

INTRODUCTION

Children suffering from congenital heart disease, like hypoplastic left heart syndrome, have difficulties with maintaining their nutritional needs during their first years of life and require frequent feeds and night meals to sustain a healthy intake.^{1,2} This can increase the risk for dental caries.^{1,2}

Current recommendations advise that prior to a patient receiving cardiac surgical intervention, the patient requires a dental consultation to rule dental caries and oral infection. Unfortunately, this practice is not yet uniformly adopted by cardiac teams nationwide.³ Patients awaiting various cardiac procedures might have existing oral health conditions harboring dental caries and infections that could pose a risk to their cardiac surgery.³ When caries and infection are identified at this initial consultation visit, the patient's cardiac surgery may be postponed leading to potential increased morbidity for the patient.

PURPOSE

The aim of this retrospective study is to assess the occurrence of caries in patients with hypoplastic left heart syndrome. Additionally, the study seeks to ascertain whether our current protocols for oral health evaluation are being effective in preventing oral health conditions and scheduling delays to their cardiac surgery.

METHODS

This is a retrospective chart review on patients with hypoplastic left heart syndrome concurrently treated by The Heart Institute and the Division of Dentistry at Children's Hospital Los Angeles (CHLA) in the past 10 years (January 2013 to December 2022). Data was obtained and collected through the electronic health records from the Heart Institute and dental clinic at CHLA. Out of all the 146 patients, only 52 made the inclusion criteria.

