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Transcatheter retrieval of cardiovascular foreign bodies - A 15-year single centre experience.

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Introduction: Transcatheter retrieval of cardiovascular foreign bodies is well established but there are no large paediatric studies in the literature. We aimed to review our 15-years experience of transcatheter retrieval of foreign bodies such as occlusion devices, line fragments and wires from the cardiovascular system.

Methods: Retrospective record review of all children with transcatheter foreign body retrieval. Cases of retrieval of malpositioned patent ductus arteriosus (PDA) coils were also included.

Results: Transcatheter retrieval of foreign bodies from the cardiovascular system was attempted in 64 patients. Retrieved foreign bodies include embolized devices (n=37), central venous and arterial line tips (n=14), guide wires (n=4), pulmonary artery stents (n=4), ruptured balloon tip (n=3), fractured ventriculo atrial shunt (n=1) and fractured sheath introducer (n=1). The incidence of device embolization for ASD, VSD and PDA devices was 1.4 % (7/470), 2.8% (4/140) and 2.4% (26/1066) respectively. Retrieval sites included pulmonary arteries (n=28), PDA (n=8), descending aorta (n=7), central veins (n=11), right atrium (n=5), right ventricular outflow tract (n=3) and left ventricular outflow tract (n=2). Median patient age and weight were 3.1 (0.1-16) years and 13.1 (1.7-74) kg respectively. Transcatheter retrieval was successful in 61/64 (95%) and had to be performed surgically in 3 patients. In 55 the retrieval was from venous and 9 were from arterial side. Mean sheath size was 8 (4-16) French. Gooseneck snare was the most commonly used retrieval device. Mean procedure time was 100 (15-316) minutes and fluoroscopy dose was 40 (0.4-320) Gy/cm2. The procedural complications included death in 1 patient within 24 hours of procedure with a retroperitoneal bleed, had transient loss of foot pulses in 4 and excess blood loss requiring transfusion in 2.

Conclusion: Transcatheter retrieval of cardiovascular foreign bodies can be performed safely in the majority of children including infants thus obviating need for the surgery. Retrieval of foreign bodies is an essential skill required by all interventionists not only for device implantation but also for other indications. It is essential to have a comprehensive inventory of equipment with staff conversant with their use.