



Adult Presentation of Chronic Tracheomalacia: A Case Report

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BACKGROUND

Tracheomalacia (TM) is a common finding within the pediatric population due to developing, weak cartilage and shorter trachea. However, such a presentation is rare in the adult population who have fully developed cartilages. Here, we present a case of TM leading to stridor and dyspnea in an adult male.

Pathogenesis: The normal intrathoracic trachea is compliant, dilating with inspiration and narrowing with expiration. This is due to the difference between intrathoracic and intraluminal pressures¹⁻³. Most cases of TM are expiratory. Indicating excessive trachea narrowing when intrathoracic pressure is substantially greater than intraluminal pressure, as it is during forced expiration, cough, or the Valsalva maneuver⁴.

Epidemiology: Tracheomalacia in the adult population is typically due to an acquired injury or chronic lung disease. Intubation injuries, chronic compression due to goiter or recurrent infections are some of the common causes of TM in the adult population. This occurs most commonly in the middle-aged and elderly, mostly in men >40 years of age⁵.

Diagnosis: bronchoscopic visualization of collapse remains the gold standard for diagnosing TM.

CASE PRESENTATION

History of Present Illness: A 67-Year-old Man presents to the outpatient clinic with hoarseness, noisy breathing and shortness of breath that has been ongoing for two years. The symptoms are accompanied by a dry cough, which the patient states is intermittent. Patient denies dysphagia and nasal congestion. Patient underwent flexible laryngoscopy which showed soft biphasic stridor with no other abnormal findings and was referred for a CT trachea scan.

Past Medical History: Hyperlipidemia, Hypertension and Diabetes Mellitus II.

Social History: smokes average of ½ pack a day. Two alcoholic drinks per week.

Physical Exam: *Head* – Normocephalic & atraumatic. Hair is of normal texture and evenly distributed. *Eyes* – Visual acuity is intact. Conjunctivae are clear. EOM are intact, PERRLA. No signs of nystagmus. *Ears* – The pinna, tragus, and ear canal are non-tender and without swelling. The ear canal is clear without discharge. The tympanic membrane is intact. *Nose* – Nasal mucosa is pink and moist. Nares are patent bilaterally. *Throat:* **Expiratory Stridor** Noted. Could not visualize larynx and pharynx due to hyperactive gag

