

## DEALING WITH TRANSLATION ENTANGLEMENT IN MEDICAL TEXTS: CASE STUDY

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*Abstract: The past decades have been characterized by breathtaking discoveries and inventions in the medical field, which expanded specialized terminology beyond imagination and continuously developed a new medical language. The current paper analyzes several issues related to the English-Romanian translation of texts from the medical field; more specifically it deals with an excerpt about the anatomy of the hand. This paper is structured in two parts, i.e. a theoretical and a practical one. The theoretical part is focused on general terminological issues, such as the origin of medical terms, features of medical vocabulary, the importance of Greek and Latin in medical terminology, and last but not least, the importance of English in the field of medicine. The second part includes a corpus-based analysis and tackles the difficulties raised by the English-Romanian translation of the medical terms from a specialized text about the anatomy of the hand and replantation surgery (amputations of the hand or fingers). The consistency and uniformity of the medical vocabulary will be demonstrated, which, nowadays, is used by health care professionals, medical students, as well as others who are interested in this particular field. Another purpose of the current paper is to highlight the influence of Greek and Latin on the English medical terminology, especially since, nowadays, English plays the role of "lingua franca" against the international medical background. In order to achieve our objective, we will etymologically analyze various English medical terms and expressions of Greek and Latin origin, extracted from a medical text.*

*Keywords: medical terminology, English-Romanian translation, specialized terminology, medical community, lingua franca*

### 1. Introduction

The last decades have been marked by breathtaking discoveries and inventions in the medical field, which expanded specialized terminology beyond imagination and continuously developed a new medical language. However, it should also be taken into account the fact that many medical terms and expressions come from Greek and Latin borrowings, dated since the 1<sup>st</sup> century BC, during the time of the great physicians (such as Hippocrates, Galen, Celsus and Plinius) and philosophers (e.g. Aristotle). Some of these terms even kept their original form, most of them being very long and resuming an entire phrase to a single word.

Moreover, since the 5<sup>th</sup> and the 4<sup>th</sup> century BC, Hippocratic writings were containing medical terms with the foundation of medical language placed in the Greek era. Nevertheless, at the beginning of the first millennia (AD), a great part of the Greek medical terminology underwent a Latinization process (e.g. the Greek noun *karpós* has the Latin equivalent *carpus* or the Greek noun *stomachos* was Latinized as *stomachus*), this way starting the Latin medical era (Dobrić, 2013). It is noteworthy that, nowadays, despite the fact that Latin has gradually lost its influence as a *lingua franca* of the medical field, the international use of Latin-Greek terms has been accomplished due to the terminological continuity on the one hand, and history (the terms being used in an unchanged form for over 2000 years) on the other

(Marečková, Šimon and Červený, 2002). Furthermore, nowadays, the never-ending technological and medical progress triggered an impressive expansion as far as specialized terminology is concerned, as new terms have evolved in order to reflect these innovations. Such an instance is represented by the so-called “birth” of terms related to radiography (e.g. *magnetic resonance imaging (MRI)* and *ultrasound*) currently used to describe diagnostic procedures (Gylys and Wedding, 2009).

## 2. Features of medical terminology

Medical terminology represents a field in which vast and specialized vocabulary is used by health care professionals for effective and accurate communication (Dan Nadrag, 2015). As already mentioned, this specialized vocabulary is mainly based on Greek and Latin words, medical terminology being thus consistent and uniform throughout the world. Some medical words are long and they sometimes resume an entire phrase, such as the term *gastroduodenostomy*, which means “a communication between the stomach and the first part of the small intestine” (Cohen, and DePetris 2013: 5). The terms that are originated from Greek are mainly mentioned in clinical terminology (e.g. *cardiology*, *nephropathia*, *gastritis*), whereas the Latin terms are used in anatomical terminology (e.g. *cor*, *ren*, *ventriculus*). Nevertheless, there are also terms of different origin taken from French (e.g. *massage*, *passage*, *plaque*, *pipette*, *bougie*) or from Italian (e.g. *varicella*, *belladonna*, *influenza*) (Répás, 2013).

