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Recurrent bronchiolitis and stridor in an infant

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A 4-month-old male with a medical history of late prematurity and two hospitalizations for viral bronchiolitis presented to the clinic for a new-patient well-child check. His previous hospitalizations for bronchiolitis did not present with hypoxia or respiratory distress, and he did not require any respiratory support. During further discussion, the parents reported that the patient had noisy breathing and congestion since birth. He often sounded “like he has something in his nose”. He had no history of fatigue, spit-up, or choking with feeds. He continued to formula-feed without difficulty and had appropriate weight gain. He was hospitalized for respiratory syncytial virus (RSV) bronchiolitis and rhinovirus bronchiolitis within a 2 week period at 3 months of age. During his first hospital admission, he had a chest X-ray (CXR) that was read as normal. Upon examination, the baby had audible congestion, noisy breathing, and coarse breath sounds that did not improve with albuterol in the clinic. No respiratory distress or stridor was appreciated. Given the history of persistent noisy breathing that parents reported for several weeks, he was referred to otolaryngology for further evaluation. He was noted to have stridor during his ear, nose, and throat (ENT) evaluation, and a computed tomography angiography (CTA) was ordered. The CTA demonstrated a double aortic arch with a dominant right aortic arch and narrowing of the trachea (Figure 1) and proximal mainstem bronchi bilaterally at the level of the vascular ring (Figure 2). The patient was diagnosed with a double aortic arch with tracheal narrowing and tracheobronchomalacia.

The diagnosis of vascular rings can be challenging for pediatricians because symptoms are nonspecific and often overlap with common pediatric presentations [1, 2]. Pediatricians should have a high index of suspicion for a vascular ring in a child with noisy breathing, chronic



Figure 1: A 3D CTA demonstrates a double aortic arch with a dominant right aortic arch. There is a focal short segment of atresia involving the mid-portion of the left aortic arch and narrowing of the trachea. (A) Trachea, (B) atresia of the left aortic arch, and (C) dominant right aortic arch.



Figure 2: Computed tomography angiography (CTA) demonstrates narrowing of the proximal mainstem bronchi bilaterally at level of the vascular ring. (A) Distal trachea compression, (B) esophagus, (C) aortic arch.

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cough or stridor, or dysphagia [3, 4]. Initial evaluation should include a two-view chest radiograph, followed by a bronchoscopy, echocardiogram, and computed tomography (CT) scan or magnetic resonance imaging (MRI) [5]. A comprehensive preoperative evaluation is essential to assess for concurrent cardiac and airway anomalies. Delays in diagnosis are common and can lead to further airway damage or death, thus prompt evaluation is important.

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