Anatomical terminology of the internal nose and paranasal sinuses: cross-cultural adaptation to Portuguese

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Introduction: Functional endonasal endoscopic surgery is a frequent surgical procedure among otorhinolaryngologists. In 2014, the European Society of Rhinology published the "European Position Paper on the Anatomical Terminology of the Internal Nose and Paranasal Sinuses", aiming to unify the terms in the English language. We do not yet have a unified terminology in the Portuguese language.

Objective: Transcultural adaptation of the anatomical terms of the nose and paranasal cavities of the "European Anatomical Terminology of the Internal Nose and Paranasal Sinuses" to Portuguese.

Methods: A group of rhinologists from diverse parts of Brazil, all experienced in endoscopic endonasal surgery, was invited to participate in the creation of this position paper on the anatomical terms of the nose and paranasal sinuses in the Portuguese language according to the methodology adapted from that previously described by Rudmik and Smith.

Results: The results of this document were generated based on the agreement of the majority of the participants according to the most popular suggestions among the rhinologists. A cultural adaptation of the sinonasal anatomical terminology was consolidated. We suggest the terms "inferior turbinate", "nasal septum", "(bone/cartilaginous) part of the nasal septum", "(middle/inferior) nasal meatus", "frontal sinus drainage pathway", "frontal recess" and "uncinate process" be standardized.

Conclusion: We have consolidated a Portuguese version of the European Anatomical Terminology of the Internal Nose and Paranasal Sinuses, which will help in the publication of technical announcements, scientific publications and the teaching of the internal anatomical terms of the nose and paranasal sinuses in Brazil.

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Introduction

Endoscopic surgery and sinonasal computed tomography stimulated rhinology in the early 1980s into the revival of research in the fields of anatomy and physiology of the nose and paranasal sinuses. In 1994, the International Conference on Sinus Disease took place aiming to describe the newly identified structures in detail, since Anatomical Terminology had few descriptors of the sinonasal anatomy. In 2014, the European Society of Rhinology published the "European Position Paper on the Anatomical Terminology of the Internal Nose and Paranasal Sinuses" to unify the sinonasal anatomical terminology through the review of anatomical terms and analysis of the official "Anatomical Terminology". They sought to respect the embryological development of structures, avoid terminology in Latin, remove eponyms, and simplify the anatomical terms.

Lund et al. summarized in the English language all structures that could be found during a routine sinonasal endoscopic surgery. At that time, there were several publications on clinical anatomy and much discussion about the exact names and definitions for structures of surgical relevance.

It is clearly necessary to unify this terminology in all other languages and, that in the process of cross-cultural adaptation, the defined terms find correspondence in English. This publication in other languages would facilitate technical information, scientific publications and the teaching of the internal anatomical terms of the nose and paranasal cavities.

The purpose of this study is the cross-cultural adaptation of the anatomical terms of the nose and paranasal cavities to the Portuguese language of the European Anatomical Terminology of the Internal Nose and Paranasal Sinuses and the proposition of a Sinonasal Anatomical Terminology in Portuguese.

Methods

This is a prospective study of cross-cultural adaptation, carried out in Brazil, from 2015 to 2016. Forty-four acknowledged rhinologists from all over Brazil were invited to participate (Fig. 1). We followed an adapted version of the method used by Rudnik and Smith. The entire study process was carried out at distance with the aid of a platform, which allowed the unification and analysis of the results.

Inclusion criteria for the group of rhinologists

- Voluntary interest in participating in the study;
- Otorhinolaryngologists with proven experience in sinonasal endoscopic surgery through publications on the subject and/or working in referral centers in rhinology.

Exclusion criteria for the group of rhinologists

- No interest in participating after the invitation;
- No experience in sinonasal endoscopic surgery through publications on the subject and/or not working in referral centers in rhinology.

