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Letter to the Editor / Editöre Mektup

A diagnostic challenge for the clinicians: Aberrant innominate artery

Klinisyenler için tanısal bir zorluk: Aberran innominat arter

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A serious cause of respiratory tract diseases seen in infants and children is tracheal compression due to congenital anomalies of mediastinal vascular structures. In this group of diseases, aberrant innominate artery is a common type but difficult to diagnose. The diagnosis is usually established incidentally during advanced diagnostic examination in patients with severe tracheal compression. Therefore, approximately 2/3 of the cases are not recognized.[1-3] Aberrant innominate artery is not considered in patients with respiratory tract disease because the diagnosis lacks sufficient awareness. This is the reason why aberrant innominate artery is seen at a frequency of up to 3% among the causes of respiratory tract diseases.[1]

Aberrant innominate artery can mimic all respiratory symptoms due to tracheal compression. This spectrum includes various clinical conditions such as wheezing, dyspnea, recurrent infections, resistance to treatment, reflex apnea, or chronic cough. Among these symptoms, only reflex apnea can be considered as specific for the anomaly.[2] The most valuable method in the diagnosis is the evaluation of airway with flexible laryngoscopy/bronchoscopy under sedation and spontaneous ventilation with mask. If the patient is completely flask and has no spontaneous ventilation during evaluation, stenosis may not be seen and the diagnosis may be missed. Although this method is considered to be the most valuable, it may be difficult to perform. In addition to endoscopic methods, multidetector contrast computed tomography (CT) can be used. The advantage of this method is that it is possible to obtain images in a free-breathing patient in short time. Abnormal progression of the artery, tracheal compression, and other associated pathologies may be recognized or excluded using CT. When the compression of the aberrant innominate artery is observed, the cross-sectional area of the trachea can be calculated to determine the severity of the compression. According to the tracheal cross-sectional area, the compression can be considered to be mild if lower than 20%, moderate if between 20% and 40%, and severe if over 40%.[3]

Regarding aberrant innominate artery due to tracheal compression, there is no consensus on the time of surgical treatment.[4] However, in the presence of severe respiratory symptoms, severe tracheal stenosis, a history of frequent hospitalization, or sudden respiratory arrest due to reflex apnea or if the symptoms do not regress with medical treatment, surgical treatment may be recommended. Pathologies that cause tracheomalacia, such as aberrant innominate artery, may often be associated with gastroesophageal reflux. In this case, there is no consensus on the pathology to correct. However, because of the increased respiratory workload due to tracheal stenosis, reflux will increase and therefore, it is thought that intervention to tracheal compression should be performed first.[5]

Centers have different approaches in planning surgical incision. Although left anterior thoracotomy is generally preferred, difficulty in complete resection of the thymus, reaching the post-tracheal segment of the aberrant artery, and problems specific to thoracotomy may be encountered. In addition, aortopexy surgery can be performed with all incisions that can be used in the thoracic cavity.[4] The authors

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recommend an upper partial median sternotomy incision for reasons such as ease of access to the aberrant artery and ascending aorta, complete and safe excision of the thymus, no requirement to enter the thoracic cavity -only the division of the sternum manubrium is sufficient- and possible application with mini-incision.

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