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Features of Medical Words and Principles of Their Translation*

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Medical English is characterized by highly professional and standard words. Good translation of medical words depends both on medical and linguistic knowledge. This paper makes a comprehensive analysis on features of medical words and discusses the problem as well as the solution in translation of them in the hope of providing a practical guide for medical translators or medical authors in China to achieve accurate, professional, and standard or conventional translation or writing.

Keywords: medical words, feature, translation

Introduction

British translation theorist Newmark (2001) wrote that "technical literature is primarily distinguished from other forms of literature by its use of terminology, generally containing pure technical words and semi-technical words" (p. 121). This is particularly the case in medical literature where a large number of medical terms are used to make it have a special flavor, for these medical terms are never used in the fields other than medicine. Take, for example, in discussing a uterus tumor, a layperson may describe it as that "unusual bleeding and the growth of lumps in the womb are the two special signs of cancer of the womb", while a doctor may interpret it in his paper as "abnormal hemorrhage and tumorous enlargement of the uterus are the two characteristics of carcinoma of the endometrium", with the words "hemorrhage" and "endometrium" hardly known to people other than those in medical field. While on the other hand, there still exist many semi-medical words in medical literature, which are common words with uncommon meanings in medical context, and the consequence of mistranslation could mean life or death. Take this sentence for example, "the face may be flushed and the conjunctivae are sometimes injected". If this sentence is translated as "面部发红，结膜有时被注射", maybe unexpectedly dangerous thing will happen because this sentence actually means that "面部发红，结膜有时充血".

As lexical features play such an important role in making a good translation, we have made a comprehensive analysis on them in this paper in the hope of providing a practical guide for medical translators or medical authors in China to achieve standard and professional translation or writing.

In this paper, we classify the lexemes in English medical literature into pure medical words, sub-medical words, and medical collocations.

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Pure Medical Words

Pure medical words mean the words that are only used in medicine. Here we classify pure medical words with regard to their origins as follows: (1) transferred Latin and Greek words; (2) invented English words; (3) borrowed figurative words; (4) eponyms; and (5) derived Latin and Greek words.

Transferred Latin and Greek Words

A large number of medical words were originated from Latin and Greek, when Latin used to be the dominant language of Western Europe and mother tongue of ancient Rome, and the medical works and theories of such great people as Hippocrates, Galen in ancient Greece made ancient Greek a preferred language in medicine as well. Latin and Greek borrowings are mostly used in anatomy, the root of medical science, although more usage can be found otherwise, such as to express physical functions and clinical conditions. Examples in anatomy are "cerebrum" (大脑), "pelvis" (骨盆), "cornea" (角膜), "bronchus" (支气管), "abdomen" (腹部), etc., which are directly from Latin, and words like "soma" (身体), "aden" (腺), "derma" (真皮), "larynx" (喉), are from Greek. Furthermore, Latin words such as "rigor" (寒战), "stupor" (昏迷), "nausea" (恶心), "tonus" (紧张) and Greek words "stenosis" (狭窄), "stasis" (停滞), "ptosis" (下垂), "ectopia" (异位) are widely used in the description of patients' signs and symptoms. These transferred words are unambiguous and precise in meaning, synonym-free, highly formal and professional, hence mostly used in academic papers. Although alien, these words can be easily found in medical dictionary, hence present no problem in translation.

Invented English Words

Medicine has ever been developing, with the new disease being discovered and new symptoms or signs being described. When English became the dominant language in Western world, many English words were invented to name the medical conditions. These words are massively existing in medical literature, which read and are understood more easily compared with the transferred Latin and Greek words, examples of which include infection, inflammation, fracture, gland, and many others.

Borrowed Figurative Words

It is generally believed that science should be free from any figurative thinking in case that scientific strictness should be damaged. However, scientists do think in terms of images. The image is conjured up by the metaphor with its referential purpose to make a more comprehensive and concise description (Newmark, 2001) or to fill in the gap in scientific language. In the field of medical science, metaphors are widely used in the description of symptoms and signs while they are also found in the nomination of organisms and others. Medical workers take advantage of daily common things to convey medical messages in an efficient and effective way. Examples include "drumstick finger" (杵状指), "wallet stomach" (袋状胃), "leopard heart" (豹斑心), "envelope antigen" (被摸抗原), "target cell" (靶细胞), etc.

