TWO GREEK SUFFIXES AND THEIR PRODUCTIVITY IN ENGLISH MEDICAL TERMINOLOGY

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Abstract: *New concepts need new terms that define them. However, in the case of medical language, the formation of many new terms still relies on Greek and Latin roots and affixes which entered English in the last century. Most of such roots and affixes are still productive in the coinage of new terms. Two such Greek suffixes are -tomy and -plasty which combine with different roots in order to build new terms for the emerging new concepts. This study is based on a corpus of medical articles belonging to the field of orthopaedic surgery. All articles were selected from different issues of the same journal. This paper records and studies the medical terms which combine with the aforementioned suffixes in the investigated corpus.*

Keywords: *corpus study, medical articles, medical English, suffixes, terminology*

Introduction

According to Papoulas and Douvetzemis, contemporary medical science comprises more than 90% of Greek, Latin or Greco-Latin origin. It is also a well known fact that many English medical terms were transferred from Greek or Latin with no or very little changes and adaptations. As such, the knowledge of Greek and Latin roots is an invaluable aid in decoding English medical terminology.

The purpose of this study was to identify words suffixed with the two Greek prefixes *-tomy* and *-plasty* in a corpus of medical articles in order to prove their productivity and to explain the meaning of some. In terms of etymology, *-tomy* has its root in *tomē*, meaning incision, while *-plasty* is derived from *plastos* to mean formed, shaped, molding or shaping of a defect to restore form and function to a body part.

Corpus study

All original articles of the twelve issues of International Orthopaedics Volume 37, January-December 2013 were included. However, other types of articles such as letters to the editor, replies to comments, review

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articles, or orthopaedic heritage articles were excluded from the study. The corpus totalled 296 articles which were processed manually in order to identify the suffixed words under investigation. Duplicates were removed from the results.

The study of the corpus revealed 43 words suffixed with the Greek suffix *-tomy*, and 28 suffixed with *-plasty*. Among the findings, roots combining with *-ectomy* are also listed. What needs to be mentioned here is that *-ectomy* means *surgical removal* and is derived from the Greek *-ektomia* to mean *a cutting out of,* that is, *removal* in fact. Since such a removal implies a cut, an incision, these words were also included in the results. The identified words are listed alphabetically below.

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adenotonsillectomy
anosteotomy
arthrotomy
bunionectomy
bursectomy
capsulectomy
capsulotomy
cheilectomy
corpectomy
cystotomy
discectomy
facetectomy
faciotomy
fascectomy
fasciotomy
fibulectomy
foraminotomy
hemipelvectomy
hysterectomy
laminectomy
laminotomy
laparotomy
meniscectomy
microfasciotomy
microtenotomy
neurotomy
osteotomy
ovariectomy
parathyroidectomy
patellectomy
postlaminectomy
prostatectomy
resynovectomy
re-tenotomy
S-corticotomy
semivertebrectomy
sequestrectomy
splenectomy
spondylectomy
synovectomy
synovialectomy
tenotomy
tonsillectomy

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acetabuloplasty
acromioplasty
angioplasty
arthroplasty
calcaneoplasty
cementoplasty
chondroplasty
gastroplasty
hemiarthroplasty
kyphoplasty
laminoplasty
mosaicplasty
notchplasty
osteochondroplasty
osteoplasty
otoplasty
patelloplasty
pharyngoplasty
quadriceplasty
quadricepsplasty
rotationplasty
sacroplasty
semiarthroplasty
spongiosaplasty
tibioplasty
trochleoplasty
vertebroplasty
wallplasty

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Discussions

What is interesting about the findings of the corpus is that five roots combine with both of the suffixes, namely, *arthr(o)-*, *lamin(o)-*, *oste(o)-*, *patell(o)-*, *vertebr(o)-*. Of these, *vertebr(o)-* was found prefixed with *semi-*, namely *semivertebrectomy*, *lamin(o)-* was suffixed with both *-ectomy* and *-otomy*, that is, *laminectomy* and *laminotomy*. These two latter terms naturally refer to two distinct procedures. *Laminectomy* is a surgical procedure that creates a space by removing the lamina, the part of the neural arch of a vertebra, more precisely the part of the vertebra which covers the spinal canal. Such a procedure is performed in order to relieve pressure on the spinal cord and nerves, pressure which is frequently due to bony overgrowths within the spinal canal as a result of spine arthritis. On the other hand, *laminotomy* is meant to relieve a compressed nerve in the back of the spinal cord, compression which may be the result of different spine conditions such as stenosis, the narrowing of the spinal canal.

