Congenital Tracheal Stenosis: A Diagnostic and Therapeutic Challenge

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We report the case of a 9 month-old boy with a history of persistent stridor since birth, with several visits to the emergency room due to worsening in the context of viral infections. The past medical history was also remarkable for failure to thrive (weight percentile < 5) and a mild delayed motor development probably due to respiratory wasting. No previous investigation had been conducted.

He was admitted at an intensive care unit with severe stridor in the context of an upper respiratory infection and treated with nebulized epinephrine, systemic steroids, and heliox for three days. Despite treatment, he maintained moderate signs of respiratory distress, so further stridor investigation was continued.

A bronchoscopy was performed revealing aspects compatible with laryngomalacia and apparent congenital tracheal stenosis, being impossible to overcome a stricture with the bronchoscope (Fig. 1). A thoracic scan confirmed the stenosis of the second third of the trachea with a 3.5 cm extension and a transverse gauge of 2.25 mm and excluded other malformations (Fig. 2). No caliber changes were found in the cervical and intrathoracic trachea (below the stenosis) or bronchi.

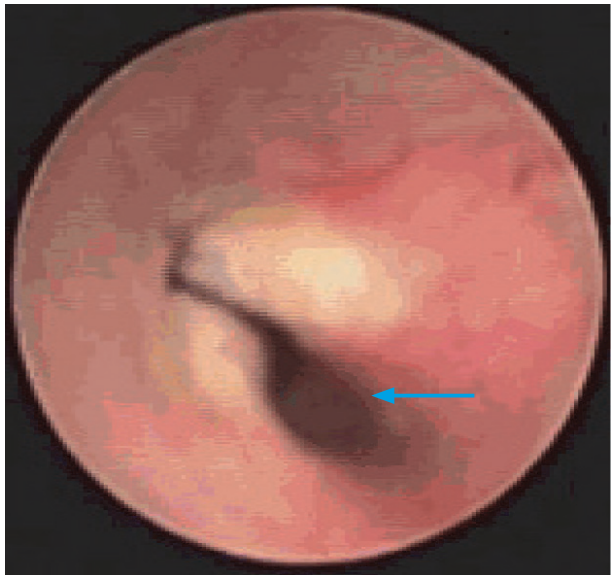

Figure 1. Stricture identified in the bronchoscopy.

Because of the extension and severity of the stenosis, bronchoscopic therapy could not be performed. At 10 months, after discussion with cardiothoracic surgery, slide tracheoplasty was performed under a cardiopulmonary bypass (Fig. 3). The immediate postsurgical period was complicated with a T3-T5 medullary infarction resulting in paraplegia. The stridor was greatly improved with follow-up bronchoscopy revealing adequate upper airway patency, with no need for further interventions. The child was followed up on for two years and only complications of paraplegia were noted. However, the child died at 3 years old due to pulmonary aspiration.

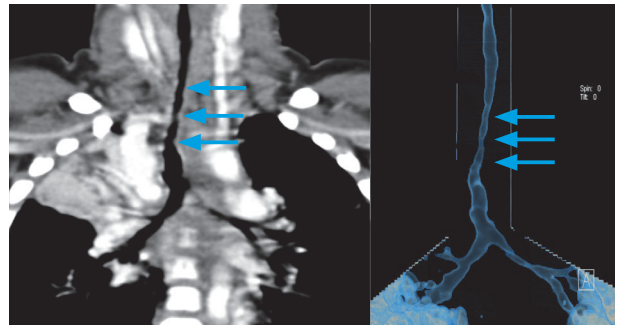

Figure 2. Stenosis identified in the second third of the trachea with a 3.5 cm extension and a transverse gauge of 2.25 mm.

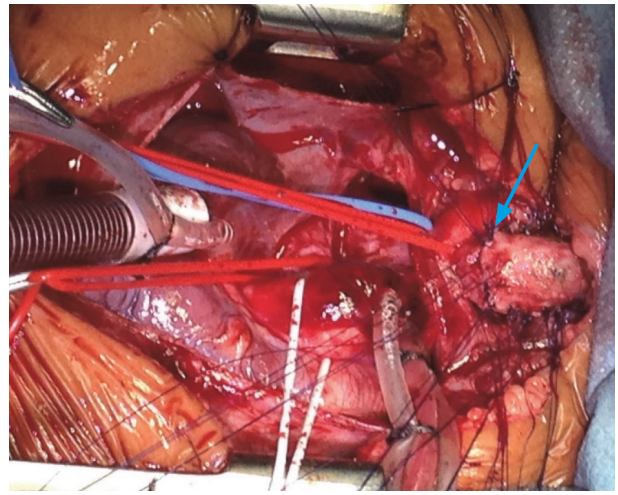

Figure 3. Tracheoplasty to solve tracheal stenosis.

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WHAT THIS REPORT ADDS

- Persistent stridor should be investigated.
- Medullary infartation is a rare complication in the postsurgical period of tracheoplasty.
- Congenital tracheal stenosis requires a multidisciplinary intervention.

Congenital tracheal stenosis is a rare condition, usually resulting from the presence of complete cartilaginous rings, and it may be associated with other malformations such as vascular slings, tracheoesophageal fistula, or pulmonary hypoplasia. Clinical features are variable, and determined by the location, extent, and dimension/severity of the stenosis. Its treatment is complex and slide tracheoplasty is seen as the best technique for the surgical cure of this condition and requires the intervention of a multidisciplinary team.[1-4]

Keywords: Respiratory Sounds/diagnosis; Respiratory Sounds/etiology; Tracheal Stenosis/congenital; Tracheal Stenosis/surgery

Conflicts of Interest

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Confidentiality of data

The authors declare that they have followed the protocols of their work centre on the publication of patient data.

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