Products Given (n, %)	37 (29.6)

Postoperative Outcomes (30 Day)

Postoperative Events	AirSeal® Insufflation (n=125)
Readmission to ICU (30-day) (n,%)	1 (.8)
Blood products given (n,%)	62 (49.6)
Surgical Site Infection (n)	0 (0.0)
Ejection Fraction (median, IQR)	60 [55, 65]
Hospital Events (n,%)	24 (19.2)
Prolonged Ventilation (n,%)	3 (2.4)
Cardiac Arrest (n,%)	1 (.8)
Atrial Fibrillation (n,%)	12 (9.6)
30-day mortality (n, %)	1 (.8)

Surgical Approach

- The right lung is deflated
- An 8 mm robotic camera port is placed in the right 4th or 5th intercostal space anterior to the anterior axillary line
- The pleural space is inspected to ensure adhesion avoidance if present
- The remainder of the ports are placed under camera vision including an 8 mm robotic right arm port, 8 mm left arm camera port, and an 8 mm working port.

Conclusions

- In this single-center case series, our findings suggest that use of AirSeal® iFS during robotic cardiac surgery may be a safe and promising alternative to standard CO2 insufflation.
- Future studies are needed to elicit if AirSeal® iFS provides increased benefit in outcomes and safety when compared to current stand approaches in robotic cardiac surgery.

Disclosures

Dr. Guy is a consultant for Edwards Lifesciences, Medtronic, and proctor for Intuitive Surgical.

References

Yost CC, Rosen JL, Wu M, Komlo CM, Linganna RE, Guy TS. Endoscopic Robotic Atrial Myxoma Resection with an 8mm Working Port and Percutaneous Cannulation. March 2022.