**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, |