It should be noted that while "An important point of scientific translation is that, of all the components of the language, technical terminology has the highest probability of one-to-one equivalence" (Wilss, 2001, p. 131), the translation of figurative words is, to certain degree, culture-specific and hence should be cautious. Most images in medical figurative expressions are universal as people share basically the same cognition of images and experience of feelings (LIU, 1998). Therefore, most medical figurative words are translated literally, for example, "bullet embolism" is translated into "弹头栓子", "honeycomb tissue" into "蜂窝组织", and "trigger finger" into "扳机指".

However, it is also true that people in different parts of the world use different images in describing the same sense they share, which is not seldom seen in medical context. Cite for example, that a roughness of the skin produced by erection of its papillae especially from coldness, fear, or a sudden feeling of excitement is called "goose flesh" in medical English; however, if this phrase is translated literally into "鹅皮疙瘩", it will make no sense to Chinese people, who choose "鸡皮疙瘩" to describe the same condition. Similarly the translator should seek out equivalent Chinese for English medical figurative words like "pigeon chest" as "鸡胸" rather than "鸽胸", "goose gait" as "鸭步" instead of "鹅步". Last but not the least, some English words are likely to arouse unwanted associations in Chinese, so improper translation will fail to convey accurate message and does not harmonize with the style of medical text. Take for example, "tiger heart", a condition of the heart in which the inner surface of the ventricular (心室的) wall and the papillary (乳突状的) muscles are streaked and spotted. The literal translation of "虎样心" or "虎心" will most likely arouse association of viciousness and cold-heartedness in Chinese people; therefore, efforts must be made to avoid misunderstanding and the neutral term "虎斑心" is the solution.

Eponyms

Eponym, as defined by Newmark, is "any word that is identical with or derived from a proper name which gives it a related sense" (Newmark, 2001, p. 198). In medical language, eponyms derived from persons' or places' names are the most common, which are either used to commemorate inventors or discoverers or employed to fill in the gap of medical knowledge by adopting well-known God's names and novel characters, patients' names, or the name of a place where a given disease is mostly found. Cite for instance, "Cushing's disease", which is firstly described by Doctor Harvey Cushing as a kind of hyperfunction of renal adenocortix (肾上腺皮质机能亢进); "Achilles jerk" (跟腱或阿基里斯反射), from Greek legend in which Achilles is a hero whose mother soaked his ankles in the river; "Christmas disease" (克里斯马斯病), from a firstly afflicted patient with the most outstanding clinical manifestations. Eponyms are usually applied in the nomination of syndromes, diseases, operations, therapies, tests, methods, reagents, reactions, anatomical parts, etc., among which eponyms of syndromes amount to the highest number. These eponyms are known to medical workers, but laymen might feel lost about their connotations, although translation can be easily done literally.

Derived Latin and Greek Words

However, the so-far mentioned way of making new words in medical context cannot satisfy the ever growing of medical science. Then the derivation is adopted, which is to make new words from Greek and Latin morphemes. A derived medical word is made from a combination of base, prefix, suffix, and combining vowel. There are eight basic patterns to form a medical word (Spatola, 1982), which are:

Pattern (1) base

neuron 神经元

Pattern (2) base + suffix

hepat + itis → hepatitis

(肝) (炎症) (肝炎)

base + combining vowel + suffix

therm + o + meter → thermometer

(热) (测量仪器) (温度计)

Pattern (3) base + base

sial + aden → sialaden

(唾液) (腺) (唾液腺)

base + combining vowel + base

troph + o + blast → trophoblast

(营养) (胚芽) (营养层)

Pattern (4) base + base + suffix

enter + aden + itis → enteradenitis

(肠) (腺) (炎症) (肠腺炎)

base + combining vowel + base + suffix

labi + o + dent + al → labiodental

(唇) (牙) (唇齿的)

Pattern (5) prefix + base + combining vowel + suffix

dys + men + o + rrhea → dysmenorrhea

(异常的) (月) (流) (痛经)

prefix + base + suffix

epi + gastr + ic → epigastric

(上) (胃) (上腹部的)

Pattern (6) prefix + base + combining vowel + base + suffix

Sub + micr + o + scop + ic → submicroscopic

(下,亚) (微) (镜) (亚显微镜的)

