HISTORY OF MEDICINE

History and the roots of angiology

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Abstract

The authors present a short historical view of the origin of anatomic terms of some arteries and veins. By analysing the historic anatomic terminology the authors point out that various developmental stages of anatomy had an impact on anatomic language. During the formation of particular terms, instead of preferring the classical languages of Latin and Greek, some terms originated from other languages and have remained in terminology that is used today. (Ref. 7.)

Key words: anatomical terminology, history of anatomic terms, arteries, veins.

It became a part of human thinking that the attention of contemporary man is focused mostly on new information and results of science and history. However the collected and documented information, becomes obsolete. Also many names of arteries and veins, which are used daily although they do not respond to the rules of classical Latin, have their own history and belong to the vocabulary of anatomic language.

In the presented work we want to attract attention to some facts, which had an impact on the development of anatomic terminology, mainly from the developmental point of view of some names in angiologic terminology.

Old Romans took over the medicine knowledge from Greeks. Their attribution was restricted mostly to the translation of Greek works. A majority of anatomic terms are probably taken from Aurelius Cornelius Celsus, who lived in Roma in the 1st century. Celsus was not remarkable for his own discoveries but he gathered the entire currently well-known knowledge in his work “De medicina libri VIII”. The author translated some names into Latin, while some of them he left in original Greek. This period, in which Aurelius Cornelius Celsus established the rudiments of medical terminology based on two languages – Latin and Greek, is considered to be crucial in the development of anatomic terminology.

An extremely important personality of the history of anatomy, Andreas Vesalius (1514–1564), the personal physician of Charles the Fifth and Philip the Second, belonged among scholars as who were as important Galileo, Bacon or Newton. At the age of 28 years, full of vitality and large enthusiasm he corrected the mistakes in anatomic knowledge and made up a complete, perfectly illustrated document “De Humani Corporis Fabrica”, which was subtitled as “the passage from the dark to sunny light”. The year 1543 when this work has been brought to the world represents the date of revolution the victory of which was not achieved by weapons but owing to the scalpel in the hands of a great anatomist.

This anatomist who was also an educated philosopher has as well reformed the anatomic language. The chaos that had been present in terminology (a lot of incorrect and synonymous terms, a lot of invented language forms and various translations of the same term) brought him to the only possible solution – to the transformation of anatomic terminology by using classical Latin. His effort was to correct the grammar mistakes in anatomic terms and to eliminate their ambiguities. Vesalius’s effort, was not supported by many important anatomists, who preferred to draw back to non-Latin terms because they had become commonly used and deep-rooted.

An excellent Viennese anatomist, professor Joseph Hyrtl (1810–1894) mainly on the basis of his expertise and through knowledge of classical Greek and Latin compiled a large lexicon of anatomic terminology “Onomatologia anatomica” (1880), in which he had collected the history of anatomic terminology and as an excellent “master of word” succeeded to change the practi-
cal anatomic language 350 years after Vesalius. On the basis of his research of the development and etymology of certain terms, he mentioned the place of their primary incidence and the place of their primary use in the works of antique authors, mainly in those of Greek and Latin philosophers.

**Angiology**

Angiology as a study about vessels was not known during the classical Antique times. It was considered to be the surgical operation, which however Galenus had mentioned only superficially. Paulus Aegineta described the meaning of angiology as a surgical operation due to eye disease during which the eye and temporal artery were dissected along their whole length and separated from their surrounding. Then the artery was cut in the middle, there was enough time given to it to bleed and finally on it’s ends, ligatures were made. In this way they proceeded also in removing other various veins. Also here the “angiology” was used in sense of surgical operation.

The term “angiology” originates from the Greek word of angeion. This expression has a wide meaning: “angeia” indicates for example a tank used for different substances, Xenophon used this term in sense of a flat, and some scholars used it in coincidence with all kinds of vessels in a body of animal containing liquid as for example blood, bile, sperma, air or saliva. According to this, newly formed words as vasa sanguiphera, lactiphera, biliphera, occurred in anatomic terminology, while angiology was understood as the study of all possible vessels.

In the 17th and 18th centuries, angiology as a study of vessels together with the study of muscles and organs were introduced by Lorenz Heister (1638–1758), professor of anatomy and surgery, and have stayed in anatomy till today. Heister was called the “teacher of blood vessels”.

**Arteries and veins**

The theory that arteries obtain air, and blood and air form the so-called “Spiritus vitalis” was pronounced 2000 years ago. The ancient term of artery meaning an air pipe, has survived till today. The Arabs gave them a more suitable name. They named them: venae pulsatiles, micantes, elevables, saltandes, as opposed to “venae quietae – veins, non-pulsative blood vessels”. The term of artery is a verbal translation of the Arabic expression of vena pulsatilla because in no language a more suitable name was found.

**Aorta**

The term of aorta was taken from the Greek word “aortê” originally used by Hipocrates. Aorta was considered to be a pipe filled with air, on which lungs are hanging. Homer compared aorta to a belt on which a weapon was hanging. Aristoteles changed it to a great artery on which the heart was hanging. Galenus called it arteria maxima, arteria megisté (gr). Other contemporaries called it a thick artery – arteria crassa or direct arteria – arteria recta. The some deformations of the word aorta were found in Latinobarbians who used mutilated forms of the word aorta as for example adorthi, ahorti, orthi. Thomas Bartholinus (1655–1738) gave it a poetical name – mater arteriarum.

