

# History of the Term Trachea: A Toponym in Anatomy

## Historia del Término Tráquea: Un Topónimo en Anatomía

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**SUMMARY:** Since the etymology of the term trachea can be challenging to comprehend due to its associations, this article aims to explore the etymology and history of the term. The word comes from the Greek *τραχεια*, although initially, this term was associated with *Κιλικια τραχεια*, which corresponded to a narrow passage connecting Tarsus with Cilicia in the Taurus mountain range. Later, it evolved from being a geographical term to a medical one, with descriptions made by Erasistratus (304-250 BC) and Aristotle (384-322 BC), who referred to it as *τραχεια αρτηρια*. However, as the association of *αρτηρια* with blood vessels became established, the term *τραχεια αρτηρια* was replaced, and the structure came to be known solely as the trachea. Therefore, in historical correspondence, the name trachea may refer to this geographical region, which makes it a toponym assimilated as a tortuous geographical route of ancient Greece and the Achaemendians.

**KEYWORDS:** Anatomy; History; Terminology; Toponym; Rachea.

## INTRODUCTION

The trachea is a biological channel approximately 12 cm long that connects the larynx to the main bronchus in humans. Its primary function is to deliver air to the lungs while supporting mucociliary clearance, humidification, and thermoregulation (Brand-Saberi & Schäfer, 2014).

The etymology of the term trachea may be challenging to grasp at first glance, as in ancient Greece, it referred to a structure associated with blood vessels (Finlayson, 1893; Romero, 2008), which is why it was named *τραχεια αρτηρια* (tracheartery). The idea that the trachea was a vessel persisted over time, so representative figures such as Cicero (1471), in his work *De Natura Deorum*, and Andreas Vesalius (1543), in *De humani corporis fabrica*, used the term *asperae arteriae* to refer to a rough duct through which air circulated in the absence of blood. Thus, this work aimed to analyze the etymology and history of this respiratory system structure.

## ETYMOLOGY

The word trachea comes from the Greek *τραχεια*, a term that later passed into late Latin as *trachia*. According to different texts (Table I), its etymology, both in Greek and

Latin, refers to a rough or harsh characteristic, an element that the trachea exhibits due to the presence of its cartilaginous rings. Its presence in texts can vary between *τραχύς*, *τραχεια*, and *τραχύ* because the suffixes *-ύς*, *-εια*, and *-ύ* indicate the masculine, feminine, and neuter forms of the adjective, respectively, following the grammatical inflection system of ancient Greek.

## HISTORY

Anatolia provided a strategic location where the crossing of the Halys River and the passage through Cilicia converged. The region's geography, characterized by its mountain barriers, protected this territory and made crossing difficult. This gave rise to two alternative routes for those who wanted to cross it from the West. One of these routes crossed the Euphrates at Malatya, allowing the Taurus and Anti-Taurus mountain ranges to be avoided, although its route was considerably longer. The other route crossed these mountain ranges, passing through a series of narrow passes that ancient sources called "gates" (*πύλαι*). Among these passages were the Cilician Gates, one of the main accesses to cross the Taurus and reach Tarsus.

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Table I. Definition of τραχεια (trachea).

Dictionary	Term	Definition
A Greek and English Lexicon (1940)	τραχύς	Rugged, rough
Perseus Digital Library (1987)	τραχύς	Rugged, rough, harsh, savage
Diccionario manual griego (1997)	τραχύς εἶα ὕ	Rough, rugged, irregular, sour, harsh, hard

The Cilician Gates (Fig. 1) was an important commercial and military route that connected Tarsus with Cilicia in the Taurus mountain range, located in present-day Turkey. This narrow pass, no more than 10 m wide, represented the only relatively accessible route through the mountains. Throughout history, figures such as Alexander the Great, the Crusaders, armies, and merchants passed through this corridor, using it for commercial and military purposes (Ramón, 1938). This gulch, which was a refuge for pirates, was named Κιλικία Τραχεια (Cilicia Trachea) by the Greeks, a term that referred to its rough and rugged nature, describing the conduit that linked the Mediterranean coast with the Anatolian plateau, where according to Monteverde (2015) the caravans headed towards the Black Sea, Persia and even beyond.



Fig. 1. Animation of the Cilician Gates at the south entrance.

The word trachea evolved from a geographical to a medical term with the first anatomical descriptions. Erasistratus (304-250 BCE) was the first to describe this structure. Initially, τραχεια αρτηρια (trakheía artería) referred to the trachea since, in ancient times, the term αρτηρια (artery) described vessels that carried air. Erasistratus believed that air entered the lungs through the trachea, then passed to the "venous artery" (pulmonary vein), and finally reached the left ventricle, from where it spread throughout the body via the arteries (Zalaquett, 2016).

Later, Aristotle (384-322 BC) described the ducts of the human body in the cadaver, noting two types of empty vessels, which he believed contained air or some form of spirit. He called the vessels with soft walls αρτηρια, while

the rougher vessels he called τραχεια αρτηρια. On the other hand, Celsus, in the 2<sup>nd</sup> century, distinguished two passages in the neck, a rough artery which was the τραχεια αρτηρια, corresponding to the trachea, and the stomach, which referred to the esophagus.

"Drinks do not go into the esophagus but into the airways" Aristoteles

Other authors, including Romans, used the expression *arteria aspera*, a term used by Cicero (1471), along with Arabic words such as Mazamar and Zumara, which Arabists used to refer to the trachea.

Over time, as the association of αρτηρια with blood vessels became consolidated, the term τραχεια αρτηρια was eliminated, and the structure became known solely as the trachea (Monteverde, 2015), leaving the term trachea for the air tubes.

Many Greek terms were coined thousands of years ago, and some anatomical terms still refer to objects from those periods (Duque Parra *et al.*, 2002). In historical context, the name trachea may originally have referred to a geographical region, making it a toponym associated with the winding routes of ancient Greece and the Achaemenid Empire—an association that coincides with the way early Greek anatomists applied the term to the body's air passage.

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**RESUMEN:** Dado que la etimología del término tráquea puede resultar difícil de entender debido a sus asociaciones, este artículo tuvo como objetivo explorar la etimología e historia del término. La palabra proviene del griego τραχεια, aunque inicialmente este término se asoció a Κιλικία τραχεια que correspondió a un estrecho pasaje que conecta Tarso con Cilicia en la cordillera de Tauro. Posteriormente pasó de ser un término geográfico a uno médico con las descripciones realizadas por Erasístrato (304-250 a.n.e.) y Aristóteles (384-322 a.n.e.), llamándose τραχεια αρτηρια. Sin embargo, al consolidarse la asociación de αρτηρια con los vasos sanguíneos, el término τραχεια αρτηρια fue eliminado, y la estructura pasó a conocerse únicamente como tráquea. Por lo que, en correspondencia histórica, muy posiblemente el nombre tráquea se refiera a esta región geográfica, lo que le convierte en un topónimo asimilado como ruta tortuosa geográfica de la antigua Grecia y de los Aqueménidas.

**PALABRAS CLAVE:** Anatomía; Historia; Terminología; Topónimo; Tráquea.

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