Pattern (7) prefix + prefix + base + suffix

sub + peri + oste + al → subperiosteal

(下,亚) (周围) (骨) (骨膜下的)

Pattern (8) prefix + suffix

para + centesis → paracentesis

(旁) (穿刺) (穿刺术)

One thing worth mentioning about derived words is the phenomenon of synonym. One derived word may be embodied in several different forms, for example, both base forms “thoraco-” and “stetho” mean chest in Greek, so there are “thoracoscope” and “stethoscope” for “听诊器”; while on the other hand, Greek “celio-” has “ventro-” as its Latin equivalent, so there come two words “laparotomy” and “ventrotomy” meaning “剖腹术”. The derived words dominate other medical words in three aspects: (1) singleness and preciseness in meaning; (2) objectiveness and un-ambiguity in pragmatics; and (3) being self-evident, easy-to-remember in form. Therefore, the translation of these words presents no problem for the translator as long as he/she is equipped with desirable medical dictionaries.

Sub-medical Words

The understanding and translation of pure medical words we have discussed so far generally present no problem to the translator as long as he/she is equipped with desirable medical dictionaries, but sub-medical terms

leave the translator much more choices to make unless he/she is sufficiently acquainted with the relevant subject-matters, since neither bilingual nor standard English dictionaries are designed to provide help with these particular problems even medical dictionaries would not provide enough items to choose from.

Sub-medical words are common words having uncommon meanings. Take the followings as examples:

(1) Acute and sub-acute hepatic necrosis more often complicates hepatitis in the elderly.

Wrong: 急性与亚急性肝坏死往往使上了年纪的人的肝炎复杂化。

Correct: 上了年纪的肝炎患者往往并发急性与亚急性肝坏死。

(2) Essential hypertension is the name given to the type of hypertension for which no cause can be found.

Wrong: 原因不明的高血压称为重要高血压。

Correct: 原因不明的高血压称为原发性高血压。

(3) In such cases heart murmur is often present.

Wrong: 在这类病例中, 常有心脏的低沉声。

Correct: 这类病例常有心脏杂音。

(4) Abnormal modes may be hard, soft or even fluctuant; tender or not; discrete or matted.

Wrong: 异常的淋巴结可硬可软, 有些甚至是活动的; 可嫩可老; 有些是分散的, 有些则缠结在一起。

Correct: 异常的淋巴结可硬可软, 有些甚至是活动的; 有压痛或无压痛; 有些是分散的, 有些则缠结在一起。

(5) Asthma is not a disease entity but one form of clinical presentation of a variety of disorders of the bronchi.

哮喘不是一个病种, 而是各种支气管疾患的一个临床表现。

(6) Cloudy urine is not always necessarily pathological .

尿液浑浊并不一定是病理性的。

(7) The spleen is a solid organ about the same size as the kidney.

脾为大小与肾相似的实质性器官。

(8) The method of making cultures of tissues gives the possibility to observe the formation and development of the living cells.

如采用制作组织培养的方法, 就有可能观察活细胞的形成和发展。

The special meanings of common words in medical context as mentioned above can be fixed, so it is relatively easier to understand and translate compared with those which are not used in a fixed way, and therefore make a higher demand of the professional knowledge from the translator. In this case, the translator would necessarily employ the technique of “extension”. We mean extending by clarifying and specifying from the perspective of medicine-specific knowledge, so as to make it accurate and cohesive to medical style. Look at the following examples:

(9) There is less embarrassment of physiologic functions, which benefits the patient’s recovery.

Wrong: 生理功能的尴尬较少, 这有助于病人恢复健康。

Correct: 生理功能损害较少, 这有助于病人恢复健康。

(10) These patients may recover completely in four or five days, the lung clearing up very rapidly.

Wrong: 这些病人可能四、五天就会痊愈, 肺部会被迅速清理干净。

Correct: 这些病人可能四、五天就会痊愈, 肺部症状很快就会消失。

(11) The abdomen is silent when ileus becomes adynamic, which occurs when peritonitis is superimposed or when large segments of bowels are infracted.