Andreas Vesalius, in his work “De humani corporis fabrica”, described aorta with its main branches and the heart with coronary arteries running on its surface. Due to the uniqueness of pictures illustrating this important work it was thought for a long time that they were made by an excellent Venesian painter Tizianus. Later it was found out, that they were made by his best pupil Jan Stephan Calcar.

**Arch of aorta**

Claudius Galenus described aorta on an animal model. He knew only the ascending and descending parts of the aorta – pars ascendens et descendens. This meaning of Galen survived till the middle age, while it was not explained by dissection. It was Carpus who has mentioned the aortic arch for the first time and named it gígillis – a bend, but he did not explain which part of aorta was involved. Professor of anatomy Caspar Bauhin (1560–1624) did not dare to contradict Galen who represented an authority, he said only that “truncus descendens ad quintam thoracis vertebrae detoquetur et sinistrotorsum paulum descendi” (truncus descendens, which turns left and downward to the 5th thoracic vertebra). Lorenzo Heister has described the arch of the aorta as “truncus aortae ad similitudinem arcus inflexus”. After him Hermann Boerhave and Albrecht von Haller confirmed it and in this way they have introduce the term of arcus aortae into the medical language.

**Carotid artery**

The word “carotis” in considered to be derived from the verb “karo”, which means to stunt or to fall into dark and deep sleep. This can be supported by two quotations, out of which one is ascribed to Aristoteles: “apprehensis his venis corrunt homines, amissis sensibus et palpebris clauses” and the other to Rufus: “compressae carotides, hominem sopore et aphoniam gravant”.

Later anatomists called carotid arteries according to Andreas Vesalius – arteriae soporariae, according to Carolus Stephanus – arteriae apoplecticae or according to Arabic translators – arteriae lethargicae or arteriae somni.

A supposed causal relationship between carotid arteries and sleep is also between the latter and the lateral part of the head, on which the pulse of the carotid branch is palpable. Owing to this, this area has been referred to as the “temporal area”.

An important Swiss physician and universal scholar Albrecht von Haller (1708–1777), thanks to the widespread basing of material from dissections and to the injecting the vascular system gave a detail description of arteries in human body for the first time. He is also the author of various names of arteries. For example truncus coelicaus – tripus Halleri, anastomosis magna Halleri, circulus vasculosus fasciculi optici and many others ana-
tomical terms carry his name. The current official anatomical terminology does not use eponyms. Despite this, many names of arteries using the name of the author have persisted in medical terminology.

**Jugular vein**

The vein on the neck, the cutting of which causes a quick death is referred to after Galenus. In the first Latin translation of the Galenus’ work, which was made by a Benedict monk from Monte Cassino, a newly formed word “jugulum” occurred. It indicated an opening in the skull, through which a plexus of veins and lymphatic vessels pass. The name for the neck vein – vena jugularis, which passes through this opening has been kept till the present day. What was referred to by the Latins as jugulum, by Greeks it was referred as “sphagites flebs” and under this they understood also the act of death by cutting a neck.

**Cephalic vein**

Instead of the similarity to the Greek word “kefalē”, vena cephalica, which is the superficial vein of upper extremities, is not a Greek but an Arabic word. It was used by a translator of Avicena’s work: cantinum, Armegandus de Motepessulano, where the word kifal stood for cephalica. This word became familiar in anatomy.

No Greeks or Romans till that time had ever read or heard about vena cephalica. This vein was named as hominae or epomaia, from the Greek word omos – arm, because on the outside end of the clavícula it went into the depth. According to its course it was referred to as vena humararia also by Vesalius. It was common among Arabic and Christian physicians to cure headache by blood-letting through vena cephalica – “quia abstrahit sanguinem a capite”, according to the idea that “venae section cephalicae” improves a head diseases and soothes them on anatomical basis.

**Saphenous vein**

The name for the hidden vein belongs among the oldest names persisting till the present day. Al safin originates from Avicena, simply said al safen. This Arabic word means hidden. Arabs were familiar with “blood-letting”, because they knew very well the course of veins in a healthy human body. Vena saphena is not visible on the whole course, and therefore they named it al safen – a hidden vein. They opened it on an ankle, where it was visible through the skin and there they called it vena ad cavillan. Cornelius Celsus referred to it also as vena ad malleolus.

**Conclusion**

It was our objective show the developmental continuity of anatomic terminology. We have presented some historic examples of the origin of some anatomical terms in order to indicate that Greek and Roman classical antique times were anatomic knowledge and terminology. The unusual education of anatomists over the centuries and details in main anatomical works help us to understand the current forms of the names of arteries and veins.

Anatomy as a basic branch of medicine is trying to be accurate in its terminology in order to improve the communication between medical branches. Originating from history: “Imago animi sermo est”, as the knowledge of scientific language is the manifestation of personal cultivated scientific communication.

A topical internationally admitted anatomic terminology (Terminologia Anatomica, 1998) was formed in consequence of a dynamic development not only of anatomy but of all medical branches. The same principal applies also to anatomic terminology of cardiovascular system (Holomáňová, Brucknerová, 2000) including the presented Latin–English–Slovak terms of arteries and veins.

The continual development in medicine, as well as the access of new generations of physicians, had an impact on the scientific vocabulary. New terms which will be created in anatomical language will again only reflect the current scientific knowledge and demonstrate the assimilation of anatomical language with the practical needs of medicine.

**References**


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