Furthermore, the field of medicine, being a continuous and expanding development of medical language, is characterized by the combination of word roots, combining forms, suffixes, prefixes and abbreviations (Cohen, and DePetris 2013: 5), which often hinder the understanding and the translation of a specialized text. Another ascertainment is that the English medical terminology contains a large number of new medical terms of Latin and Greek origin (often with Greek or Latin endings), as in the last century, the fast and continuous growth of medical and technological sciences triggered the need for new terms in order to express new ideas, concepts, conditions or tools (such instances are *appendicitis*, *radiology*, *cystoscope*, *radioscopy*, *streptococcus*). In this respect, it has been estimated that approximately one half of the English medical words of Greek origin is less than one hundred years old (Banay, 1948).

In its turn, as far as Latin is concerned, according to George L. Banay (1948), “we walk, start, stop, breathe, sleep, wake, talk, live and lie in Anglo-Saxon, but we advance, retreat, approach, retire, inspire, confer, discuss, compare, refute, debate, perish, survive in Latin” (p. 18). Until the beginning of the 18<sup>th</sup> century, Latin was considered as the language of science, therefore all medical texts were written in Latin. An example is the anatomical work of Andreas Vesalius entitled *De humani corporis fabrica* (1543), where the terminology of anatomy is almost entirely written in Latin (Banay, 1948). Another feature of the English medical terminology is represented by the use of hybrid terms that are a combination between Greek and Latin, such as *appendicitis*, *bacterial*, *dermal*, *pericardium*, *granuloma* (Banay, 1948).

In Marečková, Šimon and Červený’s article, i.e. “Latin as the language of medical terminology: some remarks on its role and prospects” (2002), it is mentioned the fact that English has replaced Latin as a medical language, whereas the well-known German historian of medicine, H. Schipperges (1988: 59) affirms that Latin and Greek “have masterfully outlived” the influence of the 20<sup>th</sup> century English. As far as English anatomical nomenclature is concerned, we can notice the fact that Latin is present in several of plural forms of nouns

(*fascia-fasciae, bacteria-bacterae, sulcus-sulci*) and in multiple-word terms (e.g. *flexor pollicis longus and brevis, flexor digitorum profundus*) (Marečková, Šimon and Červený, 2002).

English plays an important role in society, particularly in the international medical community, as a spoken and written language. Undoubtedly, English has become the language par excellence of the medical science replacing other languages, like French or German. Therefore, in the 20<sup>th</sup> century, English has become the most important spoken language used as an interpreter of the latest news, this way influencing other nations to learn and study English (Nadrag, 2012). Nowadays, English represents the language for communication in many fields, especially in medical sciences and technologies, and has certainly become the *lingua franca* of medical practitioners and researchers (Rosendo, 2008). In the past, English medical terminology was based mainly on Greek and Latin words, but nowadays English started to use more of its own language material. This century also brought efforts regarding the internationalization of national medical terminologies along with standardization and unification of this international form, besides the economic globalization (Dzukanova, 2002).

### 3. A corpus-based etymological analysis of a medical text

This section includes a corpus-based analysis and tackles the difficulties raised by the English-Romanian translation of the medical terms from a specialized text about the anatomy of the hand and replantation surgery (amputations of the hand or fingers), i.e. “Chapter 5: Atlas of Surface Anatomy and Joint Motion” (in *IFSSH Scientific Committee Reports*, <http://www.ifssh.info/TerminologyOfHandSurgery.html>). The objective of this corpus-based analysis is to reveal the consistency and uniformity of the medical vocabulary that, nowadays, is used by health care professionals, medical students, as well as others who are interested in this particular field. For the purpose of our analysis, we extracted the most interesting English medical terms and we provided their definition in English from an etymological perspective and their Romanian translation. By giving the definition for each term, we were able to get a better grasp of the text and tackle several issues related to their translation in Romanian. For the purpose of our etymological analysis, we used several online dictionaries, such as *Cambridge Dictionary, Oxford Dictionary, Merriam-Webster’s Learner’s Dictionary, Latin Dictionary – Where Latin Meets English*.

The analysis of our corpus revealed several interesting issues, such as:

1. Several English medical words are created by means of conversion/ derivation. Such instances are:

- adduction (aducție), made of the Latin prefix *ad* (*to, toward, near*) and from the Latin verb *addūcere* (to lead or bring to). This word is derived from a Latin verb and is used as a noun in English.

- avulsion (avulsie), formed by the Latin noun *āvulsiōn* (stem of *āvulsiō*), equivalent to *āvuls* (*us*) (torn off) and the Latin suffix *-iōn* (denoting action or condition). In this case, one can distinguish the similarity between the English written form of the term and the Latin one. Also, the English and Latin suffix “-ion” is used to form nouns from stems of Latin adjectives, verbs (mostly past participles).

