NOMENCLATURAL SIGNIFICANCE OF
-IASIS, -OSIS, AND -ITIS AS SUFFIXES
IN NAMING DISEASES

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The Greeks named many diseases, frequently by use of three suffixes, -iasis, -ōsis, and -itis, added to suitable stems of verbs or nouns. These Greek precedents have commonly been followed to the present in the nomenclature of disease. Furthermore, there are, in the literature of microbiology, numerous examples of names of microorganisms (particularly specific epithets) derived from the name of the related disease. Some uncertainty has been expressed as to the formation of the genitives of words formed by the use of the three suffixes due to the fact that each has the ending -is in the nominative; the first two have as the genitive -iasis and -ōsis, respectively (same as the nominative), but the third -itis has as the genitive -itidis. One finds Mycobacterium tuberculosis, but Salmonella enteritidis. A brief review of the origin, meanings, and uses of these suffixes seems desirable.

The Greek Suffix - ιασις = -iasis

Buck and Petersen, in their "Reverse Index of Greek Nouns and Adjectives" list about 4350 Greek words with the termination - σις = -sis. Almost all are feminine nouns. Of these about 130 have the ending - ιασις = -iasis. The Greeks derived these nouns frequently from verbs having the meaning "to suffer from a disease." Some examples may be given.

λιθιάω = lithiaō to suffer from the stone;
λιθίασις = lithiasis the disease of the stone
(urinary calculus).
δυσουρίαω = dysuriaō to have retention of urine;
δυσουρίασις = dysuriasis dysuria
ἐλεφαντιάω = elephantiaō to suffer from elephantiasis.
ἐλεφαντίασις = elephantiasis.

Transliteration of some others of the Greek names of diseases will show the character of this use.

crithiasis a mange of the horse.
alopeciasis fox mange.
thriciasis a shivering.
heliasis sunstroke.
bulimiasis suffering from ravenous hunger.
scotodiniasis dizziness, vertigo.
nyctalopiasis night blindness.
hydropiasis dropsy.
mydriasis enlargement of the pupil of the eye.
hyderiasis dropsy.
scleriasis an induration of the eyelid.
phthiriasis lousiness, pediculosis.
siriasis sunstroke.
stenocoriasis contraction of the pupil of the eye.
satyriasis satyriasis, priapism.
pityriasis scurf.
ochriasis a turning pale, paleness.
poriasis a callus on the eye.
psoriasis itch or scab.
nausiasis qualmishness.
celephasias leprosy.
gomphasias toothache.

In general, it is clear that when used as an ending for the name of a disease -iasis means "a disease characterized by the presence of." The diagnostic feature may be the symptoms of the disease (alopeciasis, thriciasis), the parasite present (phthiriasis), a lesion of pathological change characteristic of the disease (poriasis).

Appropriately the suffix -iasis is added to Greek stems. Many names of diseases have been formed by adding this ending to the stem of the generic name of the causal organism. However, such names may be of Latin origin. There is now ample precedent for naming diseases by use of -iasis with Latin or modern Latin stems, as filariasis from filaria.

Names of diseases ending in -iasis when used in specific epithets are feminine nouns, to be placed in the genitive. They are in the third declension.

$\psi\omega\rho\iota\alpha\sigma\iota\varsigma, \epsilon\omega\varsigma = \text{psoriasis, e\ddot{o}s.}$

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When transliterated into Latin form, these names are placed in the corresponding Latin declension, as psoriasis, -is. The genitive and nominative forms are the same. Should one describe a new species of Mycobacterium associated with leprosy, it might appropriately be termed Mycobacterium celephiasis (the Mycobacterium of leprosy).

The Greek suffix - ωσις = -ōsis.

About 900 of the Greek words which end in -sis (more than 4300 in all) have the termination - ωσις = -ōsis. They are feminine nouns. Here again, the Greeks sometimes derived these nouns from verbs having some connotation relating to disease. As examples:

συριγγόω = syringoō to grow hollow, to end in a fistula;
συριγγωσις, εως = syringosis, -is, the formation of a fistula.