Wrong: 肠梗阻失去活性时，腹部就安静了。这种情况在并发腹膜炎或大肠梗阻时才发生。

Correct: 肠梗阻成为麻痹性时，肠鸣音消失。这种情况在并发腹膜炎或大肠梗阻时才发生。

It is clearly seen from the above discussions that to achieve accuracy in medical translation can be challenging in the way that there are many medicine-related common words. The principle for translation of these common words is being faithful to medical content and cohesive to medical style and this requirement can only be met by those translators who are facilitated with considerable knowledge of medicine to convey the medical message in its best way.

Fixed Medical Collocations

It goes without saying that words rarely occur on their own; instead they often occur in the company of other words. Translators of medical English may feel confused about collocations in the medical texts for the reason:

> Some collocations may seem untypical in everyday language but are common in specific register… Register-specific collocations are not simply the set of terms that go with a discipline. They extend far beyond the list of terms that one normally finds in specialized dictionaries and glossaries… What a word means often depends on its association with certain collocates… (Baker, 2000, p. 52)

When translating these collocations, translators should follow conventionality and standardization as the principle. Convention means "conformity and expectation, and when people use words they can normally be expected to use them in the same sense as other people do" (Kussmual, 1997, p. 67). Only a conventional expression can be accepted as a standardized one. Look at the following examples:

Table 1

Common English Words in Different Collocations and Their Different Chinese Equivalents

General anesthesia 全身麻醉	Open heart surgery 心脏直视术
General hospital 全科医院	Open reduction 切开复位术
General peritonitis 弥漫性腹膜炎	Open tuberculosis 传染性结核
General practitioner 全科医师	Open bowels 大便通畅
General check-up 全身检查	Open lesion 开放性伤口 Open treatment 开放性治疗

Common words "general" and "open" collocating with different words have different connotation in medicine; therefore, different Chinese equivalents should be given correspondingly.

Medicine discussed in this paper is western medicine and any medical concept expressed in Chinese must already have its established and standard English origin. Chinese-English translation makes even higher demands on the translator in the way that it requires more familiarity with both the medical and linguistic knowledge than do single words. The translator has to be up to date and seeks to data banks, medical experts, latest editions of medical literature, and reference books so as to make a conventional or standardized translation which can be internationally accepted by the medical community (WANG, 2014).

For a standardized medical word, when it is used as such there should be only one correct equivalent and it is completely synonym free provided it is used in the same situations. "恶性肿瘤" equals to "malignant tumor", in

which the word “malignant” means tending to produce death or deterioration; “恶性贫血” is translated as “pernicious anemia”, where “pernicious” means highly injurious or destructive; “恶性循环” is “vicious circle”; and “恶性疟疾” should be understood in English as “subtertian malaria”, since in medical English, “tertian” means recurring at approximately 48-hour intervals in the vivax malaria and “subtertian” is used to indicate a more severe malaria with an interval less than 48 hours.

While it is indeed true that some sub-medical words in medical texts are not synonym-free, and selecting among synonyms is never “free”. Wrong choices for these synonyms would contribute to loss of meaning to greater or lesser degree. Cite a group of phrases as additional examples: “全食”, “全血”, “全适供应者”, and “全子宫切除术”, whose English equivalents are “full diet”, “whole blood”, “universal donor”, and “total hysterectomy” respectively. Take another group for example, “止血”, “止咳”, “止痛”, and “止痛药”, all of which have established choices as “arrest bleeding”, “soothe cough”, “relieve pain”, and “pain killer”.

More examples include “心脏骤停” should be translated as “cardiac arrest” but not “cardiac stop”; “联合治疗” as “combined therapy” but not “joined therapy”, while “联合终点” as “composite end points” but not “combined end points”; “易感因素” and “易感基因” as “predisposing factor” and “predisposing gene” but not “susceptible factor” and “susceptible gene”, while “易感人群” as “susceptible group” but not “predisposing group”; “假实验组” as “sham experimental group” but not “false experimental group”.

Conclusion

Medical English text distinguishes itself by the massive use of medical words with special features. The present paper gives a comprehensive analysis of lexical features in medical English, and discusses the influence of these features on translation, both from English into Chinese or vice versa. The analysis shows that translation of medical words require both medical and linguistic knowledge to make the target language accurate in medical content, cohesive to medical style, and standard or conventional for medical pragmatics.

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