- digital (digital) composed of the Latin word *digitālis, digit(us)* and the suffix *-al* (pertaining to). In English, this term is used as an adjective (derived from a Latin noun).

- distal (distal) made of the Latin verb *distare* (to stand apart or to be distant) and the Latin suffix *-al* (pertaining to). In English, this term is an adjective.

2. Several English medical words are hybrid terms (i.e. combination between Greek and Latin):

- carpometacarpal (carpometacarpian), made of the Greek prefix *karpós-* (wrist), the Greek prefix *meta-* (after, beyond), the Greek noun *karpós* (wrist) and the Latin suffix *-al* (pertaining to). The Greek term *karpós* has the Latin equivalent *carpus*, which became current in scientific literature, after the Renaissance.

- extensor pollicis longus and brevis (extensor lung și scurt de police), made of the Greek prefix *ex* (out, out of, outward) and the Latin verb *tendere* (to stretch, extend) and the Latin adjective *brevis* (short). One can observe the fact that the same form is kept and used in medical English.

- hyperextension (hiperextensie), made of the Greek prefix *hyper* (excessively), the Latin noun *extēnsiōn* (an act or instance of extending) and the Latin suffix *-ion* (denotes action or condition). This term represents a hybrid term, meaning a mixture between Greek and Latin. Due to the Greek prefix *hyper-*, one can deduce the meaning as “the extension of a part of the body beyond the normal limits”.

- hyperflexion (hiperflexie), composed of the Greek prefix *hyper* (excessively), the Latin verb *flex* (to bend) and the Latin suffix *-ion* (denotes action or condition). This hybrid term denotes the act of bending a limb.

- hyperlaxity (hiperlaxitate), made of the Greek prefix *hyper-* (excessively), the Latin noun *laxitās* (wideness, openness) and the Latin suffix *-ity* (Latin *-itās*; to express state or condition). This hybrid term means “being lax” (looseness).

- interphalangeal (interfalanganian), composed of the Latin prefix *inter-* (between), the Greek root (noun) *phalanx* (soldiers in close order) and the Latin suffix *-al* (pertaining to).

- metacarpophalangeal (metacarpofalanganian), composed of the Greek prefix *meta-* (after or beyond), the Greek noun *karpós* (wrist), the Greek noun *phalanx* (soldiers in close order) and the Latin suffix *-al* (pertaining to). It is noteworthy that this compound word, made up mostly of Greek words is an adjective due to the Latin suffix *-al*.

- transmetacarpal (transmetacarpian), made of the Latin prefix *trans-* (across, beyond, through), the Greek prefix *meta-* (after, beyond, change), the Greek noun *karpós* (wrist) and the Latin suffix *-al* (pertaining to). This term is a hybrid term, containing both Latin and Greek prefixes, and also a Latin suffix which makes it an adjective.

- trapezium (osul trapezoid), composed of the Greek noun *trápez(a)* (a table) and the Latin suffix *-um*.

- triphalangeal (trifalanganian), made of the Latin prefix *tri-* (three), the Greek noun *phalanx* (soldiers in close order) and the Latin suffix *-al* (pertaining to). Thus, this hybrid term contains a Latin prefix and suffix, and a Greek root.

3. Some English medical words derive from Latin/ Greek words that, originally, had a different meaning. This is due to the fact that, in translation, terms from distinct languages “are rarely the exact equivalent in all three dimensions” (i.e. linguistic, referential and conceptual dimensions) (Popescu, 2012: 118):

- circumduction (circumducție), composed of the Latin prefix *circum-* (around, about) and the Latin verb *ducere* (to lead). In Latin, the verb *ducere* means “to lead”, whereas in English it means “the movement of a part in a circular direction”.

- coronoid (coronoid), made of the Greek suffix *-oid* (resembling) and the Greek noun *korw`nh crow* (resembling the beak of a crow). The English and the Greek meanings of the term are different. For instance, in English it means “the coronoid process of the jaw, or of the ulna”, whereas in Greek it stands for “the resemblance of a crow’s beak”.

- radial (radial), composed of the Latin word *radius* (spoke of a wheel) and the Latin suffix *-al* (pertaining to). It is derived from the Medieval Latin *radialis*, Latin *radius* (shaft, rod, spoke of a wheel). As a noun, it has the meaning of a type of tyre, attested from 1965.

