RARE CAUSES OF RECURRENT WHEEZE- NOT EVERY WHEEZING IS ASTHMA

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Abstract
Recurrent wheeze is a pathology frequently observed in daily pediatric practice. From asthma and tuberculosis to rare diseases like alpha 1 antitrypsin deficiency, bronchiectasis, it can be varied etiology and diagnosis extremely difficult sometimes. Methods: This paper aims to present two cases with recurrent wheezing: the case of a girl of 10 months, with 2 months long history, referenced for right upper lobe atelectasis. On admission, finds good general condition, wheezing unresponsive to bronchodilators, with radiologic evidence of left lung hyperinflation. During disease’s evolution, the wheezing persisted, accompanied by a strange transmission sound. Also cardiac ultrasound could not revealed the emergence of coronary trunk; Corroborating data a vascular compression was suspected and CT angiography confirmed the case of artery lusoria . Another 2 years old child suspected for asthma, shows, in the context of a hypotrophy weight, chronic cough and infection with Pseudomonas aeruginosa; sweat test was positive, in the context of a compound heterozygous genotype. Conclusion: Not all wheezing is asthma case, even if there is suspicion of allergic diseases; rare cause of wheezing should be considered when chronic evolution, nonresponsive to treatment is present and other complications associated.

Introduction
Wheezing is one of the most common clinical signs of respiratory disease in children, about 30% of children have at least one episode of wheezing during life. Increased frequency of wheezing episodes often suggest the onset of asthma, difficult to diagnose in childhood, but necessitating early treatment. Common causes of recurrent wheezing in infants, are represented by gastro-esophageal reflux, aspiration pneumonia, chronic pneumopathies like cystic fibrosis, alpha 1-antitrypsin deficiency, tuberculosis, tracheobronchial malformations, esophageal external compression, bronchomalacia, bronchial stenosis and, in young children, frequently associated bronchial foreign body, tumors, broncho-pulmonary aspergillosis, interstitial pneumonia. Methods: The paper present two cases of children with recurrent wheezing.

Results
Case 1
The first case is a 10 months old girl, with a history of wheezing of 2 months, addressed to our clinic with cystic fibrosis suspicion. On admission she was in good clinical condition, with wheezing. On lung auscultation bilateral symmetrical transmitted and disseminated sibilant rales and rhonchus, where heard and an inconstantly transmitted transmission. Cardio-vascular examination was normal, with rhythmic heart sounds, frequency of 90 beats / minute, without any pathological elements. Cardio-pulmonary radiography showed left lung hyperinflation with lateral deviation by rotating of the heart and tracheo-bronchial tree (fig. 1.), the profile picture was interpreted (fig. 2.) as a thickening of the main left fissure and a secondary interlobular fissure on the same left side.
Thoracic ultrasound showed no evidence of pulmonary condensation or pleural effusion.

Cardiac ultrasound reveals a structurally normal heart, great vessels apparently emerging from normal aortic arch. The right subclavian artery origin was not effectively evident on cardiac ultrasonography.

During hospitalization evolution has been favorable, but wheezing and a strange transmission sound, ameliorated in supine position persisted.

In those circumstances an external compression process was suspected and a CT was performed which reveals the aberrant trajectory of the right subclavian artery, originating from the front side of the terminal segment of the aortic arch with imprinting esophagus. In the upper side of thoracic esophagus, the esophagus was located to the left side of the trachea, and the aberrant right subclavian artery vessel passing to the right side of trachea.

Arteria lusoria – the right subclavian artery with anomalous trajectory is the most common abnormality of the embryonic aortic arch, with an incidence of 0.5 - 1.8 %, which manifests clinically in children with stridor, wheezing, repeated respiratory infections, failure to thrive and at older ages difficulty in swallowing, shortness of breath, chest pain, weight loss, upper limb numbness. Surgical treatment consists in endovascular closing of the aortic origin of the aberrant artery with artery transposition and occlusion if the distal which seems to be the optimal surgical solution. In asymptomatic patients or those with minor symptoms, surgery is delayed and a “wait and see” situation is adopted alike in the case presented.

In evolution complications like: haematemesis, hemoptysis (arterio-oesophageal or arterio-trachea fistula) also formation of aneurysms with risk of rupture can occur.

**Case 2**

Another case presented is a 6 months infant, addressed to the clinic with suspected asthma, because of recurrent wheezing complicated with aspiration pneumonia. At admission he presented with wheezing, in a good clinical condition, but frequent regurgitation in the context of a weight deficit.

Biochemical investigations detected iron deficiency anemia, eosinophilia, elevated total IgE and the ultrasound revealed frequent gastroesophageal reflux, occult blood test positive. An allergy to cow milk protein was suspected, confirmed by serum antibody and established a hydrolyzed diet. Radiograph performed showed right upper lobe atelectasis (Fig. 5.), accompanied by inflammatory syndrome and hypo-pharyngeal aspirate was positive for *Pseudomonas aeruginosa*.

Particularitatea cazului a constat in asocierea fibrozei chistice cu alergia la proteinele laptelui de vaca, ambele patologii capabile sa asociie wheezing si pneumonie de aspiratie. Fibroza chistica este o boala complexa, cu manifestari respiratorii constand in tuse cronica, wheezing, atelectazia de lob superior fiind una din semnele de suspiciune, impreruina cu prezenta *Pseudomonas aeruginosa* in aspiratul hipofaringian.

Considering the case as a wheezy infant, with right upper lobe atelectasis and failure to thrive, a justified suspicion of cystic fibrosis was raised and the sweat test was positive, genetic test showed a compound heterozygous genotype. Evolution was favorable after treatment of *Pseudomonas* infection and exclusion of cow’s milk allergy with an ascendent weight gain. The particularity of the case consisted in the association of cystic fibrosis with cow's milk protein allergy, both pathologies able to associate wheezing and aspiration pneumonia. Cystic fibrosis is a complex disease with respiratory signs.
consisting in chronic cough, wheezing; the upper lobe atelectasis being one of the important signs of suspicion, together with Pseudomonas aeruginosa positive culture, which should be more widely recognized and considered. The disease is polymorphic, manifested with steatorrhea, nasal polyposis, male infertility, diabetes, pancreatitis, liver disease, digital clubbing, bile disease.

Conclusion

Not all wheezing cases are asthma, even if there is suspicion of allergic diseases and rare causes of wheezing should be considered as well. Suspicion of another cause should be raised in the context of persistent wheezing, unresponsive to bronchodilators and the associated complications suggestive.

References


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