Arthrotomy, derived from the Greek *arthron* for joint, refers to cutting into a joint, a procedure which is performed for various reasons. However, an *arthrotomy* is usually carried out to address a problem inside the joint or an issue with one or more of the bones which articulate at the joint, sometimes even for an amputation. In contrast, *arthroplasty* refers to a surgery to relieve pain and restore range of motion by realigning or reconstructing a joint. This can be a necessity when there is some stiffness in a painful joint as a result of osteoarthritis or rheumatoid arthritis.

Osteotomy is a surgical operation in which a bone is divided or a piece of bone is excised, often performed in order to correct a deformity, or to relieve symptoms of certain diseases, while *osteoplasty* is a plastic surgery on a bone frequently performed to replace lost bone tissue or to reconstruct defective bony parts.

According to Gunal and Karatosun, *patellectomy* is the partial or total surgical removal of the patella, known as kneecap in common English. It may be performed for reasons such as comminuted fractures, dislocated patella, because degenerative arthritis of the patella causes excruciating pain, infections and even in tumoral conditions. *Patelloplasty*, the resurfacing or revision of the patella in knee replacement surgery, becomes a choice when the patella is deficient and has poor bone quality, when there are mobility problems in the movement of the patella over the knee joint, or when there are calcifications or osteophytes which have to be removed.

Vertebrectomy refers to the removal of the vertebral body, the major part of the cervical vertebra. Reasons may include the need to relieve the pressure on

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nerves or the spinal cord, pressure which typically occurs in spine degeneration, or as a result of tumours or spinal fractures. The purpose of *vertebroplasty*, a minimally invasive surgical procedure, is to stabilise a spinal fracture and to relieve the pain that the fracture causes. Other reasons may include disorders such as tumours, lesions, osteoporosis, vertebral compression, and excruciating pain. As far as the term *semivertebrectomy* is concerned, I performed a search on the website of the International Orthopaedics Journal but the search returned only one result, namely, the article in which the term was initially identified. What needs to be mentioned is the fact that the article was authored by non-native speakers of English, namely Chinese surgeons. Nonetheless, based on the similarity of the two prefixes *semi-* and *hemi-*, both meaning half, I performed another search within the issues of the same journal, this time, the search returned two results with the term *hemivertebrectomy*, an article written by German researchers, and one by a team of Austrian surgeons.

Since both *faciotomy* and *fasciotomy* were encountered in the corpus, I wanted to investigate the difference between them. A search performed for the term *faciotomy* within the volumes of the International Orthopaedics returned only two results, one of them was the article in which the term was identified, while the second one was an article published in French language in 1981, the word only appearing in the reference section. This obviously led me to consider that, in fact, the correct term would be *fasciotomy*, the search for which returned 41 results on International Orthopaedics, and 1939 on Pubmed[1]. According to a 2009 article by Dente et al., *fasciotomy* means surgical incision or splitting of the fascia in order to relieve a compartment syndrome.

Similarly, *quadriceplasty* was identified in only two articles in the database of the journal under investigation, while *quadricepsplasty* was found in 11 articles of the same journal, which leads us to believe that *quadricepsplasty* is the term used for a corrective surgical procedure carried out on the quadriceps femoris muscle and tendon in order to release adhesions and improve mobility.

Another pair of terms in the findings which posed some suspicion was *hemiarthroplasty* and *semiarthroplasty*, the search for the latter term returning only one result, while the search for *hemiarthroplasty* returned 175 results within the journal. This clearly implies that the author mistakenly used *semiarthroplasty* to mean *hemiarthroplasty*.

[1] http://www.ncbi.nlm.nih.gov/pubmed/?term=fasciotomy

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Conclusion

The purpose of this study was to identify words suffixed with the two Greek suffixes *-tomy* and *-plasty* in a corpus of articles taken from one particular journal, namely the International Orthopaedics, and to investigate the productivity of the aforementioned suffixes. Not all of the identified suffixed words belong to the field of orthopaedic surgery, in fact, a number of them are not related to the field at all, for example *tonsillectomy*, *prostatectomy*, or *parathyroidectomy*. If they were identified in the corpus, references to them were made to describe the conditions and history of some patients.

On the other hand, the two suffixes are still productive today because the new procedures in the field need to be described, which leads to the formation of new words. One such case is that of the term *mosaicplasty*, synonymous with *osteochondral autografting*, the first occurrence in the journal dating from 2006.

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