



The thymus gland in ancient Greek medicine

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Abstract

The term *thymus* was used in ancient Greek medical literature to describe not only the thymus gland but also the warty excrescences found mainly in the genitals or the anus, but also over the entire body. Rufus of Ephesus (1st–2nd c. AD) gave the earliest anatomical description of this gland in humans, while Galen (1st–2nd c. AD) first described it in animals. However, the origins and meaning of this term have long mystified researchers. A careful investigation into its etymology together with the information derived from early anatomical descriptions has enabled us to propose a new interpretation of the origins of the name of the thymus gland.

Keywords Thymus gland · Rufus of Ephesus · Galen · Joannes Galenus

Introduction

The origins of the term “*thymus*” (Greek: *θύμος*) to describe the thymus gland have baffled researchers. In Indo-European linguistics, the PIE root **dheu* (1) meaning ‘vapor, fumes,’ formed the basis for a large number of words throughout the I. E. languages possessing the basic literal meaning of “to rise in a cloud,” for example, Latin *fumus*, smoke, steam [1]. In Greek, it produced both literal and metaphorical meanings: the verb *θύω* (to sacrifice, which initially had the meaning of making smoke), the noun *θυμός* (having two meanings, both literally fume but also metaphorically mental effervescence, anger, passion, spirit, and the place of the soul situated in the heart, the “breath” of the soul), the noun *θύμον* and its diminutive *θυμάρι* (=thyme, because this plant was burned and its fume odorized), the verb *τύφω* (to make smoke, become ash) and its noun *τύφος* (initially meaning to make smoke, and later the disease typhus), the noun *τυφλός* (blind, meaning with blurred vision, in darkness), and finally the noun *θύμος* (thymus gland) [2, 3]. However, although the etymology and meaning of the other words were basically clear, the origins and the fundamental meaning of the noun *θύμος* to describe the thymus gland were not.

Thymus in ancient Greek medicine and medical literature

It should be borne in mind that in ancient Greek medical literature, the term *thymus* (Greek: *θύμος*), mostly in the plural form, that is *thymoi* (Greek: *θύμοι*), while being used to describe the thymus gland, mainly referred to warty excrescences or outgrowths that may be seen in the genitals or the anus, though generally throughout the body. This term was used due to resemblance of the outgrowths to the thyme (Pseudo-Galenus Med. *Definitiones medicae* 19.444.7–8) [4].

The earliest medical description of the thymus gland is found in the work of Rufus of Ephesus (1st–2nd c. AD) who described the thymus as a gland located over the heart, before the seventh thoracic spondyl and also before the end of the bronchus which reaches the lung. Rufus of Ephesus also noted that this gland is not seen in every man (Rufus Med. *De corporis humani appellationibus* 168.1–169.1) [5]. A similar description is additionally found in the work of Julius Pollux (2nd c. AD) (Julius Pollux Gramm. *Onomasticon* 2.218.2–4) [6]. Galen (1st–2nd c. AD) also described this gland in animals, writing that the thymus should not be considered as a small-sized gland, it being large in new-born animals but becoming smaller and harder when they have matured, thereby describing the involution of the gland (Galenus Med. *De alimentorum facultatibus libri iii* 6.674.3–9) [7].

Of great interest is the reference to the thymus by Joannes Galenus (14th c. AD), who was not a physician but a philosopher, considered to be a Hypatus Philosophorum (chief of the

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philosophers) while also holding the office of chartophylax (keeper of the records) of the province of Justiniana Prima and of all Bulgaria under the Byzantine emperor Andronicus Palaeologus the Younger (1328–1341 AD) [8]. In his commentary on the *Iliad*, and specifically of verse Υ 406 (Homer *Iliad* 20.406) [9], where Achilles strikes Polydorus with his spear, Joannes Galenus wrote that the thymus was a gland located between the two collar bones for the protection of the trachea from injury (Joannes Galenus *Scholium in Iliadem* 20.406a.1–6) [10].

Taking into consideration all the above information, we can now propose an explanation for the origins and meaning of the term *thymus* to describe the thymus gland. The fact that ancient Greek and Byzantine physicians clearly used the term *thymus* mainly in its plural form, *thymoi*, to describe the warty excrescences found in the genitals and the anus and, as added by the Byzantine physicians, in every part of the human body (Oribasius Med. *Collectiones medicae* 45.12.1.1–45.12.2.4) [11], leads us to believe that the term described two different anatomical elements, i.e., warty excrescences as well as the thymus gland. This distinction points to the possibility that the term *thymus* to denote the thymus gland had different origins from the term *thymus* or *thymoi* signifying the warty excrescences—which were likened to the appearance of the plant, the thyme.

In our view, the key element clarifying the naming of this organ is the observation of its involution. Galen, as mentioned above, clearly described this phenomenon in animals. Since Galen's anatomical experience was derived mainly through dissections in animals [12], we would not expect this specific observation in humans. On the other hand, Rufus of Ephesus, who also had little experience in human dissections [13], noticed that this gland could not normally be observed in adults. However, given the limitations in human dissections in antiquity, it was virtually impossible to perform dissections in children; therefore, it was much more difficult for Rufus of Ephesus to make a similar observation regarding thymus involution in humans as had Galen in animals.

Nevertheless, the observation of the involution of the thymus, or, as it was described by ancient Greek physicians, its decrease or “disappearance” (probably because it was difficult for ancient anatomists to dissect such a small organ), permits us to link the name of this organ with the idea of vapor and evaporation.

Conclusions

Although ancient Greek physicians dealt with the topographical anatomy of the thymus gland, neither they nor the Byzantine physicians wrote about its functional role [14]. The only references regarding its function found in Joannes Galenus' commentary should not be considered valid, since he was not a physician. Nonetheless, his description of the gland's function probably reveals the difficulty the ancient Greek and Byzantine physicians had in attempting to define a specific role for this organ.

Compliance with ethical standards

Conflicts of interest The authors declare that they have no conflict of interest.

References

- Hofmann JB (1950) Etymologisches Wörterbuch des Griechischen. R. Oldenburg, München
- Babiniotis G (2009) Modern Greek language dictionary. History of words, Athens Teaching Center
- Liddell HG, Scott R (1940) A Greek-English lexicon. Revised and augmented throughout by sir Henry Stuart Jones with the assistance of Roderick McKenzie. Clarendon Press, Oxford
- Kuhn CG (1830) Claudii Galeni opera omnia, Definitiones medicae, vol 19. Knobloch, Leipzig
- Daremberg C, Ruelle CE (1879) Oeuvres de Rufus d'Ephese, De corporis humani appellationibus. Imprimerie Nationale, Paris
- Bethe E (1900) Pollucis onomasticon. Teubner, Leipzig
- Helmreich G (1923) Galeni de alimentorum facultatibus libri iii. Teubner, Leipzig
- Smith W (1876) Dictionary of Greek and roman biography and mythology. J. Murray, London
- Allen TW (1931) Homeri Ilias. Clarendon Press, Oxford
- Flach H (1876) Glossen und Scholien zur hesiodischen Theogonie. Allegoriae in Homeri Iliadem 4.1–4. Teubner, Leipzig
- Raeder J (1928–1933) Oribasii collectionum medicarum reliquiae. Teubner, Leipzig
- Prioreschi P (1998) A history of medicine. Roman Medicine. III. Horatius Press, Omaha
- Gersh CJ (2012) Naming the body: a translation with commentary and interpretive essays of three anatomical works attributed to Rufus of Ephesus. PhD Thesis, University of Michigan
- Hyrtl J (1880) Onomatologia Anatomica. Geschichte und Kritik der anatomischen Sprache der