

THE RUSH FETAL AND NEONATAL MEDICINE PROGRAM

TETRALOGY OF FALLOT SURGICAL REPAIR OF INFANT AT SIX WEEKS

Presentation: M.R., a 28-year-old female experiencing her first term pregnancy, presented to the Rush Fetal and Neonatal Medicine Program at 21 weeks of gestation in January 2008, following referral by her general obstetrician in St. Charles, Illinois, after a routine ultrasound had raised the suspicion of a fetal cardiac defect. A fetal echocardiogram performed by Xavier Pombar, DO, perinatologist, revealed a ventricular septal defect (VSD), pulmonary stenosis and suspected overriding aorta, suggesting a diagnosis of tetralogy of Fallot, which consists of four complex cardiac malformations appearing together.

Program staff met with M.R. to provide support and further discuss the fetal diagnosis; the team relayed the fetal echocardiogram findings to M.R.'s primary obstetrician, as well as the recommendation to perform a follow-up echocardiogram in four weeks.

The repeat fetal echocardiogram was performed at Rush at 25 weeks of gestation, re-demonstrating the previous findings. In addition, a narrowed right ventricular outflow tract was also noted, completing the clinical picture for tetralogy of Fallot.

Prenatal care: In consideration of her distance to Rush and the fetal findings, M.R. transferred prenatal care at 32 weeks of gestation, after consultation with her primary obstetrician. During a multidisciplinary conference, M.R. and her family met her care team, comprising a pediatric cardiologist, neonatologist, perinatologist, advanced practice nurses, a social worker and a chaplain. Working with M.R., the team developed an individualized plan for continued prenatal care, delivery, postnatal evaluation and intervention for the infant. Because surgery would be expected to correct the cardiac defect, pediatric cardiovascular specialists from the Rush Center for Congenital and Structural Heart Disease were present as well.

According to plans, biweekly antenatal testing began at 32 weeks and a repeat fetal echocardiogram was performed at 36 weeks.

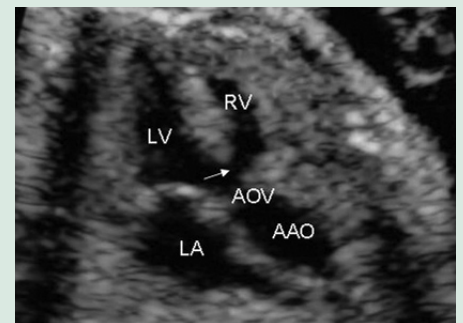
Delivery: M.R.'s proposed plan for delivery included an anticipated vaginal delivery at term. During the course of her labor, however, Ramkrishna Mehendale, MD, attending obstetrician, determined failure of labor to progress and recommended a cesarean delivery. Jean Silvestri, MD, attending neonatologist, and Ra-id Abdulla, MD, pediatric cardiologist, assembled their teams for delivery.

Baby girl R. was delivered via c-section weighing 9 lbs. 8 oz. She was immediately assessed by the awaiting neonatology and pediatric cardiology teams and transferred to the special care nursery for further evaluation and management, with initiation of maternal-fetal attachment encouraged.

An echocardiogram performed at the infant's bedside immediately after delivery confirmed the antenatal diagnosis and revealed good cardiac function, with reassuring oxygen saturation levels. Following medical co-management by neonatology and pediatric cardiology, baby R. was discharged four days after her birth with pediatric cardiology follow-up scheduled for one week postdischarge. To maintain continuity of care, baby R.'s pediatrician and primary obstetrician were informed of the comprehensive follow-up plan.

