

Technical Versus Jargon in Anatomic Veterinary Nomenclature

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ABSTRACT

Being a type of scientific nomenclature, anatomy terms must be clear, precise, logical, coherent and accepted worldwide. Therefore, a standardized veterinary anatomical nomenclature has not only been recognised internationally but also is highly recommended and must bring to the attention of not only teachers, students and researchers, but also to clinicians, translators, editors and publishers for use throughout their activities. Although a standard veterinary anatomical nomenclature exists, e.g. *Nomina Anatomica Veterinaria*, it is not always followed or well known by everyone within the profession. Additionally, casual or jargon terms are commonly used, and that is in addition to differing languages being utilised. This manuscript discusses some of the examples derived from the mix of technical versus jargon anatomical veterinary words, makes recommendations regarding the use of jargon or technical words according to each situation and highlights some of the complexities involved in structuring and maintaining anatomical nomenclature.

Keywords: Anatomical nomenclature; Clinical anatomy; *Nomina Anatomica Veterinaria*

INTRODUCTION

Any type of scientific nomenclature must be clear, precise, coherent, comprehensive and accepted worldwide (Musil, Blankova, and Baca 2018) (Chmielewski 2020), in addition to being correctly used and taught within and outside of the field (Chmielewski and Strzelec 2020). Anatomy is one of the oldest medical disciplines, and indeed some of the terminology dates back to ancient times and has provided a basis for current technical nomenclature (Kachlik et al. 2008). The knowledge of anatomical nomenclature ensures veterinarians, and all related professionals, have access to the same method of communicating. This helps avoid confusion when pinpointing structures and describing locations of lesions, surgical actuations, necropsy procedures and many more essential clinical, research and teaching activities. Anatomical nomenclature is therefore an essential tool when communicating information between veterinarians, academics, students, researchers, veterinary nurses, physiotherapists and others within the profession and related professions.

But in day-to-day practice, many veterinary clinicians are unaware of the use of the correct anatomical nomenclature and tend to use obsolete and jargon (casual) terms. The

American Heritage Dictionary defines jargon as, "the language, especially the vocabulary, peculiar to a particular trade, profession, or group: medical jargon" (Crystal 1995). Lay jargon must be used extensively to communicate with laypeople: if owners do not understand what we are saying or what information is relevant to them, we are going to be unable to provide high-quality care. Moreover, the use of technical words with laypeople can make owners shut down and avoid asking questions because they feel self-conscious (getting clear answers to questions ensures clients understand their animals' health and what steps they need to take to ensure their animals' healthy lives).

This article emphasizes some weaknesses and strengths in relation to the proper use of veterinary anatomical nomenclature and, above all, concentrates on the mix of jargon and technical words. It is intended to evoke broader and more open discussions within the profession and encourage readers to reflect upon their own use, and that of others, in relation to terminology and nomenclature. The official terms (as per the *Nomina Anatomica Veterinaria*) used throughout this article appear in italic text. Unofficial, old, incorrect or jargon terms appear in normal font within brackets. It is also important to distinguish between nomenclature, which is a set of approved terms approved, and

terminology, which is the standardised system to define these terms precisely. We will consider only use of terminology.

The *Nomina Anatomica Veterinaria*

The origins of anatomical nomenclature date back to the ancient period, more than 2,500 years ago, and were made in the common languages of that time, Greek and later Latin (Kachlik et al. 2008). Veterinary anatomical nomenclature is currently gathered by the International Committee on Veterinary Gross Anatomical Nomenclature (ICVGAN) in its *Nomina Anatomica Veterinaria* (last edition: 6th, published in 2017)(International Committee on Veterinary Gross Anatomical Nomenclature 2017), often referred to as NAV. The World Association of Veterinary Anatomists (WAVA) has overall responsibility for the text, committees and publication with professionals from throughout the world contributing to this essential undertaking. Species specific names have been brought together and terms for the same thing, reducing the number of words and making life easier, complexities and positive effects. WAVA has additionally published similar volumes for histological and embryological anatomy, namely the *Nomina Histologica Veterinaria* and *Nomina Embryologica Veterinaria*, which also utilise a series of international nomenclature committees. Although the publication of NAV is issued as a free open access book online and as a traditional book, its promotion has not always been interacted with by everyone and it is also not always used by everyone. Even when used it may not always be highlighted or referenced, for example when adhered to in scientific publications it is not always referred to, undergraduates may be taught using the terminology but they may not realise that the nomenclature comes from NAV. It is not a compulsory text for all veterinary, biosciences or animal anatomy departments not everyone will consult the text to ensure appropriate nomenclature in presentations and publications or in day-to-day discussions.

