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Endovascular Embolization In Children With Pulmonary Sequestration

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Introduction:Pulmonary sequestration (PS) is a very rare congenital pulmonary malformation, which is a cystic or solid mass composed of nonfunctioning primitive tissue that does not communicate with the tracheobronchial tree and has anomalous blood supply from systemic circulation rather than pulmonary circulation. The ideal treatment strategy for PS, whether surgery or embolization is not clearly identified. In literature, This study aimed to explore clinical features, diagnosis and outcomes of children who had PS and had endovascular embolization of the aberrant systemic arterial supply. Methods:Clinical records of children who had PS and had embolization between 2000 and 2016 were analyzed. Results:13 patients had definite diagnosis of PS and had embolization. Median age:12 months (15 days-15 years), weight:8 kgs (3-54), male/female:8/5. Patients presented with recurrent pneumonias(6/13), persistent cough(3/13), murmur(2/13), dextroposition of heart(1/13), cystic lesion in prenatal ultrasound (1/13). Chest X-ray showed dextroposition of heart in 8/13. First diagnosis was made by CT angiography in 5/13 and all confirmed by conventional angiography. Associated lesions were present in 11/13 patients; Scimitar syndrome(5 patients), hypoplasia of right PA and right lung(7 patients), secundum ASD(3 patients), aortic coarctation(2 patients), PDA(1 patient). Most of the PSs were located on the right side(10/13). Aberrant supply was mostly from abdominal aorta(11/13). 3/13 patients had more than one anomalous arterial supply. All patients had successful embolization without any catheteter related complications. Devices used were Amplatzer Vascular Plugs(5/13), different coils(6/13), Amplatzer Duct Occluder II(3/13), glue(cyanoacrylate)(1/13). Multiple devices were necessary in 2/13. Mean procedure time:84±29 min(30-135),fluoroscopy time:16±9 min(6-31). 5/13 patients required surgery for associated lesions, (4/13 for Scimitar syndrome, 1/13 for PDA). 2/13 patients required segmentectomy and 1/13 required lobectomy after embolization. Median follow-up period was 18 months (2 months-8 years), 2/13 patients were lost to follow-up. There were three deaths unrelated to the procedure.Conclusions:Clinicians must consider PS in patients with recurrent pneumonias, persistent cough, dextroposition of heart and Scimitar syndrome.CT angiography has high accuracy in the diagnosis of PS. Endovascular embolization is a safe and effective treatment in PS.Surgery related complications are avoided.If surgical resection is necessary, risk of vascular complications is greatly reduced with this procedure.