**Supplemental Table 1. Patient Demographics**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Prenatal** | **Postnatal** | **p-value** |
| **(N=80)** | **(N=97)** |
| **Gender** |   |   |   |
| Female | 38 (47.5%) | 46 (47.4%) | 0.99182 |
| Male | 42 (52.5%) | 51 (52.6%) |   |
| **Race** |   |   |   |
| American Indian or Alaska Native | 1 (1.3%) | 3 (3.1%) | 0.65711 |
| Asian | 8 (10.0%) | 7 (7.2%) |   |
| Black or African American | 5 (6.3%) | 5 (5.2%) |   |
| Native Hawaiian or Other Pacific Islander | 0 (0%) | 2 (2.1%) |   |
| Other | 25 (31.3%) | 25 (25.8%) |   |
| Unknown | 3 (3.8%) | 2 (2.1%) |   |
| White | 38 (47.5%) | 53 (54.6%) |   |
| **Ethnicity** |   |   |   |
| Hispanic | 34 (42.5%) | 50 (51.5%) | 0.48697 |
| Non-Hispanic | 45 (56.3%) | 46 (47.4%) |   |
| Unknown | 1 (1.3%) | 1 (1.0%) |  |

**Supplemental Table 2: Fetal echocardiogram findings relating to surgical repair**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **No surgery**  | **Surgical repair**  | **p-value**  |
| **(N=49)**  | **(N=31)**  |
| **Descending Aorta Position**  |   |   |   |
|  Midline Descending Aorta  | 17 (34.7%)  | 11 (35.5%)  | 0.97425  |
|  Right Descending Aorta  | 22 (44.9%)  | 14 (45.2%)  |   |
| **Angle of Arches**  | 74.5 [51.0, 129]  | 76.5 [40.0, 100]  | 0.42173  |
|  Median [Min, Max]  |

**Supplemental Table 3a. Comparing type of vascular ring**

|  | **Double aortic arch****(N=40)** | **Right arch OR left arch****(N=137)** | **p-value** |
| --- | --- | --- | --- |
| **Vascular ring repair done** |  |  |  |
| No | 4 (10.0%) | 76 (55.5%) | < 1e-04 |
| Yes | 36 (90.0%) | 61 (44.5%) |  |
| **Prenatal Diagnosis** |  |  |  |
| No | 31 (77.5%) | 66 (48.2%) | 0.0010 |
| Yes | 9 (22.5%) | 71 (51.8%) |  |

**Supplemental Table 3b: Surgically repaired patients comparing type of vascular ring**

|  | **Double aortic arch****(N=36)** | **Right arch OR left arch****(N=61)** | **p-value** |
| --- | --- | --- | --- |
| **Age at surgical repair (days)** |  |  |  |
| Mean (SD) | 1230 (1960) | 974 (1430) | 0.4712 |
| Median [Min, Max] | 327 [3.00, 6390] | 327 [3.00, 5930] |  |
| **Pre-operative history of airway symptoms** |  |  |  |
| No | 8 (22.2%) | 25 (41.0%) | 0.0595 |
| Yes | 28 (77.8%) | 36 (59.0%) |  |

**Supplemental Table 4: Proportion of associated congenital heart disease and types of vascular rings in published studies of vascular ring patients.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Study Author & Years**  | **# Total Vascular Ring Cases**  | **# CHD**  | **% CHD**  | **Years** | **Type (%) of vascular ring**  |
| **Right** **aortic** **arch**  | **Double aortic arch**  | **Non-rings (slings/innominate compression)** |
| Anand24 | 29  | 3  | 10.3%  | 1977-1990 (13)All surgical | 11 (1 CHD)  | 18 (2 CHD)  | 8 innominate compression, 4 LPA sling |
| Roberts25  | 24  | 3  | 12.5%  | 1976-1992 (16)  | 14 (3 CHD) | 10 (0 CHD) | 5 L arch aberrant RSCA, 1 right arch mirror branching; excluded asx pts and slings  |
| Backer26  | 209  | 26  | 12.4%  | 1946-2003 (57)  | 96 (18 CHD) | 113 (8 CHD) |   |
| Humphrey1  | 29 | 7 | 24.1%  | 1987-2003 (16)  | 0 | 29 (7 CHD) | No RAA  |
| Luciano27  | 12  | 2  | 16.7%  | 2009-2011 (2)  | 12 (2 CHD) | 0 | No DAA |
| Francois28  | 52  | 10  | 19.2%  | 1993-2014 (22)  | 20 (4CHD) | 32 (6 CHD) | 4 LAA/RSCAwith arteria lusoria and 1 pulmonary artery sling |
| Naimo2  | 130  | 23  | 17.7%  | 1978-2014 (36)  | 50 (9 CHD) | 80 (14 CHD) | RAA mirror branch (1), LAA/R dessc Ao and R PDA (1) |
| Depypere29  | 47  | 0  | 0.0%  | 1980-2013 (33)  | 22 (0 CHD) | 25 (0 CHD)  | Excluded CHD  |
| Callahan30  | 62  | 0  | 0.0%  | 2007-2018 (11)  | 39 (0 CHD) | 23 (0 CHD) | 1 RAA mirror branching; comments on “isolated VR repair”, no mention of excluding CHD  |
| Binsalamah31  | 148  | 11  | 7.4%  | 1996-2018 (22) | 76  | 72 | 5 RAA left PDA left desc Ao, 2 RAA mirror branch left pda (included) |
| Said32  | 51  | 8  | 15.5%  | 2000-2020(20)  | 29 | 22  | 4 PA sling, 3 RAA mirror branch/left ligamentum; 1 pt DAA and sling  |
| Stephens8  | 160 | 0 | 0%  | 2000-2019 (19)  | 94  | 66 | 7 circumflex aorta; 19 slings, 4mLAA/aberrant LSCA  |
| Swarnkar33  | 132  |  | not clear in paper  | 2005-2019 (14)  | 55  | 77 |   |
| Han34  | 17  | 2  | 11.8%  | 1972-1993 (21)  | 0 | 17 (2 CHD) |  |
| Shanmugam35  | 29  | 7  | 24.1%  | 1987-2003 (16)  | 0  | 29  |   |
| Alsenaidi36  | 81  | 14  | 17.2%  | 1964-2005 (41)  | 0  | 81  |   |
| Yang37  | 24  | 12  | 50%  | 2008-2018 (10)  | 0  | 24  |   |
| Aly18  | 170  | 35 | 20.6%  | 2000-2020  | 67 | 98  | “other rings” : 3 LAA/aberrant RSCA; 2 circumflex aortic arch,  |