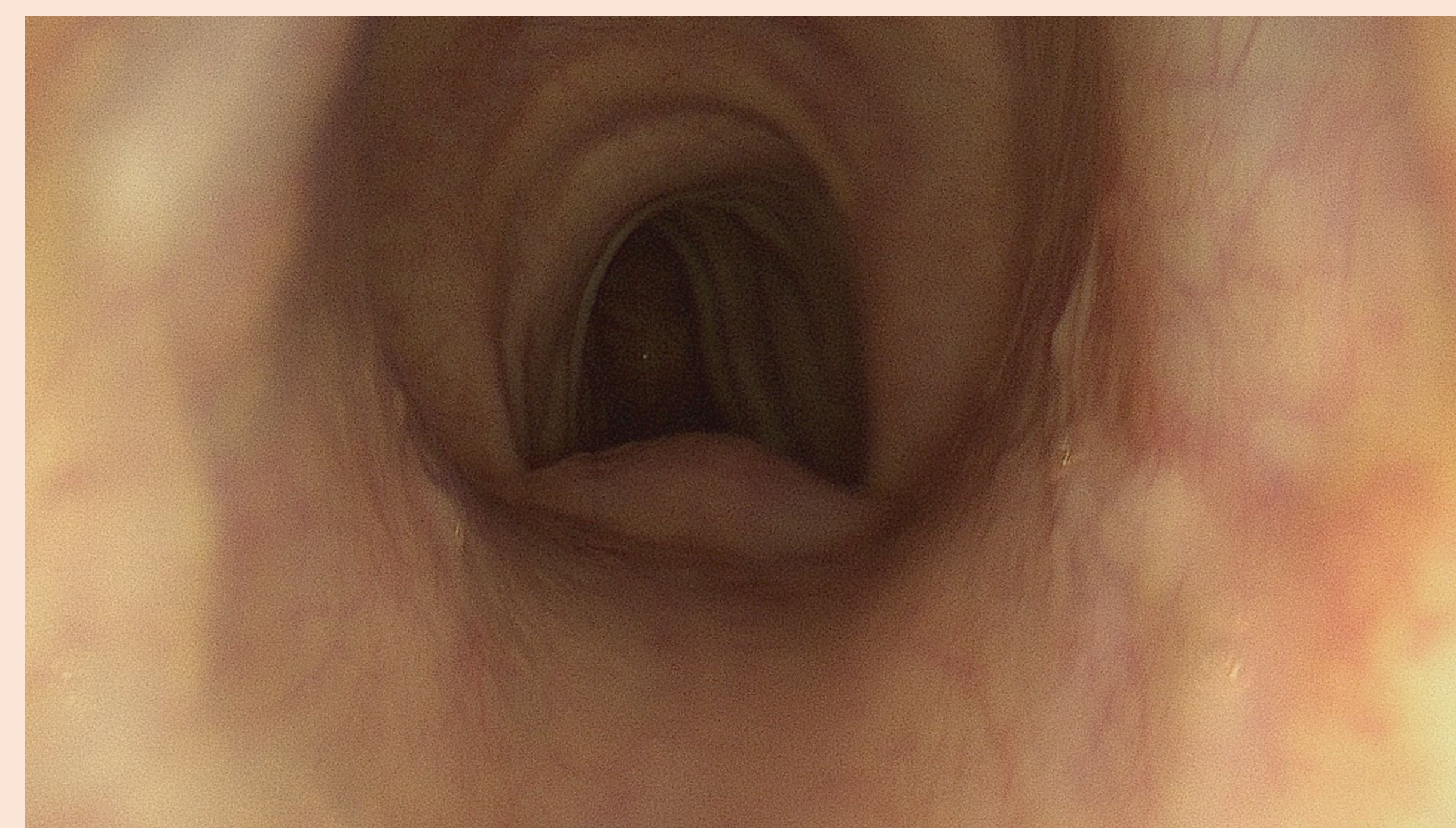


Figure 1: Tracheal expansion during inspiration.

