

Letter to the Editor

Intratracheal stent: prosthesis or orthosis?

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Dear Editor:

In recent years, in our outpatient treatment of tracheal diseases, we have observed an increase in the number of patients presenting long stenoses or other clinical conditions that preclude their becoming candidates for surgery. The silicone T-tube stent and other intratracheal devices, made of silicone or of metal alloy (self-expanding stents), have been designed in order to meet the treatment needs of this population of patients. With this increased demand, physician experience with the use of these devices has also increased, as has, consequently, the number of questions regarding the various models, as well as regarding when and how they should be used. Despite this intellectual effervescence, there is little data on this theme in the Brazilian literature. We have noted that basic questions, such as the terminology involved, have yet to be resolved. In English, such devices are referred to as 'protheses' or 'stents'. However, in Portuguese, there is some disagreement among specialists regarding the correct designation, the question being whether they should be referred to as próteses (protheses) or órteses (orthoses).

During our quest to find the most appropriate term, we came across the highly interesting work of Joffre Rezende, Professor Emeritus at the Federal University of Goiás and author of the book entitled *Linguagem Médica (Medical Language)*.⁽¹⁾ We found that this same uncertainty also afflicts other specialties, and Prof. Rezende has written on this theme. Here is an excerpt:

"Prothesis' (rarely used in English) and 'prosthesis', both words of greek origin, have a common root, *thésis*, from the verb *títhemi*, meaning to place or add to. They differ in their prefixes: 'pro-' and 'pros-'. The prefix 'pro-' has the sense of 'ahead of' or 'before', whereas 'pros-' gives the idea of 'join to', 'over' or 'next'. In classic Greek, the terms *próthesis* and *prósthesis* also existed in their full forms, *próthesis* having the connotation of 'placement ahead of' or 'being in front of' and *prósthesis* having that of 'increase', 'addition'. The semantic difference between the form with the prefix 'pro-' and that with the prefix 'pros-' is lost in translations to modern languages, in which both become variants of the same word.

Among the modern languages, French was the first in which the 'pro-' prefix form was employed (in 1695). From the French, this form was transferred to the other neo-Latin languages and was adapted in accordance with the norms of each.

The word 'orthosis', despite its similarity to 'prothesis', has a very different etymology. Orthosis comes from the Greek word *orthósis*, which in turn comes from the marriage of *orthós*, meaning 'erect' or 'straight', and the suffix '-sis', which expresses action, state or quality. *Orthósis*, therefore, is the act of straightening, making erect or rectifying.

In French, the orthographic shift from an 'o' to an 'e' in the middle syllable occurred arbitrarily as of 1975, without any apparent motivation. This change spread from French to other languages. In Portuguese, the tonic accent was moved to the first syllable, resulting in the spelling 'órtese'. It is likely

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that the substitution of 'orthèse' for 'orthose' in French was made due to the analogy with 'prothèse'.⁽²⁾

It remains unclear whether or not tracheal devices should be considered prostheses, since they do not take the place of the trachea. However, the term 'orthesis' also seems inappropriate, since the objective of using such devices is not exactly to straighten the trachea. We decided to consult Prof. Rezende personally regarding this question, and he provided the following explanation:

"The great confusion arises from an incorrect interpretation of the true meaning of orthosis. The best Portuguese-language dictionaries, such as the Aurélio, the Houaiss⁽³⁾ and the Luis Rey Dictionary of Medical Terms,⁽⁴⁾ list only the term ortose (orthosis); none of them include the term órtese (orthesis). In the paradigm of medical dictionaries in English, Dorland's,⁽⁵⁾ only 'orthosis' appears. All of the lexicons define 'orthosis', from its origin and in all languages, as a term used in orthopedics to designate any external device designed to correct deformities (congenital or acquired) or to compensate for difficulties in holding oneself erect. Such devices would include splints, braces, crutches, orthopedic chairs, etc.

Initially, the term 'prosthesis' was used exclusively to describe the replacement of an organ or part of an organ with an artificial substitute. Technological advances in the field of medicine led to new options for the correction of anatomical defects or functional deficiencies. These options involve the use of special devices that do not fit the original definition of either prostheses or orthoses (orthoses). A new term must be coined to describe this third wave of devices.

However, there is a phenomenon that occurs in all languages, that of semantic extension, according to which a word, once incorporated into the language, takes on greater significance or acquires a new meaning without necessarily excluding the previous sense. This is the case for the Portuguese term prótese (prosthesis). In the Aurélio, there now appear two distinct definitions: 1) Surg. Artificial substitute for an organ or part of an organ; 2) Any appliance that facilitates or increases a natural function.

It is patently false to state that there is a dichotomy between prosthesis and orthosis, which gives the wrong idea that whatever is not a prosthesis must be an orthosis. In summary, it is my understanding that cannulas, tubes, molds and stents, as well as other devices designed to improve or correct a functional deficit, should be considered prostheses, never being referred to as 'orthoses'."

However, we conclude that all intratracheal devices used to maintain the tracheal lumen open (T-tube stents, silicone prostheses or metal alloy self-expanding stents) should be referred to, generically, as 'tracheal prostheses'.

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