**Supplemental table 1:** Data extracted from the literature (\* unpublished cases)

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author** | **Date** | **Patient age** | **Gender** | **Etiology** | **Device** | **duration from initiation of MCS to intervention (days)** | **Other characteristics of aortic valve** | **AI pre-intervention** | **AI post-intervention** | **AI later** | **Device placed** | **Size (mm)** | **Approach** | **Annulus size (mm)** | **Complication** | **Mgmt of complication** | **Made it to the discharge** | **Follow-up length** | **Outcome** |
| **Zacharias23** | 2015 | 29 | Male | S/p TGA repair | HeartMate II | 180 | N/A | Severe | Minimal | N/A (transplanted 24 hrs later) | Amplatzer cribriform septal occluder | 30 | Right femoral |   | Device migration into LVAD inflow orifice  | Heart transplant |   |   |   |
| **Bietry11** | 2013 | 76 | Male | ICM | HeartMate II | 150 | Severe degenerative stenosis; s/p surgical closure | Moderate to severe |   | Trace (5 months later) | Amplatzer cribriform septal occluder x 2 | 5, 6 |   |   | Hemolysis (LDH 457) | None | Yes | 5 months | Alive |
| **Ng19** | 2013 | 49 | Male | HCM | HeartMate II | 300 | N/A | Severe | Mild paravalvular | N/A (surgically repaired same day) | Medtronic CoreValve |   | Femoral |   | Valve migration into LVOT | Surgical explantation & AV closure |   |   |   |
| **D'Ancona12** | 2012 | 63 | Male | ICM | HeartWare | 542 | Altered coapting cusp function | Moderate to severe | None | None (32 months later) | Edwards Sapien | 29 | Apical | 21 | None | N/A | Yes | 38 months | Death |
| **Santini4** | 2012 | 53 | Male | DCM | HeartMate II | 300 | N/A | Severe | Minimal | Minimal (at discharge) | Medtronic CoreValve x 2 | 29 (x2) | Femoral |   | Moderate perivalvular leak | Implanted 2nd device as valve-in-valve | Yes |   | Alive |
| **Grohmann15** | 2011 | 73 | male | ICM/DCM | HeartMate II | 28 | N/A | Severe | Minimal | Minimal (at discharge) | Amplatzer P.I. muscular VSD occluder | 24 | Left subclavian  | 22 | Transient hemolysis | Conservative management w/ improvement | Yes | Several weeks | Death |
| **Alkhouli10** | 2015 | 80 | Male | NICM | HeartMate II | ### | N/A | Severe | Trivial | Trivial (5 days later) | Amplatzer cribriform septal occluder  | 25 | Left brachial | 25 | Significant AI through device post-deployment | Device removed & immersed in patient's unheparinized blood to promote thrombosis before reimplantation | Yes | 5 months | Death |
| **Feider13** |
| **1** | 2013 | 56 | Male | ICM |   | 240 |   | Severe | None |   | Amplatzer cribriform septal occluder | 25 | Right femoral | 24 | RV enlargement post deployment | epinephrine infusion (0.02mcg/kg/min) with subsequent diuresis and weaning | Yes | >1 year | Alive |
| **2** | 2013 | 54 | Female | DCM |   | 150 | Thrombus on noncoronary cusp | Severe | None | N/A (didn't make it to discharge) | Amplatzer cribriform septal occluder x 2 | 25, 30 | Right femoral | 24 | Initial device emobolization into ascending aorta; RV failure after 2nd device | Device retrieval and replacement with larger device | No | N/A | Death |
| **Ganapathi14** | 2015 | 51 | Male | NICM | HeartMate II | TAVR 3 days prior to HMII | Severe stenosis; s/p bioprosthetic AVR | Severe | Mild perivalvular; none intravalvular | None (18 months later) | Edwards Sapien | 23 | Apical | 21 | Post-op ventilator associate pneumonia | Ventilatory support, trach, & ABX | Yes | >1 year | Alive |
| **Khan16** | 2013 | 61 | Male |   | HeartMate II | 570 | Severe calcifications of AVR homograft | Severe | Trace | Trace | Medtronic Melody (pulmonary) | 22 | Left femoral |   | None | N/A | Yes | 10 months | Alive |
| **Kornberger17** | 2015 | 64 | Male | DCM | HeartWare | 365 | Nearly total fusion of AV cusps |   | None |   | Edwards Sapien | 29 | Femoral | 28 | None | N/A |   |   |   |
