

BACKGROUND

- In hypoplastic left heart syndrome (HLHS) the size and function of the left ventricle (LV) varies and is dependent on patency of the mitral and aortic valves
- A patent native aortic valve can augment cardiac output and may improve outcomes after single ventricle palliation
- Native aortic valvuloplasty at the time of Norwood is not commonly done, however, due to the risk of aortic regurgitation

METHODS

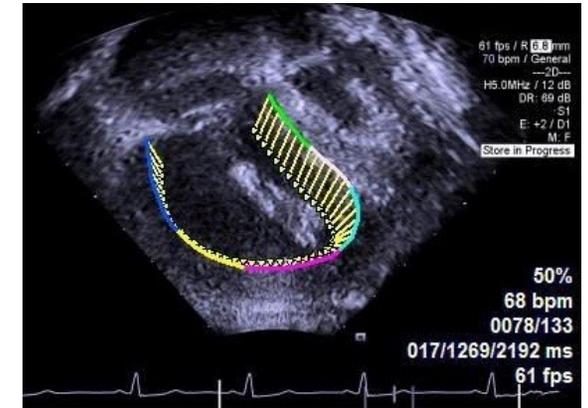
- We performed a retrospective chart review of patients with HLHS with a patent aortic valve who underwent native aortic valvuloplasty at the time of Norwood at Children's Wisconsin from 2002-2021
- We assessed survival, presence of cardiac symptoms/complications, patency of the native aortic valve, degree of native aortic regurgitation, and right ventricular function assessed by longitudinal strain at the most recent echocardiogram

RESULTS

- Eight patients were identified. One died in the interstage period, seven survived through Fontan palliation. Two were lost to follow-up. Five are alive with Fontan circulation at a median follow-up of 12 years (range 3-17 years)
- All five patients had native aortic valve patency with identifiable antegrade flow; native aortic regurgitation was insignificant in four of the five patients (2 had trivial, 2 had mild, and 1 had moderate regurgitation)

Degree of Native Aortic Insufficiency	Right Ventricular Longitudinal Strain	New York Heart Association Classification
Mild	-17%	I
Trivial	-16.2%	II
Mild	-18.9%	I
Trivial	-11.7%	I
Moderate	-16.9%	I

- All five patients had good systolic right ventricular function that did not vary based on the degree of aortic regurgitation
- All patients were asymptomatic from a cardiac standpoint with no protein losing enteropathy, plastic bronchitis, or liver failure



Apical 4-chamber imaging exhibiting the use of right ventricular global longitudinal strain as well as demonstrating the contributory left ventricle

CONCLUSION

- Native aortic valvuloplasty at the time of Norwood preserves aortic valve patency and augments systemic cardiac output without significant aortic regurgitation at intermediate follow-up
- There were no identified detrimental effects with excellent transplant-free survival and well maintained right ventricular function