CHEST

Common Congenital Anomalies of the Central Airways in Adults

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VIDEO 

The knowledge of airway anatomy is the most fundamental requirement of every bronchoscopist. There are numerous and frequent anatomic variations of the central airways making the examination unique for every individual. It is imperative for every bronchoscopist to be fully cognizant of the common congenital anomalies involving the central airways. Proper identification and reporting of these findings are a matter of the utmost importance, especially when surgical options in a patient with lung cancer or lung transplantation is under consideration. This article focuses on the congenital anomalies of central airway encountered among adults. Each of these anatomic variations has a characteristic appearance, yet requires bronchoscopic acumen for their identification. This review provides a comprehensive description of these anomalies and highlights their clinical implications. CHEST 2015; 148(1):274-287

ABBREVIATIONS: ACB = accessory cardiac bronchus; BEF = bronchoesophageal fistula; LGH = laryngeal hemangioma; LMB = left main bronchus; TBEF = tracheobronchial-esophageal fistula; TBM = tracheobronchomalacia; TEF = tracheoesophageal fistulas

Flexible bronchoscopy is the most commonly performed diagnostic procedure by the pulmonologist. It is estimated that > 500,000 bronchoscopies are performed annually in the United States.[1] Thorough knowledge of the airway anatomy is the fundamental requirement of every bronchoscopist. Anatomic variations involving the central airways are numerous and frequent, making the airway examination unique for every individual (Figs 1A, 1B). Most anomalies rarely produce any symptoms and are often encountered during adulthood, when the procedure is being performed for an unrelated indication.[2] It is imperative for every bronchoscopist to be fully cognizant of these anomalies, especially when advanced diagnostic or therapeutic procedures are under consideration. Accurate identification and reporting of these findings are essential, especially while performing electromagnetic navigation or stent placement. Proper inspection of the airways is also crucial among the donors as well as the recipients of lung transplantation. Despite increasing use of the CT imaging, these anomalies are seldom confirmed without bronchoscopy. Each of these anomalies has a characteristic appearance, yet requires added skills and

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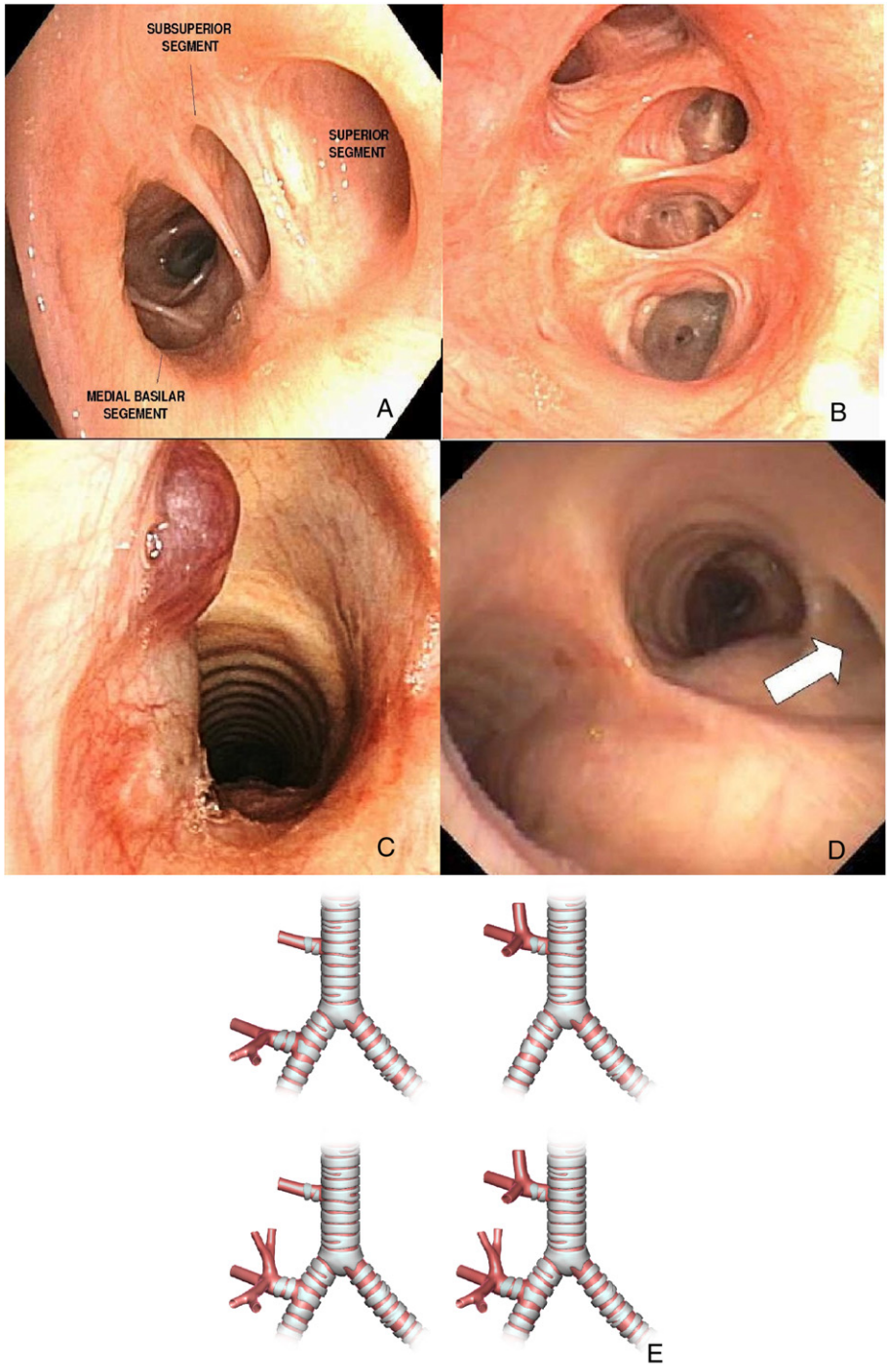

Figure 1 – *A, Sub superior segment of right lower lobe. B, Trifurcation of lingula. C, Hemangioma involving the subglottic trachea. D, Tracheal bronchus: note an anomalous opening arising from the right tracheal wall above the main carina (arrow). E, Schematic depicting variations of the tracheal bronchus.*

experience for their recognition. This review provides a description of common congenital anomalies of the central airways among adults, including their epidemiology, clinical relevance, and management, if necessary. The review does not include anomalies that are strictly limited to the pediatric age group and those not compatible with life.

Larynx

Laryngeal Hemangioma

Laryngeal hemangiomas (LGHs) are classified into a pediatric and an adult form. The incidence of the former is approximately 1.5% of all anomalies of the larynx.[3] The incidence in adults, however, is uncertain. LGHs can