| **Krause18** | 2014 | 65 | Female | ICM | HeartMate II | 730 | N/A | Moderate | None | None (12 months later) | Medtronic CoreValve x 2 | 31 (x2) | Ministernotomy | 26-27 | Initial device migrated into LVOT w/ moderate periprosthetic AI | Implanted 2nd device as valve-in-valve | Yes | 12 months | Alive |
| **Pollak20** | 2014 | 31 | Female | Congenital aortic valve disease; endocarditis | CardiacAssist TandemHeart | 0 | 1cm mobile mass on AV homograft | Severe | Moderate | N/A - valve & device surgically removed 6 weeks later | Amplatzer cribriform septal occluder | 18 | Apical |   | None | N/A | Yes | 6 months | Alive |
| **Sauer22** | 2015 | 25 | Female | Postpartum | HeartWare | 540 | N/A | Severe | Minimal | None (1 month later) | Amplatzer cribriform septal occluder | 30 |   |   | RV failure within 24 hr of closure | HVAD speed increased from 2,800 to 3,200 RPM | Yes | >15 months | Alive |
| **Retzer21** |
| **1** | 2015 | 56 | Male |   | HeartMate II | 364 |   | Severe | None |   | Amplatzer cribriform septal occluder | 25 | Femoral | 28 |   |   | Yes | 6 months | Alive |
| **2** | 2015 | 54 | Female |   | HeartMate II | 134 |   | Severe | None | N/A (didn't make it to discharge) | Amplatzer cribriform septal occluder | 30 | Femoral | 28 |   |   | No | N/A | Death |
| **3** | 2015 | 50 | Male |   | HeartMate II | 349 |   | Severe | None | N/A (didn't make it to discharge) | Amplatzer cribriform septal occluder | 35 | Femoral | 31 |   |   | No | N/A | Death |
| **4** | 2015 | 37 | Male |   | HeartWare | 781 |   | Severe | None | N/A (didn't make it to discharge) | Amplatzer cribriform septal occluder | 30 | Femoral | 27 |   |   | No | N/A | Death |
| **5** | 2015 | 69 | Male |   | HeartMate II | 512 |   | Severe | None |   | Amplatzer cribriform septal occluder | 30 | Femoral | 35 |   |   | Yes | 6 months | Alive |
| **6** | 2015 | 76 | Male |   | HeartWare | 305 |   | Severe | None | N/A (didn't make it to discharge) | Amplatzer cribriform septal occluder | 30 | Femoral | 29 |   |   | No | N/A | Death |
| **7** | 2015 | 62 | Female |   | HeartWare | 814 |   | Severe | None |   | Amplatzer cribriform septal occluder | 18 | Femoral | 35 |   |   | Yes | 6 months | Alive |
| **8** | 2015 | 68 | Male |   | HeartWare | 322 |   | Severe | None | N/A (didn't make it to discharge) | Amplatzer cribriform septal occluder | 35 | Femoral | 35 |   |   | No | N/A | Death |
| **9** | 2015 | 52 | Female |   | HeartMate II | 327 |   | Severe | None | N/A (didn't make it to discharge) | Amplatzer cribriform septal occluder | 30 | Femoral | 27 |   |   | No | N/A | Death |
| **10** | 2015 | 68 | Male |   | HeartMate II | ### |   | Severe | None | N/A (didn't make it to discharge) | Amplatzer cribriform septal occluder | 35 | Femoral | 37 |   |   | No | N/A | Death |
| **Ling\*** |
| **1** | 2015 | 60 | male | NICM | HeartMate II | 450 |   | moderate to severe | moderate | mild to moderate (23 days later) | Amplatzer Cribriform septal occluder  | 25 | Right brachial | 25-26 | None | N/A | Yes | 4 months | Alive |
| **2** | 2016 | 55 | Male | NICM | HeartMate II | 177 |   | Severe | Moderate | N/A (didn't make it to discharge) | Amplatzer cribriform septal occluder | 25 | Left femoral |   | 30mm device placed with significant AI | 30mm device removed; 25mm device placed | No | N/A | Death |
| **Cheung\*** | 2014 | 53 | Female | NICM | HVAD | 124 | Central AI | Severe | Mild | mild | Amplatzer cribriform septal occluder | 25 | Femoral | 23 | sepsis | antibiotics | Yes | Transplanted 2 months later | Alive |
| **Mick\*** | 2013 | 52 | M | NICM | Heartmate 2 destination  | 304 | moderate thickening of the right aortic cusp. There is moderate calcification of the right aortic cusp. | Severe (4+) | Mild - moderate (1+ to 2+) Regurgitant jet with a posterior paravalvular origin | Moderate (2+) | Edwards Sapien | 23 | Femoral |   | None | n/a | Yes | 968 days | Alive |