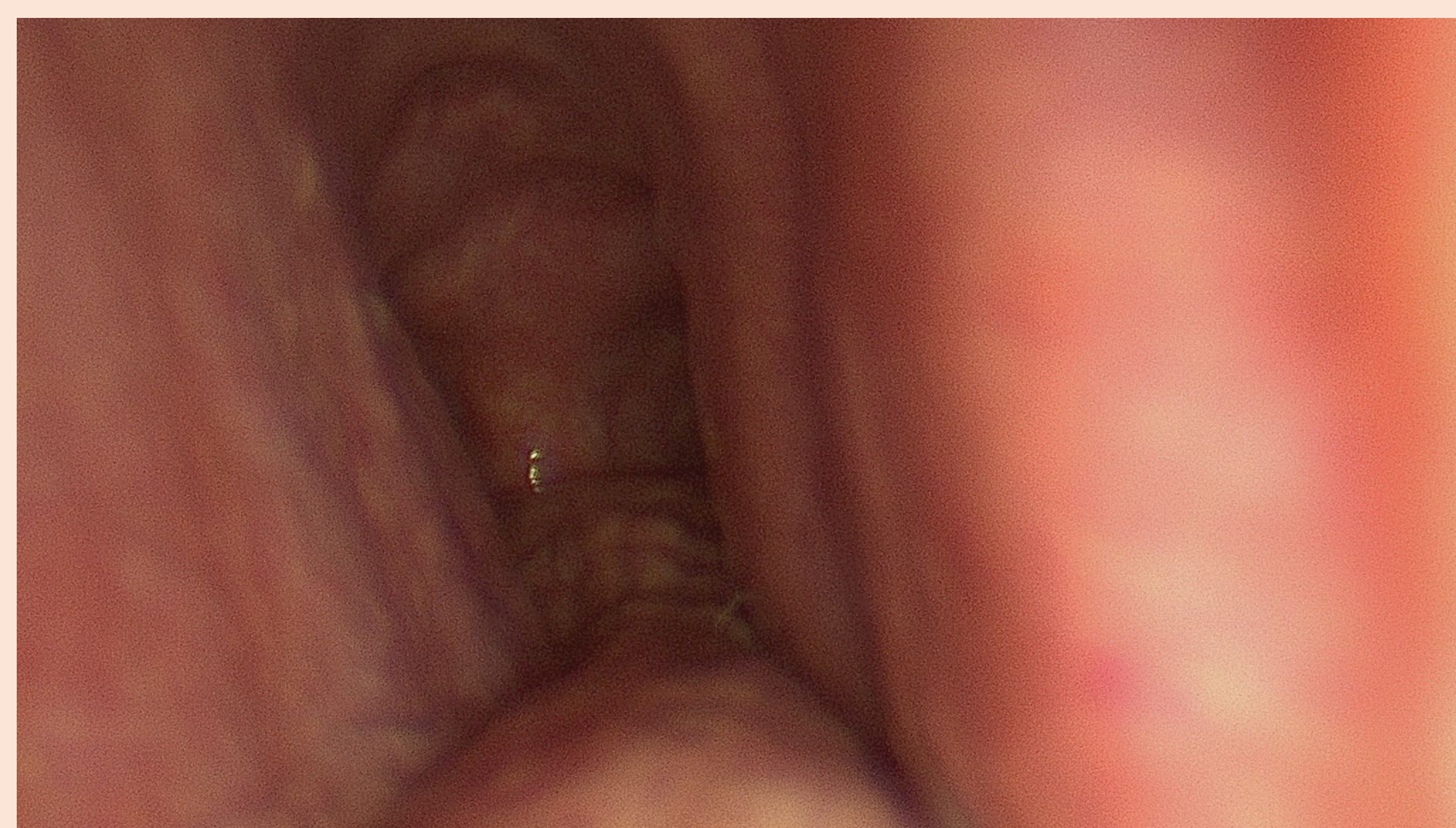


Figure 2: Tracheal collapse and bilateral narrowing during expiration.