It is important to remember that the anatomical nomenclature is part of scientific nomenclature that deserves due consideration and can be updated and improved when necessary. Anatomical nomenclature is the basis for medical communication (Chmielewski and Strzelec 2020) and is elaborated into a nomenclature in Latin (Chmielewski and Strzelec 2020). Like other sets of scientific

terms, the anatomical language is seen as alive and changing, and consecutive versions of *Nomina Anatomica Veterinaria* reflect these changes. Although some changes are inspired by a long tradition and do not come as a surprise to anyone in the field, other modifications are characterized by innovation and new discoveries.

By the way: we are sure that a minimal academic basis of Latin and Greek roots would help make the anatomical nomenclature more intelligible and even interesting. Just to cite, two cute examples: the "Azygos vein" [V. *Azygos*], from the Greek "without a pair", explains the lack of a similar vein, for some domestic species, on the contraside of the vertebral column in the region of the thorax. And the spleen, "*lien*" or "*splen*" (although *Nomina* prefers the first term [*lien*]), both involving derived adjectives such as "*lienalis*" -*Lig. lienorenale*- and "*splenicus*" - *Sulcus splenialis*.

The role of an anatomist academicians must be not only to broaden the knowledge of the animal body and its parts, but also to extend the nomenclature in theory and practice. Veterinary Anatomy is the basic science course that essential for most veterinary curriculum including the curriculum of Veterinary Medicine, and education and understanding of anatomical nomenclature can link structural knowledge to mechanisms of development (pathogenesis), structural alterations of cells (morphologic changes), and the consequences of changes to animal diseases (Uopasai and Bunterm 2012).

The majority of clinicians and some academicians have never favoured or accepted the *Nomina Anatomica Veterinaria* nomenclature, not because of its intrinsic defects but simply due to unknowledge. Some researchers refuse to adopt it and unfortunately, many erroneous terms have been adopted in some textbooks and researches on veterinary anatomy.

The challenge with Veterinary students

The bigger picture of anatomy is what structures are and how they fit together. Although students can often get hung up with nomenclature and think that anatomy is just about names, learning, remembering, and understanding the anatomical terms are arguably the greatest challenges faced by first year veterinary students (when normally they are introduced to Animal Anatomy). Erroneous achievements of anatomy will affect their next levels and future practice. If this

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learning affects nomenclature, it will mean that future Veterinarians will not take care of their own language and tend to use wrong terms. The result has been the introduction of a state of chaos bewildering to the pupil as well as to the professional.

This fact probably explains that if clinicians ignore the official anatomical nomenclature, is probably because other problems attract their attention and they have not put time on the proper language, which does not merit their attention. Clinicians have learned the very same language that their colleagues, and they ignore the use of the official version of anatomical nomenclature (cf. Table 1). We believe this is an

Table 1. Some examples of mistakes and departures from the valid anatomical term adopted by the *Nomina Anatomica Veterinaria* that can be found in daily Veterinary clinical practice

Erroneous, obsolete or jargon term	Valid term
“Achilles’ tendon”	<i>Tendo calcaneus communis</i>
“Check ligament”	<i>Caput tendineum of the deep digital flexor tendon</i>
“Fontanella”	<i>Fonticuli cranii</i>
“Foramen opticum”	<i>Canalis opticus</i>
“Laryngopharynx”	<i>Pars laryngeopharynges</i>
“Lymphoide”	<i>Lymphaticum</i>
“Milk vein”	<i>V. epigastricocranialis superficialis</i>
“Navicular bone”	<i>Os sesamoideum distale</i>
“Oropharynx”	<i>Pars oralispharynges</i>
“Perforated tendon”	<i>M. flexor digitorum superficialis</i>
“Perforating tendon”	<i>M. flexor digitorum profundus</i>
“Suprarenal glands”	<i>Glandula adrenalis</i>
“Suspensory ligament”	<i>Ligg. sesamoidea collateralia</i>
“Thyroids”	<i>Glandula thyroidea or thyreoidea</i>
“Twin muscles”	<i>M. gastrocnemius (Caput laterale and Caput mediale)</i>

Jargon Versus Technical Words

Many people commonly use jargon, instead of the official version of anatomical nomenclature. With the use of jargon in academics, veterinary students will be confronted to an unknowledge of technical names for anatomical structures.

