

Balloon Pulmonary Valvotomy in a neonate with critical Pulmonary valve stenosis- double coronary wire technique

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Abstract: We present a, 1 day 2.3kg neonate, with critical neonatal valvular pulmonary stenosis. Although most cardiologists would have done BPV in neonatal critical Pulmonary stenosis, yet we had great difficulty in crossing the catheter over the pulmonary valve as expected. We took a BMW 0.04 coronary wire to cross the pulmonary valve. After crossing the wire, the 4 French multipurpose was not crossing the pulmonary valve. Then we took another 0.04 BMW coronary wire which stretched the valve and we could negotiate the 4 F MPA1 through the previously crossed wire. Thus serially dilated the valve with 4mmx2cm coronary balloon followed by mini Tyshaq II 5mmx2cm balloon.

Aim: The aim of the research paper is to introduce another efficient technique of Balloon Pulmonary Valvotomy in a neonate with critical Pulmonary valve stenosis by using double coronary wire technique to cross and dilate the tight pulmonary valve.

Keywords: Balloon Pulmonary Valvotomy, critical Pulmonary valve stenosis, technique.

1. INTRODUCTION

Percutaneous balloon pulmonary valvuloplasty (BPV), first described by Kan and colleagues¹ in 1982, has replaced surgical valvotomy as the preferred treatment for congenital and acquired pulmonary valve stenosis.^{2,3} Congenital pulmonary valve stenosis is a common congenital heart disease. Isolated pulmonary valve stenosis comprises 8-10% of all congenital heart disease [4]. While surgical pulmonary valvotomy has been available as a treatment since 1956, it requires a median sternotomy, use of cardiopulmonary bypass, and post-surgical ICU admission with multi-day hospitalization. Recognizing the potential advantages of a less invasive approach, the attempts at percutaneous catheter-based dilation of stenotic pulmonary valves were performed. As the technique was refined and catheter and balloon technology have advanced, the results of balloon pulmonary valvuloplasty have improved and the approach has become the standard of care for treating pulmonary valve stenosis. The purpose of this article is to discuss the anticipated problem encountered in neonate with critical pulmonary valve stenosis.

Although double balloon and triple balloon techniques have been described in the literature but double wire technique has never been described before.^(5,6,7)

2. METHOD

Although most cardiologists would have done BPV in neonatal critical PS, yet we had great difficulty in crossing the catheter through pulmonary valve as expected. We had a, 1 day 2.3kg neonate, with critical neonatal valvular pulmonary stenosis. We took a BMW 0.04 coronary wire to cross the pulmonary valve. After crossing the wire, the 4 French multipurpose was not crossing the pulmonary valve. Then we took another 0.04 BMW coronary wire which stretched the valve and we could negotiate the 4 F MPA1 through the previously crossed wire. Then we serially dilated the valve with 4mmx2cm coronary balloon followed by mini Tyshaq II 5mmx2cm balloon.

3. CONCLUSION

Many cardiologists have dilated the PV but in our case as the wire was not supporting the catheter through which we had to pass the balloon due to tight stenosis, another wire helped to stretch the valve thus giving way for the catheter to cross. Henceforth, we can electively go for two wire technique in tight stenosis thus avoiding unnecessary mishandling over the Right ventricular outflow tract and also avoid the unnecessary delay in the procedure.

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