HISTORY AND PHYSICAL

The patient was born pre-term to a 34 years old at 34 weeks age of gestation via primary caesarean section secondary to premature rupture of membrane and oligohydroamnios. Upon delivery, the patient was noted to have good cry and good activity. The patient then was admitted at the neonatal intensive care unit for preterm care and antibiotic administration. On 3rd day of life, the patient was noted to have murmur hence referral to a cardiologist. Two-dimensional echocardiography was done which revealed a congenital heart disease. The patient advised observation and was subsequently discharged. At home, the patient had good suck but with cyanosis when crying. On 17th day of life patient was noted to be pale, weak and with poor suck. He was rushed to a private hospital and was subsequently transferred to Philippine Heart Center where repeat two-dimensional echocardiography was done which revealed Tetralogy of Fallot (TOF) with patent ductus arteriosus (PDA) hence was admitted.

On admission vital signs were as follows: heart rate 110 beats per minute, respiratory rate at 34 cycles per minute and oxygen saturation of 74 %. The patient was awake, active with good cry, and dusky oral mucosa. He had clear breath sounds and no wheeze. On cardiac examination, there was adynamic precordium no thrill no heaves S1 normal, S2 single with grade 3/6 systolic ejection murmur at left lower sternal border. The abdomen was soft, not distended, and no organomegaly. He had no bipedal edema but with dusky nailbeds.
IMAGING

INDICATION OF INTERVENTION
TOF is the most common form of cyanotic CHD. A 2002 meta-analysis of the incidence of CHD, which included 41 studies pertaining to TOF, suggested that the best estimate of incidence would be 577 cases of TOF per million live births. Surgical options for management of symptomatic neonates and young infants with TOF include both complete repair and interim Blalock-Taussig (BT) shunt. However, there is significant peri-operative morbidity that includes prolonged mechanical ventilation, increased inotrope requirement and end organ dysfunction. The additional disadvantages include the need for ventriculotomy and higher risk of reoperation. Due to the increased demands of postoperative care coupled with these disadvantages, many centres are reluctant to attempt primary repair of TOF in infants less than three months of age. This is particularly true for centers in the developing world where the resources are limited. The alternative to corrective operation is palliation with BT shunt in very young infants, which is still advocated. The limitations of this procedure include the risk of distortion of branch pulmonary arteries in up to 15 to 20% and shunt occlusion in another 3 to 6%. In addition, there is significant postoperative morbidity and mortality following neonatal BT shunt. Balloon pulmonary valvotomy has been previously attempted in TOF as a palliative measure. The right ventricular outflow tract (RVOT) obstruction in TOF is often at multiple levels: infundibulum, valve, annulus and, main and branch pulmonary arteries. Balloon pulmonary valvotomy can potentially offer reasonable interim palliation for infants with predominant valvar pulmonary stenosis (PS).

INTERVENTION
Right heart catheterization was performed through a right femoral vein percutaneous puncture. A french 4 sheath was inserted and a french 4 pigtail catheter was manipulated under fluoroscopic guidance into the IVC, RA, RV and LA through the patent foramen ovale. Oximetry studies and pressure recordings were taken from selected vessel and chamber entered. RV angiogram was done using LAO, Cranial and lateral views showing opacification of the RV with passage of dye to the main pulmonary artery and to the aorta and its branches and PDA. Infundibular stenosis was noted on the right ventricular outflow tract. Confluent right and left pulmonary artery was also noted. The PDA was noted to be tubular and measured at 2 mm. PDA stenting was done using Omega Monorail 3x8mm. Exchange guidewire was inserted and placed in the peripheral pulmonary artery. The catheter was removed with the guidewire in place and replaced by TMP Ped pulmonary valvotomy balloon catheter measuring 6 mm x 20 mm was inserted and inflated until the waist disappeared. Two inflations of the balloon catheter was done.

**LEARNING POINTS OF THE PROCEDURE**

Balloon dilatation of the pulmonary valve is an effective and safe palliation in tetralogy of Fallot. It promotes growth of the pulmonary vascular tree, reducing the need for trans-annular patching and is recommended in symptomatic infants of very young age, with a small pulmonary annulus (Z value below - 4 SD) and associated cardiac anomaly. (Eur Heart J 1998; 19: 595–600). The patient had improved oxygenation at 80-90 % discharged after with regular follow up awaiting total correction.