RESULTS

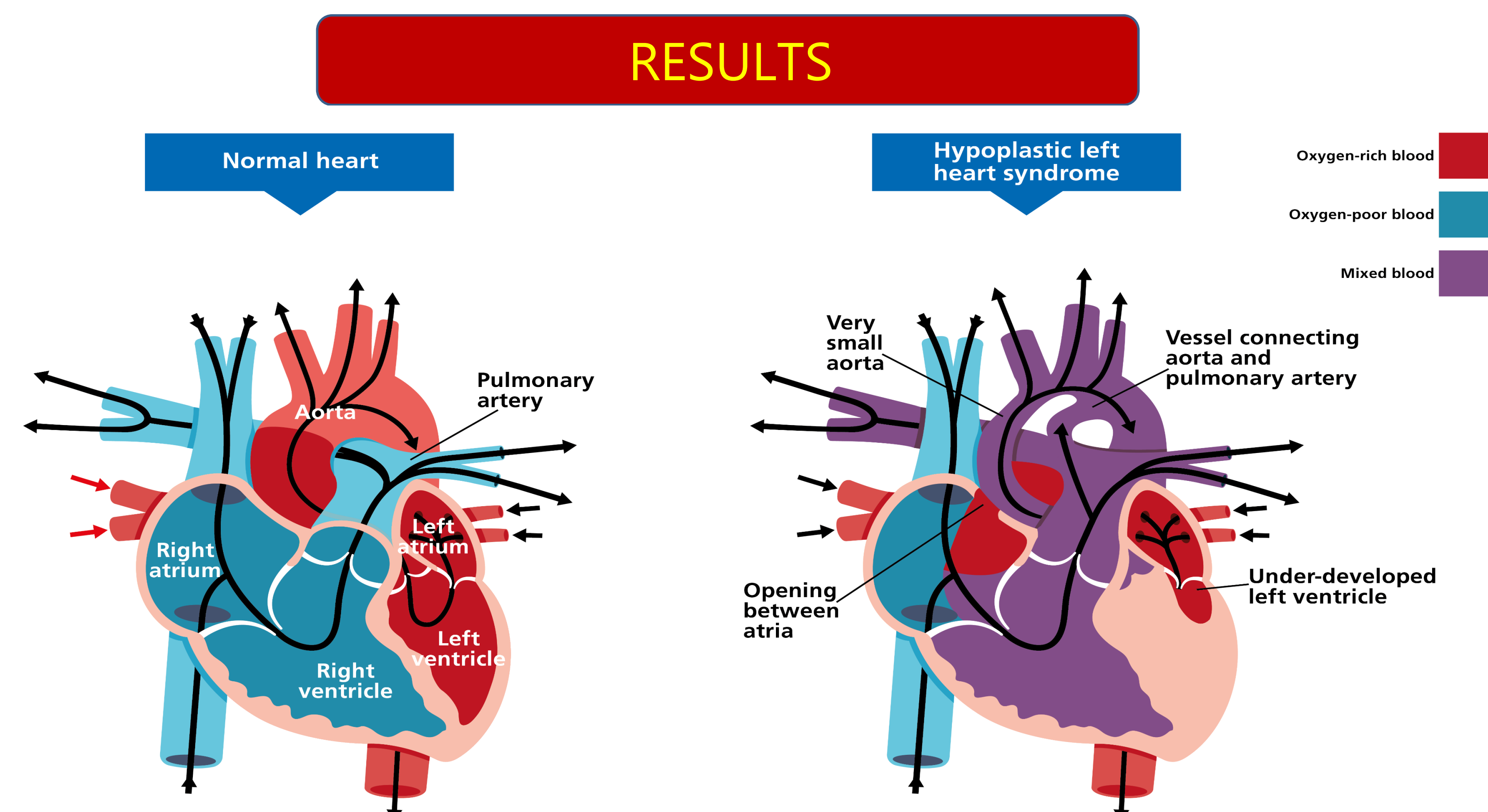


Figure 1: Normal heart versus Hypoplastic Left Heart Syndrome⁴

TABLE 1: Cardiac diagnosis and any comorbidities

Table 1. Cardiac Diagnosis & Comorbidities	(N=52)
HYPOPLASTIC LEFT HEART SYNDROME	24 (46.2%)
HLHS + AORTIC ATRESIA, MITRAL ATRESIA	12 (23.1%)
HLHS + AORTIC STENOSIS + MITRAL STENOSIS, +/- INTERVENTRICULAR SEPTUM	10 (19.2%)
HLHS + DOUBLE OUTLET RIGHT VENTRICLE WITH LEFT VENTRICLE HYPOPLASIA	3 (5.8%)
HLHS + Others	3 (5.8%)

TABLE 2: The participant's gender

Table 2. Participant Gender	(N=52)
Female	21 (40.4%)
Male	31 (59.6%)

TABLE 3: Reason for patient's initial dental visit.

Table 3. Reason for referral	(N=52)
Routine dental care post heart repair	26 (50.0%)
Dental clearance prior heart surgery	26 (50.0%)

TABLE 4: Number of patients who received cardiac surgery after dental surgery.

Table 4. Did Patient Have Heart Surgery After Dental Surgery	(N=52)
No	26 (50.0%)
Yes	26 (50.0%)

TABLE 5: Severity of caries at first dental surgery

Table 5. How Severe was Cavity at First Dental Surgery	(N=52)
None	15 (28.8%)
Into dentin	15 (28.8%)
Into pulp	19 (36.5%)
Abscess	3 (5.8%)

TABLE 6: Delay in cardiac surgery due to need for dental treatment

Table 6. Was There a Delay to Heart Surgery Due to Dental	(N=52)
No	38 (73.1%)
Yes	14 (26.9%)

TABLE 7: Comparison of caries experience

Table 7. Caries Experience at different settings	
Children with Hypoplastic Left Heart Syndrome at Children's Hospital Los Angeles	71.2%
All of California - (Third grade children from 2018-2019 California Smile Survey)	60.6%
Los Angeles County - (Third grade children from 2018-2019 California Smile Survey)	64.7%

CONCLUSION

- Patients with HLHS appear to have higher caries experience than the general pediatric population when compared to Third grade children surveyed in 2018-2019 in all of California and in Los Angeles County.
- Overall, it appears that our protocol is effective in preventing significant delays to cardiac surgery, despite a high caries rate for this population.
- At the initial referral to Dentistry, children are already presenting with significant disease.
- Moving forward, our goal is to better understand access to care barriers for this population and to improve on early dental referral and anticipatory guidance to prevent the occurrence of dental caries in children with hypoplastic left heart syndrome.

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