



**Audrey Chung Marshall, MD**

**Young Clinician Award 2006**

**Investigator Profile**

Education

- BA, Yale University, History
- MD, University of Pennsylvania

Clinical /Professional Appointment

- Associate Director, Cardiac Catheterization Laboratories, Children's Hospital
- Assistant Professor, Harvard Medical School
- Affiliate Consultant, Department of Newborn Medicine, BWH

Honors and Awards:

Dr. Marshall has received many honors including the Young Investigator Travel Citation and the Women in Cardiology Travel Grant both from the American Heart Association. She was also nominated for the University of Pennsylvania's Dr. Spencer Morris Prize. Dr. Marshall also received the American Medical Women's Association Scholarship Citation. She also authored or co-authored 15 peer-reviewed publications appearing in top journals.



**Impact on Care**

- Hypoplastic left heart syndrome (HLHS) occurs in up to four out of every 10,000 live births
- The syndrome comprises 8 percent of all cases of congenital heart disease
- It is one of the top three heart abnormalities to cause problems in newborns
- HLHS is an important congenital cardiac defect to study because the normal changes that occur in the newborn infant's circulatory system shortly after birth are not well tolerated by these affected infants.

**Abstract**

In fetuses diagnosed with critical aortic stenosis and left ventricular dysfunction in the second trimester, in utero balloon dilation of the obstructed valve can result in normalization of left heart development, and prevent hypoplastic left heart syndrome. Early attempts at fetal aortic valve dilation used ultrasound guided, percutaneous techniques, including external version maneuvers to manipulate fetal position. Though these cases proved feasibility, they had high rates of technical failure due to poor fetal position. In the series described by the combined fetal program at the BWH and CH, maternal laparotomy to perform transuterine positioning dramatically improved technical success rates. Utilizing laparotomy when external positioning failed (50% of cases), successful aortic valve dilation was achieved in over 80% of cases.

We propose that the development of extremely low profile (19G), percutaneous, and atraumatic positioning tools, will allow greater control of fetal position, and spare maternal laparotomy. Furthermore, secure fetal position may lower fetal complication rates and procedure times.