RIGHT VENTRICULAR OUTFLOW TRACT OBSTRUCTION AFTER THE ARTERIAL SWITCH OPERATION FOR TAUSSIG-BING ANOMALY REPAIR

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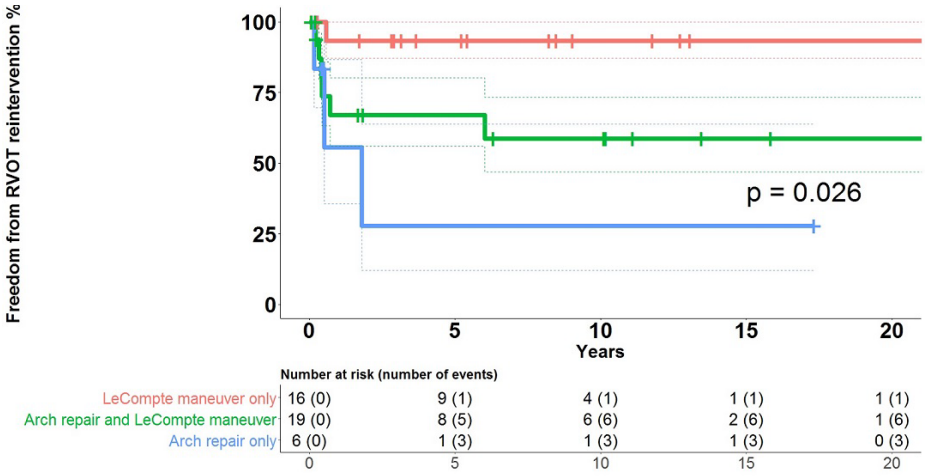
Background: Right ventricular outflow tract (RVOT) obstruction remains a frequent complication after Taussig-Bing anomaly repair. We studied anatomic and operative variables for association with freedom from RVOT reintervention after the arterial switch operation among patients with a Taussig-Bing anomaly.

Materials/Methods: Retrospective review identified all patients with a Taussig-Bing anomaly who underwent an arterial switch operation from 1995-2020 at a single institution. We calculated the pulmonary to aortic valve diameter ratio (P/A ratio) and aortic arch Z-scores from echocardiography-derived data. Freedom from RVOT reintervention was modeled as a time-to-event variable. The Kaplan-Meier estimator, log-rank test, and Cox-proportional hazards regression analysis studied factors for association with freedom from RVOT reintervention.

Results: Forty-one patients with Taussig-Bing anomaly underwent arterial switch (median age: 39 days). Subaortic resection was performed in 20/41 (48%) patients, arch repair in 24/41 (58%) patients, and LeCompte maneuver in 35/41 (85%) patients. LeCompte maneuver was not performed in 6/41 patients (two with posterior aorta and four with great vessels size discrepancy). At median follow-up of 8 years, there was 93% survival and 69% freedom from RVOT reintervention. At 8 years, risk factors for RVOT reintervention included requirement for arch repair (50% vs 94%, p=0.008), no LeCompte maneuver (28% vs 75%, p=0.05), and lower aortic arch Z-scores (HR 0.5, p=0.03); while P/A ratio was not associated with RVOT reintervention (HR=3.2, p=0.2). At 8 years, freedom from RVOT reintervention was 93% in 16 patients with LeCompte (no arch repair), 59% in 19 patients with arch repair and LeCompte, and 28% in 6 patients with arch repair (no LeCompte) (p=0.02, Figure).

Conclusions: Aortic arch repair in patients with an aortopulmonary relationship unsuitable for a LeCompte maneuver was associated with a high burden of RVOT reinterventions.

Images / Graph / Table


Freedom from RVOT reintervention %
100
75
50
25
0
p = 0.026
0
5
10
15
20
Years
Number at risk (number of events)
LeCompte maneuver only
16 (0)
9 (1)
4 (1)
1 (1)
1 (1)
Arch repair and LeCompte maneuver
19 (0)
8 (5)
6 (6)
2 (6)
1 (6)
Arch repair only
6 (0)
1 (3)
1 (3)
1 (3)
0 (3)
0
5
10
15
20