Two frequent examples from real clinics can illustrate why the clinical jargon is so different from the official anatomical nomenclature. One is from the equine clinical practice: the term “navicular”, which is nearly always used instead of distal sesamoid bone, and with no repair that anatomically the navicular bone [*Os naviculare*] corresponds to the central tarsal bone [*Os tarsi centrale*]. This erroneous form is so popular that it is unlikely that the correct form will be recognised as valid in the clinical world. “Milk vein” is another example. The term is used instead of vena epigastrica [*V. epigastricocranialis superficialis*]. Probably Veterinary dentistry is the Veterinary field where more correct words are used. Finally, and they are just examples, nomination of acropodial

unknowledge of correct terms and at the same time a shift towards the comprehension on non-professional persons, as owners -ultimately their clients-. Moreover, it should be remembered that the use of obsolete and invalid anatomical names in clinical practice or teaching enhances the risk of miscommunication, which may increase the risk of poor outcomes. Such a status of nomenclature hampers communication both within the discipline and between anatomists and other researchers, leading to misunderstandings and mistakes in scientific writing. Even “standard” textbooks vary in their use of terms.

series, which must go from *Phalanx proximalis* [*Oscompedale*], to *Phalanx media* [*Oscoronale*] and *Phalanx distalis* [*Osungiculare, Osungulare*], and not “first” to “second” and “third”, as it is common usage by lay people and owners.

The Mix of Registers

According to the *American Heritage Dictionary*, register is “a variety of language typically used in a specific type of communicative setting: an informal register; the register of scientific discourse.” A formal register is used in nonfiction texts, lecture halls, etc. (Crystal 1995).

The use of jargon register is only justified when it is addressed to non-Veterinarians. For instance, they must use “croup” or “rump” instead of *Nates*, or “honeycomb” instead of *Reticulum*, and “rennet” for *Abomasum*, “jaws” for *Maxilla* and *Mandibula*, “fangs” for *Dentes canini*, “the side” for *lateralis*, “stern” for *Cauda*, “windpipe” for *Trachea*... Terms can be literal translations of the Latin -“greater

trochanter” for *Trochanter major*, “head” for *Caput femoris*, “neck” for *Collum femoris*- or not, but must be in common usage. **In conclusion, jargon must be used.... but only in the proper situation** if the language level (jargon? technical?) is adequate. Mixing them is not justified in any case.

In my opinion, there are different kinds of bad usage of nomenclature:

- A permanent use of jargon words: e.g. “honeycomb” and “rennet”, which are jargon words for reticulum and abomasum.
- A use of obsolete technical words: although the Latin anatomical nomenclature is stabilized and is easily available, many clinicians tend to use obsolete, insufficient and incorrect terms or even misuse them. E.g., cardiac lobe of the right lung for middle lobe (*Lobus medius [pulmonis dextri]*). “Perone” and “cubitus” must be considered obsolete, and *fibula* and *ulna* used instead (and associated terms, such as *N. fibularis communis* and *A. collateralis ulnaris*). The adjectives peroneal and cubital should be replaced by the adjective fibular and ulnar in all cases (although for the latter there are yet some structures with *cubiti*). Moreover, with the former there is the risk of confusion since this term sounds the same or almost the same as the adjective perineal [*perinealis*] in English.
- A use of human anatomy technical words: e.g. “suprarenal glands” instead of *glandula adrenalis*.
- A simple incorrect use of words: e.g. “navicular bone” instead of *os sesamoideum distale*.