4. Some English medical words are made of more Latin/ Greek words:

- dorsiflexion (dorsiflexie) is composed of the Latin noun *dorsi-*, *dorsum* (the back), the Latin verb *flectere* (to bend) and the Latin suffix *-iōn* (denotes action or condition).

- humeroulnar (humerocubital), made of the Latin noun (*h*)*umerus* (the shoulder bone) and the Latin noun *ulna*-elbow, forearm.

- radioulnar (radiocubital), composed of two Latin nouns, i.e. *radius* (spoke of a wheel) and *ulna* (elbow, forearm)

5. Several English medical words have a similar or an identical written form in Romanian:

- palmar (palmar), made of the Latin noun *palma* (the palm of the hand) and the Latin suffix *-ar*. It is obvious the fact that the English written form is identical with the one from Romanian. In addition, the meaning is the same. The Latin *palma* cognate with Old English *folm* (hand) and was replaced with Middle English *paume*.

- humerus (humerus), originating from the Latin noun (*h*)*umerus* (shoulder).

- proximal (proximal), containing the Latin prefix *pro* (forward, before); made of the Latin word *proximus* (next to) and the Latin suffix *-al* (pertaining to).

- hypothenar (hipotenar), composed of the Greek prefix *hypo-* (under, deficiently) and the Greek noun *thénar* (palm of hand or sole of foot). The form remains the same in all three languages (English, Romanian, Greek), meaning it is a noun.

- intramedullary (intramedular), made of the Latin prefix *intra-* (within, inside, on the inside) and the Latin noun *medulla* (marrow, pith of plants). There is no difficulty in finding the appropriate term in Romanian as there are similarities in spelling and orthography.

- other such words, already discussed above, are “digital”, “radial” and “distal”.

6. There are English medical words that originate from Modern Latin; some of them are hybrid words or, originally, they come from Greek:

- periosteum (periost), composed of the Greek prefix *peri-* (about, around), the Greek combining form *osteo(n)* (bone) and the Latin suffix *-um*. The term also comes from Modern Latin *periosteum* and Late Latin *periosteon*, which is the same with Greek *periosteon*, neuter of *periosteos*, which means “round the bones”.

- sepsis (sepsie), made of the Greek noun *sêpsis* (decay) and the Greek suffix *-sis* (state of). It has the meaning of *putrefaction* and it is derived from Modern Latin *sepsis*, which comes from the Greek word *sepsis*.

- thenar (tenar), coming from the Greek noun *thenar* (palm of the hand). The term is also related to Old High German *tenar* (palm); it is a New Latin term from Greek.

7. There are English medical words that preserved their Latin forms:

- flexor digitorum profundus (flexor digital profund), made of the Latin verb *flectere* (to bend), the Latin noun *digit(us)* (finger) and the Latin adjective *profundus* (profound). Thus, the Latin form is still preserved and used in English medical terminology.

- flexor pollicis longus and brevis (flexor lung și scurt de police), composed of the Latin verb *flectere* (to bend), the Latin noun *pollicis* (thumb), the Latin adjective *longus* (long) and the Latin adjective *brevis* (short).

The etymological analysis of the various medical terms from our excerpt (i.e. “Chapter 5: Atlas of Surface Anatomy and Joint Motion”, in *IFSSH Scientific Committee Reports*, <http://www.ifssh.info/TerminologyOfHandSurgery.html>) reveals that the medical language a

great diversity of terms with root words, combining forms, suffixes, prefixes and abbreviations, but also hybrid terms, which are a mixture of Greek and Latin medical terms. From the examples mentioned above, one can distinguish the following word roots: *carp* (e.g. carpometacarpal; wrist bones), *cor* (e.g. coronoid; pupil), *dors* (e.g. dorsiflexion; back of the body), *humer* (e.g. humerus; upper arm bone), *phalang* (e.g. phalanx; finger or toe bone), *radi* (e.g. radial, radius; lower arm bone), *uln* (e.g. ulnar, ulna; lower arm bone). By definition, a word root represents the base of a term and it includes its primary meaning (Dobrić, 2013). Moreover, a combining form signifies the combination of a word root with a vowel, which is usually an *o*, but it can also be an *i*. For instance, *carp/o* (wrist bones; e.g. carpometacarpal), *humer/o* (upper arm bone; e.g. humeroulnar), *metacarp/o* (the part of a hand or forelimb; e.g. metacarpophalangeal), *radi/o* (lower arm bone; e.g. radioulnar).

