Tracheal Buckling in a Young Child

A 1-year-old girl was referred to our emergency room with a fever and barking cough of 2 days' duration. She had been given a single dose of inhaled adrenaline by a previous doctor, which did not improve her symptoms. She exhibited inspiratory stridor and moderate chest wall retraction on crying; however, no cyanosis was observed, and her blood oxygen saturation was normal. Her symptoms were suggestive of croup; however, there was no improvement with adrenaline inhalation treatment, and moderate inspiratory stridor persisted. Therefore, blood tests and imaging evaluations were performed for differential diagnoses of infectious disease and airway lesions.

Blood test results showed mildly elevated C-reactive protein (1.87 mg/dL) and white blood cell count (13 600 cells/mm^3). Chest radiography revealed a tracheal flexion to the right (**Figure**, A, arrows). Chest computed tomography (CT) scan performed on suspicion of an intrathoracic mass showed a similar flexion of the trachea (**Figure**, B, arrows), but no evidence of a vessel or tumor draining the trachea. The girl was crying during the imaging examination.

Chest radiography at rest performed 4 hours after hospital arrival showed a straight trachea (**Figure**, C, arrows). Given this finding and the chest CT indicating no intrathoracic abnormalities, we concluded that her initial imaging findings indicated normal tracheal buckling caused incidentally by conditions at the time of imaging, and that her symptoms were due to unrelated croup. She was treated with adrenaline inhalation and oral corticosteroids, and the inspiratory stridor resolved the next day. She showed no abnormalities in her breathing at a 1-year follow-up since this episode.

Tracheal buckling is a normal radiographic finding, often observed while imaging under expiratory conditions (crying) in children up to 5 years of age.[1,2] It is characterized by flexion of the trachea to the right side.[1] It is present in approximately one-half of children up to 2 years of age and also may occur in newborns.[3] It may be caused by upward movement of the thymus during expiration as a result of the child's flexible and mobile trachea.[2]

The fact that tracheal buckling is a finding not only on radiography, but also on CT, is important for determining the need for further study or treatment. If tracheal flexion is accompanied by stridor, a careful examination for airway stenosis lesions is necessary; however, this is usually more invasive than other alternatives. Therefore, in cases such as the present one, the patient should be reexamined later, or the diagnosis should be made based on comprehensive clinical findings. ■

Data Statement

Data Sharing Statement available at www.jpeds.com. ■

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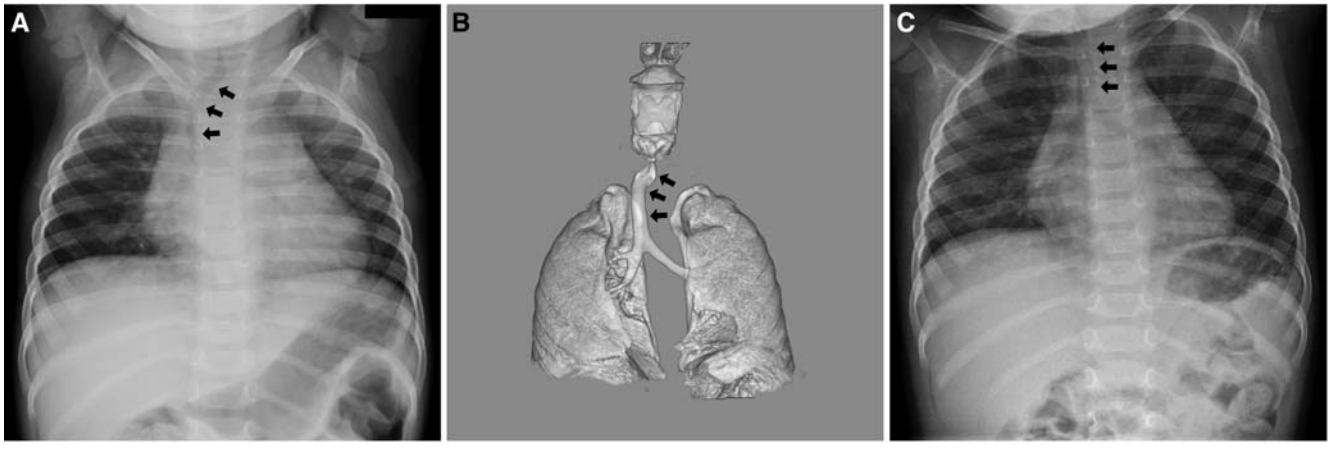

Figure. **A,** Chest radiography showing flexion of the trachea to the right side (*arrows*). **B,** Three-dimensional chest CT scan showing flexion of the trachea to the right side, but no vessels or masses compressing and draining the trachea (*arrows*). **C,** Second chest radiography at rest showing no flexion of the trachea (*arrows*).

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