Surgical treatment: At subsequent visits with pediatric cardiologists, baby R. was found to have the anticipated cyanotic spells that are a hallmark of her condition. The findings indicated a need for inpatient

hospitalization and early surgical repair of the cardiac anomaly. Pediatric cardiac surgeons Michel Ilbawi, MD, and Anastasios Polimenakos, MD, performed complete surgical repair of the tetralogy of Fallot at six weeks of age, including patch closure of the ventricular and atrial septal defects, bovine pericardial transannular patch augmentation of the small right ventricular outflow tract and mono-cusp valve placement. The immediate postoperative course was complicated by junctional ectopic tachycardia (an abnormal cardiac rhythm) that was well controlled by temporary pacing and medications. Within two weeks postsurgery, baby R. was discharged home from the pediatric intensive care unit in stable condition.



The aortic valve and the aorta overriding the ventricular septal defect, which is indicated by the arrow. AAO, ascending aorta; AOV, aortic valve; LA, left atrium; LV, left ventricle; RV, right ventricle.



Conclusion: Early assessment and confirmation of the fetal cardiac anomaly was integral in devising a plan of care for a medically complex case. The surgical outcome was optimal; on the initial postoperative visit, baby R. was noted to be in satisfactory, stable condition and was scheduled for further follow-up three months later.

To refer a patient to the Rush Fetal and Neonatal Medicine Program, please call (312) 942-RUSH (7874).

Available 24 hours a day, seven days a week, we provide multidisciplinary expertise to expectant parents facing complex fetal anomalies.

FETAL AND NEONATAL MEDICINE AT RUSH

At the Rush Fetal and Neonatal Medicine Program, we believe that when confronting a fetal anomaly, such as tetralogy of Fallot, it's best to face it with an experienced group of compassionate health care specialists who are dedicated to the unique needs of each baby and family. That is why the Rush Fetal and Neonatal Medicine Program was created. This comprehensive program is designed to give expectant parents and their physicians the information needed for optimal care.

WHAT YOU CAN EXPECT FROM US

When referring patients to the Rush Fetal and Neonatal Medicine Program, you can expect the following:

Around-the-Clock Availability

- Easy, reliable access with one phone number: (312) 942-RUSH (7874)
- Staff at the ready 24 hours a day, seven days a week
- Access to clinicians at Rush to discuss current cases and patients

A High Level of Care

- Advanced diagnostics and treatments
- Expedited access to appointments (the majority of patients are seen by a clinician at Rush within 48 hours of their initial contact)
- Mother and baby are in same facility for ease and promotion of breast-feeding and maternal-fetal attachment

A Collaborative Relationship

- Ongoing communication throughout the entire process (follow-up letters, test results, etc.)
- Respect for and compliance to your wishes and your patient's wishes
- Encouragement to participate in the multidisciplinary consultation with your patient

STREAMLINING MULTIDISCIPLINARY CONSULTATIONS WITH ONE MEETING

For the consultation meeting with expectant parents and their referring physicians, we bring together a group of specialists based on the unique needs of each family. These specialists may include the following:

- Ultrasound specialists
- Geneticists
- Neonatologists
- Obstetricians and specialists in maternal-fetal medicine
- Pediatric surgical specialists in general surgery, orthopedics, neurosurgery, otolaryngology and reconstructive surgery
- Pediatricians
- Pediatric specialists in cardiology, interventional cardiology, hematology, nephrology and neurology
- Nurses with advanced training
- Palliative care experts and ethicists
- Social workers
- Other specialists as needed



WORLD-CLASS CARE

The program is headed by two internationally recognized leaders in their fields: Jacques Abramowicz, MD, director of obstetric and gynecologic ultrasound; and Robert Kimura, MD, director of the Section of Neonatology and associate dean of Rush Medical College. And it is backed by the many resources of one of the best academic medical centers in the country. Consistently ranked among the nation's top hospitals by *U.S. News & World Report*, Rush has twice earned Magnet status from the American Nurses Credentialing Center — the highest honor in nursing. It has also been named among the top five academic medical centers in the country by the University HealthSystem Consortium in its annual quality and accountability performance ranking. These honors reflect Rush's ongoing commitment to providing unparalleled care by working collaboratively to pool knowledge and exchange opinions based on expertise and experience.