The suffixes are known as the endings of a word that changes the meaning of it. We were able to distinguish the following types of suffixes: noun suffixes: – *ion* (denotes action or condition; *adduct-ion*, *avuls-ion*, *circumduct-ion*, *hyperflex-ion*, *hyperextens-ion*), – *sis* (condition of, followed by the vowels *e*; e.g. *sep-sis*), – *y* (condition of; *laxit-y*); adjective suffixes: – *al* (pertaining to; *carpometacarp-al*, *digit-al*, *dist-al*, *interphalange-al*, *metacarpophalange-al*, *proxim-al*, *radi-al*, *transmetacarp-al*, *triphalange-al*), – *ar* (pertaining to; *humerouln-ar*, *palm-ar*, *radiouln-ar*, *uln-ar*), – *oid* (pertaining to, resembling; *coron-oid*); plural suffixes, when a word changes its form from singular to plural (*phalanx* becomes *phalanges* in the plural), – *um* (plural ending *a*; *trapeziu-um* – *trapezi-a*; *perioste-um* – *perioste-a*), – *on* (plural ending *a*; *tend-on* – *tend-a*), – *us* (plural ending *i*; *humer-us* – *humer-i*).

As far as prefixes are concerned, they represent the word elements attached to the beginning of a word or root word. There are also various types of prefixes, such as prefixes for position: *ex-* (away from, outside; e.g. extensor, extension, extremity), *pro-* (before; e.g. proximal); prefixes for numbers: *tri-* (three; e.g. triphalangeal); prefixes for direction: *trans-* (through, across, beyond; e.g. transmetacarpal), *meta-* (after, beyond, change; e.g. metacarpophalangeal), *intra-* (within; e.g. intraphalangeal); prefixes for degree *hyper-* (abnormally high, excess; e.g. hyperextension, hyperflexion, hyperlaxity), *hypo-* (under, below; e.g. hypothenar); prefixes for size and comparison: *ortho-* (straight, correct, upright; orthopaedic).

Therefore, the issues discussed above reveal the fact that English medical language, as a scientific language, has developed a series of linguistic phenomena that managed to corrupt the language by bringing a loss of precision and clarity in the message. This constitutes one of the most important difficulties that hinder medical training and research (Rosendo, 2008). In order to avoid confusion when exact terms are not employed, but also for communication purposes, the reader or the translator of such specialized medical texts should have some basic medical knowledge, but he/she should also use Latin and Greek dictionaries (or have basic Latin and/or Greek knowledge).

#### 4. Conclusion

English has become the international language for various fields, such as medicine, science, mass-media, where the articles must be written specifically in English in order to be published and read by others, but is also used as a spoken language at conferences, meetings. This way English is considered to be lingua franca, universal language, auxiliary language (Rosendo, 2008). Moreover, one can notice the fact that Latin is still present in certain medical terms, such as *flexor digitorum profundus*, *flexor digitorum superficialis*, *flexor pollicis longus and brevis*, *extensor pollicis longus and brevis* and many others.

The etymological analysis presented in this paper, reveals the Greek and Latin origin of the medical terminology used in the text, as well as the importance of the role that English played and continues to play in the field of medicine. With regard to the translation of the medical corpus, we have encountered certain difficulties in properly translating the medical terms. In order to clarify the meaning of these medical terms, we used several the English and medical dictionaries, such as *Cambridge Dictionary* (online), *Oxford Dictionary* (online), *Merriam-Webster's Learner's Dictionary* (online), *Latin Dictionary – Where Latin Meets English* (online), *Oxford Concise Medical Dictionary*. This emphasizes the fact that, sometimes, in order to master certain words belonging to the English medical terminology, especially when it comes about the translation of medical texts, one should have some knowledge of basic Latin.

Nowadays, English is present in almost every aspect of our lives, it became a communication mean in exchanging thoughts and ideas worldwide, in every field, such as medicine, mass media, politics, economics, technology, the Internet etc. Thus, due to its important role as an international language, English has become a vehicle of communication for medical scientists, researchers, doctors, people who participate in conferences, who attend different academic events or who want to publish their papers, works, and discoveries in international journals, in order to be recognized and rewarded for their effort.

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