

Pulmonary Vein Obstruction After Repair of Isolated Total Anomalous Pulmonary Venous Return

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Introduction: Pulmonary venous obstruction(PVO) after surgical repair for total anomalous pulmonary venous return(TAPVR) remains the most significant complication, with high morbidity and mortality. The location of PVO is mainly at the anastomotic site after standard repair, probably owing to the combination of inflammation, fibrosis, and direct purse string effect. However, obstruction in the individual pulmonary veins(IPV) could happen through retrograde extension of the fibrotic process of anastomotic site obstruction or other unknown reasons. In this study we studied the characteristics of PV obstruction after TAPVR repair.

Methods: Records of 100 consecutive patients having undergone surgery for isolated TAPVR without other combined cardiac anomalies were reviewed focusing specifically on the development of IPV obstruction after repair.

Results: 13 patients developed PVO after repair. Among these 13 patients, PV obstruction was found in 9 patients and in 3 patients both anastomotic site stenosis and PV obstruction had occurred. Preoperatively PVO at various site was noted in 38 patients, however individual PV obstruction was not present. Among these 38 patients, 6 developed PV obstruction after repair. PV obstruction was more frequently seen in the patients with PVO before repair than in the patients without PVO($p < 0.05$). In 4 patients both side PV were involved. Each right and left PV obstruction were in 2 and 3 patients respectively. The age or body weight at TAPVR repair was not different between the patients with and without late PV obstruction($p > 0.05$). The difference in the type of TAPVR between 2 groups couldn't be evaluated due to small number of PV obstruction. The interval between TAPVR repair and PV repair was from 2 months to 17 months(median, 8 months). All PV repair were done through sutureless technique with one early surgical mortality and in 4 patients stenosis progressed again at the same PV or another PV.

Conclusions: PVO is still significant residual problem after surgical repair for TAPVR and especially individual PV obstruction is troublesome, its risk factor is unknown and it remains high morbidity even after recent sutureless technique.