χαλαζάω = chalazaō to have pimples or tubercles;
χαλαζωσις, εως = chalazosis, -is tuberculousness, tuberculosis?

νάρκαω = narcaō to become numb;
νάρκωσις, εως = narcosis, -is, a benumbing.

Other transliterations of similar Greek names of disease will illustrate.

thrombosis a becoming curdled.
phalangosis ingrowing eyelashes.
phlogosis burning heat, inflammation.
rhytidosis a wrinkling, contraction.
lithosis hardening, a turning to stone.
peliosis a livid spot.
heliosis exposure to sun.
poliosis a becoming gray
theriosis a turning into a beast.
stranguriosis strangury, difficulty in urination.
nausiosis a vomiting.
rhacosis a becoming wrinkled.
anthracosis a malignant ulcer (eye).

leucosis a white spot (cataract) in the eye.

glaucomosis blindness from glaucoma.

syrcosis ulcer (like over-ripe fig) of the eyelid.

When used as an ending for the name of an abnormality or disease, -ōsis means "characterized by the presence of," not differing essentially in meaning from that given by the suffix -iasis. In fact, the Greeks in a few cases used both endings. The something present may be a symptom, a lesion, an associated parasite, or some other characteristic.

While more appropriately added to the stems of Greek words, the ending -ōsis has frequently been used in the formation of names of diseases by addition to Latin or modern Latin stems, as in tuberculosis, brucellosis, listeriosis, and sarcinosis.

The Latin genitive of the name of a disease ends (as the nominative) in -ōsis, as in Mycobacterium tuberculosis (the Mycobacterium of tuberculosis).

The Greek Suffix - ιτις = -itis

In the Greek there are about 2400 words (nouns and adjectives) having the ending -ις, -ιδος = -is, -idis. Of these about 300 have the ending -ιτις, -ιτιδος = -itis, -itidis. Many of these are feminine adjectives. Among these are some derived from the names of parts of the body, and used to modify the feminine noun νόσος = nosus sickness or disease. For example, νόσος νεφριτις = nosus nephritis, disease of the kidneys, from νεφρός = nephrus kidney. Generally, in referring to diseases the noun nosus was omitted, and the adjective was treated as a noun and as the name of the disease. As stated by Buck and Petersen:

"An excursive group of this type consists of names of diseases in -itis, productive in international medical nomenclature even at the present time."

As stated in Dorland's Medical Dictionary:

"The feminine form, -itis, is so often associated with inflammatory disease, that it has acquired in most cases the significance of inflammation."

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Some examples from the Greek:

φρήν = phren mind;
φρενίτις , - ιδος = phrenitis, -itidis
inflammation of the brain, phrenitis.

ἄρθρον = arthrum a joint;
αρθρίτις , - ιδος = arthritis, -itidis gout, arthritis.

ἥπαρ , ἥπατος = hepar, hepatis the liver;
ἥπατιτις , - ιδος = hepatitis, -itidis of or in the
liver, hepatitis.

Among the many other names of diseases taken directly from similar Greek adjectives are:

sphagitis, -itidis sore throat.
syringitis, itidis inflammation of the Eustachean tube.
splenitis, itidis inflammation of the spleen.
blepharitis, itidis inflammation of the eyelids.
pleuritis, itidis pleurisy.
nephritis, itidis nephritis.

In forming names of diseases from names of organs or tissues, the ending -itis has come to be added not only to Greek stems (as in gastritis, stomatitis) but to Latin stems as well (appendicitis, sinusitis, gingivitis).

Names of diseases in modern Latin ending in -itis are feminine nouns and have as the genitive ending -itidis.

SUMMARY

Names of diseases with the suffix -iasis are modern Latin feminine nouns with the genitive ending also -iasis.

Those with the suffix -ōsis are also modern Latin feminine nouns with the genitive ending -ōsis.

Those with the suffix -itis are modern Latin feminine nouns with the genitive ending -itidis.

These endings, while more correctly used with Greek stems, are commonly added also to Latin and to modern Latin stems.