Commentary: Truncal valve repair: Reduce the root, preserve the cusps.

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Commentary: Truncal valve repair: Reduce the root, preserve the cusps.

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CENTRAL MESSAGE: Reduction of diameters of both the annulus and sino-tubular junction is important for durable repair of truncal valve. The cusps should be preserved whenever feasible.

CENTRAL PICTURE LEGEND: Quadricuspid truncal valve with large root and central coaptation defect.
Truncus arteriosus with interrupted aortic arch is uncommon (1-3) and this combination has been historically associated with high mortality (2). Significant truncal valve regurgitation necessitating concomitant truncal valve repair in neonates with interrupted aortic arch is even rarer and poses a formidable surgical challenge (4).

In this issue of The Journal, a group of surgeons lead by Yves d’Udekem detailed the truncal valve repair with root reduction, cusp resection and tricuspidization in a neonate with truncus arteriosus and interrupted aortic arch (5). Even though the follow-up of their patient has only reached 11 months, they must be commended on an excellent result in a challenging surgical scenario. The article highlights the importance of annular reduction with tricuspidization to promote long-term competence of the repaired truncal valve. Successful initial repair of significant truncal valve regurgitation and reduction of the truncal root is pivotal not only for the survival, but also for durable long-term function of the truncal valve (6). We have previously reported that tricuspidization has a freedom from truncal valve reoperation of 64% at 10 years (7).

With growing experience in reduction of the annulus, it becomes apparent that good quality truncal valve repair can be achieved in low birth-weight neonates (5,8). Neonates with severe truncal valve insufficiency often have quadricuspid valves (4,7). Most patients have sufficient cusp tissue, so that reduction of the annulus and resection of one of the cusps results in good coaptation. However, some patients in addition to large truncal valve annulus, may have somewhat malformed and thickened cusps. These truncal valves are particularly difficult to repair. It is crucial in these patients to preserve truncal valve cusps either completely or partially (Figure 1), as previously described (8). A proper understanding of these challenging repairs is rapidly evolving (9,10). We believe that with combination of root reduction at the annulus and sino-
tubular junction, cusp resection or cusp preservation, when required, a durable repair of the neonatal truncal valve can be achieved in all patients!

REFERENCES


Figure 1.

Repair of quadricuspid truncal valve with reduction of the annulus and sino-tubular junction and either cusp preservation or partial cusp resection.
Truncal valve

Cusp preservation

Partial cusp resection

Cusps preserved

Section of truncal wall resected

Cusps approximated

Truncal wall approximated

Section of truncal wall and cusp resected

Cusps approximated

Truncal wall approximated
Truncal valve