5. CONGENITAL VASCULAR MALFORMATIONS OF THE AORTIC ARCH AS A RISK FACTOR FOR RECURRENT PNEUMONIA IN CHILDREN - CASE REPORT

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Introduction. Congenital heart disease (CHD) is one of the most common congenital structural disorders in childhood morbidity with a prevalence of 10 cases per 1000 live births, and is an important cause of childhood mortality. Aortic arch anomalies represent a less common group of CHD with an incidence of 0.003/1000 live births and account for about 1% of all CHD, which also include vascular rings with an estimated prevalence of about 1 in 10,000 live births.

Case presentation. Child A.S., male, born on 29.09.2020 at 41 weeks of gestation. The child is from the 2nd pregnancy, and is the 2nd child in the family. He was born with weight 3000 g (25-50 percentiles) and body length 52 cm (85 percentiles). At the age of 3 months, based on imaging data, the child was diagnosed with CHD with dextroposition of the aortic arch and descending thoracic aorta, and moderate focal narrowing of the left pulmonary artery lumen at the level of the pulmonary trunk bifurcation. Over the course of the disease, the child developed COVID-19 infection complicated by bilateral polysegmental pneumonia (in S6, S10 on the right and S6, S8, S9, S10 on the left), with severe evolution and atelectasis formation. At the age of 17 months the child's Angio-CT showed an aberrant right subclavian artery with incomplete vascular ring formation and signs of moderate pulmonary hypertension. By the age of 24 months, at which time surgical correction of the CHD was performed, the child had suffered five episodes of complicated pneumonia with progressive and persistent course, anemia (hemoglobin level reaching 90 g/l) and malnutrition - at the age of 24 months the child weighed 10 kg (5 percentiles, -1.67 z-scores). Despite the vascular ring excision and rudimentary aortic arch resection with tracheal release, the child develops congestive heart failure, NYHA functional class II.

Discussions. Symptomatology in vascular ring depends on the degree of compression of two mediastinal structures - trachea and esophagus, the severity of which correlates directly with the degree of compression. The most common symptoms include stridor, chronic cough, recurrent respiratory infections including pneumonia. The vessel that by its trajectory creates a vascular ring around the trachea and esophagus is the aberrant right subclavian artery, which usually arises just distal to the left subclavian artery and crosses the posterior part of the mediastinum on its way to the right upper extremity.

Conclusion. Knowing the characteristic signs for the association of vascular malformations with trachea stenosis is important for establishing the diagnosis at early stages of the disease and applying surgical methods of treatment, as well as providing an effective strategy for the prevention of recurrent pulmonary infections, which may in turn have a negative impact on the cardiac function in the child with congenital malformation of the heart and vessels.

Keywords. Aberrant subclavian artery, stenosis, vascular ring.