Topographic parts

Anatomical planes are hypothetical planes used in describing the location of bodily structures or movement directions. Due to the inclination of the veterinary anatomy towards human anatomy, many terms have been erroneously applied to the animal body by simply changing the position from vertical to horizontal to unify the human and animal anatomy (Kachlik et al. 2009), and this is applied in animal topography. Let's see some examples.

A typical mistake is the use of “palmar” for “solar”. This latter had to be used to refer to the sole of the foot -the weight-bearing structure (Mills and Leach 1988), the “walking” surface of the front paw in companion animals-, while

the former is referred to the ventral side of metapodes (*Nomina Anatomica Veterinaria* is not very clear on it). We also think that the term “volar” -referred to the sole of hindfoot- should be used (reserving the term “solar” for the forefoot). The terms “superior” and “inferior” for animals are bad used, too, as they must be used only for certain cephalic structures, such as *A. labialis superior* and *A. palpebralis inferior lateralis*. More: the “frontal plane”, because it refers to the plane of the human forehead, is not applicable to quadrupeds. The term “submandibular,” as used in humans, is incorrect due to the difference in topography of mandible (and so *Fossa mandibularis*, *Ganglion mandibulare*, *Glandula mandibularis*...).

“Sagittal” and “median” planes are very frequently incorrectly used, too. Let us extend comment on them, clearly contaminated by human nomenclature. For quadrupeds, we had to reserve the term median [*Medianus*] plane to one which divides the body into right and left “halves” of equal proportion, i.e. the case of body bilateral symmetry, being vertical to the ground and passing vertically through the corporal midline. In the animal body, the median plane would correspond to the plane running from the top to the bottom through the midline structures such as navel and spine, e.g. *Crista sacralis mediana*, *Sutura palatina mediana*, *Sulcus medianus linguae*.... And alternatively, the sagittal plane [*Plana sagittalia*] would divide any structure other than the post-cranial external body stricto sensu (head and viscera, not necessarily parallel to long body axis, as are most of internal organs) into symmetrical right and left halves: *Crista sagittalis externa*, *Foramen sinus sagittalis dorsalis*, *Sutura sagittalis*, *interfrontalis*...

Similar to the median plane, the sagittal plane results in the formation of left and right portions but not necessarily parallel to the cut as it has done along body. Something like a “sandwich” of the organ independently of the position into the body. Planes that are parallel to the sagittal plane, but that are offset from the midsagittal plane would be termed parasagittal planes, and paramedian planes [*Plana paramediana*] for those parallel to the median plan. It exemplifies the complexity of mixing human and anatomical terms.

AS A CONCLUSION

A clear and understandable nomenclature is necessary for non-problematic communication.

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The principal argument that the specialists in veterinary anatomy (and/or other medical fields) understand each other without difficulty and that minor nomenclature discrepancies do not cause critical confusion in communication, is true, but frequently without using proper words. The lack of common use of correct anatomical words is due to two reasons, in my opinion. First, anatomists represent only a small group among veterinary scientists and clinicians, and moreover, it is quite a heterogeneous group mainly from the language point of view. Different languages and different scientific schools prefer special nomenclatural phrases. Second, anatomy is a basic language of medicine and it has seemed to be more simple, clearer and understandable for all people involved in veterinary medicine (not only scientists and clinicians, but also paramedical staff, journalists, lawyers, translators, linguists, information specialists, etc.) if jargon words are used. On balance, each new version of anatomical nomenclature uses more logical, precise and coherent terms but for clinicians, “traditional” terms are generally preferred.

Proper anatomical nomenclature may seem cumbersome, but, in most of cases, facilitates translation of scientific information into diverse languages. Based on the need of their correct usage, continued application the revised nomenclature is required to ensure their correct use and to resolve any possible discrepancies between the official terminologies and those specifically used by practitioners. Moreover, the nomenclature must be continuously corrected and extended in the future, as further developments in diagnostic and dissectional methods are made. Individual proposals to change or add terms must be also considered, all suggested terms being discussed by the wider scientific community. If they are correct and considered useful, they should be added to the new version of the *Nomina Anatomica Veterinaria*.

A well-developed scientific veterinary formation takes pride in quality and unambiguous and proper nomenclature. We need to democratize the nomenclature as internationally accepted and recognized, but also to make it a living language of anatomy in vernacular words.

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