RETRIEVAL ON AN EMBOLIZED PDA DEVICE IN A SMALL CHILD BY RE SCREWING ONTO THE DELIVERY CABLE

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Delayed device embolization in Patent ductus arteriosus device (PDA) closure is a rare condition that has been documented in a few case reports. Embolized devices in general occur in less than 3% of cases. In small children, these are often sent to surgery for retrieval due to limitations in sheath sizes that can be used in small children.

We present a case of a 1 year and 7-month-old female weighing 7 kilograms who underwent PDA device closure of a large ductus arteriosus (5mm) with severe pulmonary artery hypertension (PA pressure of 80/27mmHg with a mean of 62mmHg). An ADO1 12X10mm device was implanted in standard fashion and the pulmonary artery pressure decreased immediately to 35/9mmHg with a mean of 20mmHg. She was discharged well after 24 hours of the procedure with device documented in place by chest radiograph. Further, the device was in a good position on the 48th hour post implantation on echocardiography. She was sent home to her high-altitude province. On the 10th day post procedure, the child was admitted for diarrhea and a chest radiograph was done for COVID 19 screening. The radiography revealed that the device had embolized to the descending aorta. The child was subsequently transferred on an emergency basis and brought to the catheterization laboratory for retrieval of embolized device and closure of the PDA.

The femoral artery was cannulated with a 5F sheath and stepped up to a beveled 7F introducer sheath. The femoral vein was cannulated with a 6F short sheath. A 5F JR4 catheter was inserted into the venous sheath and advanced to the descending aorta via the PDA to stabilize the device. A 5F snare and catheter assembly was inserted in the arterial sheath to attempt to retrieve the ADO1 via its screw pin and collapse the device into the arterial sheath, but this was unsuccessful. Repositioning of the device to a more optimal lie was done using a coronary wire 'hook' from the arterial sheath. A 7F guide catheter was eventually positioned over and around the ADO1 screw, which facilitated the screwing and re-attachment of the device onto the 6F delivery cable. The device was successfully retrieved into the beveled 7F sheath. The PDA was then closed with a larger PDA ADO1 14x12mm occluder and the patient was sent home after 24 hours.

Device embolization is a rare and catastrophic complication of device closure. In small infants, Surgery is often needed to retrieve these devices because of the inability to insert large sheaths needed to collapse the device by snare techniques. The method of re-screwing the device into its delivery cable allows one to get control of the device and collapse the device into the same sized delivery sheath, eliminating the need to upsize to a bigger sheath, and allow its use in children with low weights. This case highlights the fact that it is feasible to abort a potential nightmare with careful planning and execution.