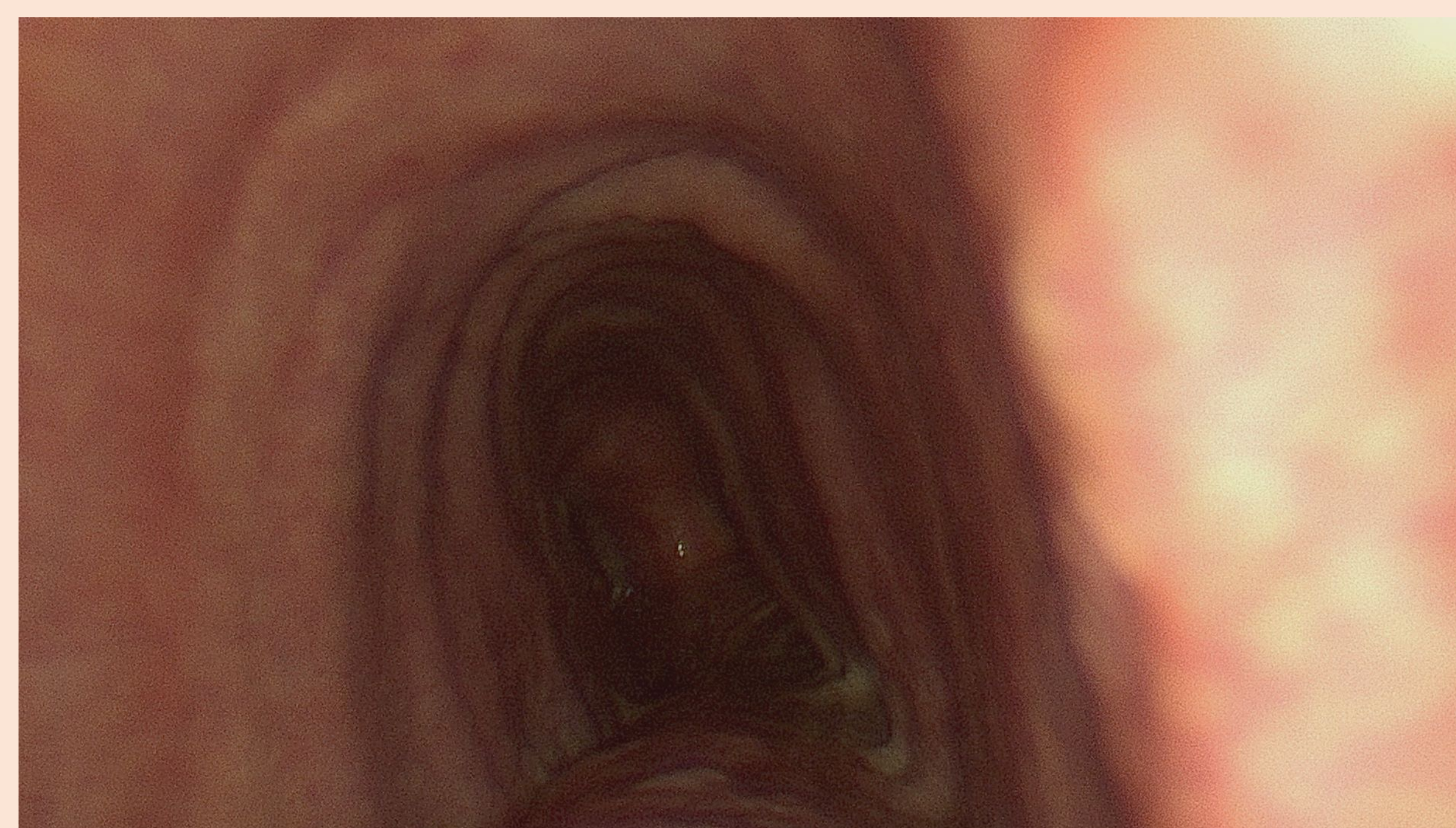


Figure 3: Return to expanded state during inspiration

PLAN OF CARE

- Patient underwent a CT trachea scan which showed transverse tracheal narrowing at the level T₃ and tracheal stenosis. He was referred for diagnostic endoscopy of larynx and bronchoscopy (*figures 1-3*)

DISCUSSION

Risk Factors:

- In the adult population, TM is most often due to an acquired disease process. Tracheostomy or intubation with endotracheal tubes as the most common cause of secondary TM⁴. Traumatic tracheal injury that causes a loss of cartilage, including external trauma and surgery, may also cause TM⁶⁻⁸
- Some research suggests that chronic inflammation and irritants, such as cigarette smoke, are the most important contributors to the development of TM^{5,9}. The weakening of the tracheal wall may be related to the recurrent injury from irritants. Also, irritation that causes excessive coughing or an increased gag reflex, elevating the intrathoracic pressure and leading to increased collapsibility⁹⁻¹⁰.

Patient Risk Factors:

- No identifiable risk factors except cigarettes smoke (½ a pack a day.)

Missed Diagnosis:

- A chest AP radiograph is often the first diagnostic test ordered by providers in patients presenting with dyspnea. However, this abnormality is a dynamic occurrence, chest radiographs often show no abnormal findings.
- Often, symptoms of TM closely mirrors that of asthma. Ferraris et al. described patients with acquired TM who reported expiratory dyspnea, the inability to clear secretions, and recurrent respiratory infections. These patients had been labeled and treated as asthmatic patients¹¹.

CONCLUSION

- While a common diagnosis in pediatrics, tracheomalacia is rare in the adult population. Astute physicians should suspect abnormalities of the trachea and bronchus in the setting of chronic dyspnea with insignificant pulmonary findings. Patient is currently undergoing voice therapy to aid in his hoarseness

REFERENCES

- Please scan QR code in top left corner for a full list of references.