Phase 1. Term suggestion phase

The final list of the 126 terms of Supplement 24 (1) was divided into 8 blocks (Table 1) and each block was randomly assigned to a group of 4–5 authors. All authors received a copy of the original supplement by e-mail and were invited to suggest three or more known terms in Portuguese for each English term of the block assigned to them. All authors were also encouraged to suggest more terms for other blocks.
Phase 2. Iterative assessment

The most often suggested terms were reviewed by the authors under the supervision of authors with experience in anatomy (G.J. and H.Z.L.). A final list was created with up to three most relevant terms for each term.

Phase 3. Final voting

An electronic survey was sent to each rhinologist through an online platform. The survey included multiple-choice options for each of the 126 terms, divided into the same eight previously defined blocks. All the rhinologists could choose only one term option in Portuguese for each term in English. The most voted term in Portuguese was chosen for each term in English. In cases of tie votes or when there was divergence of names for similar structures, these were discussed and decided by consensus.

Phase 4. Writing of this article

A summarized list of terms in Portuguese was created together with this article for final approval by the authors.

Results

All of the rhinologists accepted the invitation to participate. The final list of terms that were suggested and the voting frequency of the three terms voted on later are shown in Table 1. The proposed terms are underlined.

Discussion

This study proposes a unified sinonasal anatomical terminology through the process of cross-cultural adaptation of the anatomical terms defined for the English language related to the nose and the paranasal cavities. The presence of researchers with experience in anatomical terms (G.J. and H.Z.L.) was important for the project adequacy.

The history of controversy regarding sinonasal anatomical terminology has existed for many years and can be exemplified by the use of the term infundibulum and semilunar hiatus to designate several lateral wall structures to the point that the abandonment of this terminology has been suggested in the past. In this terminology, we propose the use of terms that help to differentiate the anatomical structures so that eponyms are not utilized. We believe this favors the learning and the correct naming of the structures.

The vast majority of the results, as chosen by the rhinologists invited to participate in the study, were maintained. However, the results for some of the terms had to be better discussed to result in a uniform terminology for structures with similar names and a nomenclature adequacy with focus on surgical practice.

The nasal septum is a structure commonly divided into two parts, called bony and membranous parts. The uniformization of the term proposed by most authors for the membranous portion (of the nasal septum) was "Membranous part of the nasal septum", by 53.7% [22/41]. On the other hand, despite the most often suggested term for "bony septum" [Anatomic terminology (AT): "pars osses septi nasii"] was "Bony Nasal Septum", by 48.8% [20/41], we suggested the term "Bony part of the nasal septum" (34.1% [14/41]) to maintain uniformity in relation to the "membranous part of the nasal septum".

We also suggested that for the term "inferior turbinate" (AT: concha nasalis inferior), the term "concha inferior" should be chosen (concha inferior 39% [16/41] vs. concha nasal inferior, 61% [25/41]). This term is most frequently used and will maintain the standardization in relation to the related structures: "Middle turbinate" [51.2% (21/41)], "Basal Lamella of Middle Turbinate" [53.7% (22/41)] "Superior turbinate" [48.8% (20/41)] and "Supreme nasal turbinate" [48.8% (20/41)].

"Nasal meatus" was also chosen instead of the term "meatus", since there are other anatomical structures
| Suggested term (EPOS) | Terminologia Anatómica | 3 Termos mais sugeridos por ordem de frequências e termo proposto (sublinhado) |
|-----------------------|-------------------------|---------------------------------------------------------------------|
| 'Nasal cavity'        | Cavitas nasi            | Cavidade nasal 82,9% (34/41)                                        |
| 'Nasal floor'         | n.e.                    | Assoalho da Cidade nasal 48,8% (20/41)                               |
| 'Nasal septum'        | Septum nasi             | Septo nasal 97,6% (40/41)                                            |
| 'Septal cartilage'    | Pars cartilagine (septi nasi) Cartilago septi nasi | Cartilagem septal 61% (25/41)                                        |
| 'Septal tubercle'     | n.a.                    | Tuberculoto septal 70,7% (25/41)                                     |
| 'Inferior turbinate'  | Concha nasi inferior    | Concha nasal Inferior 61% (25/41)                                   |
| 'Inferior meatus'     | Meatus nasi inferior    | Meato inferior 53,7% (22/41)                                         |
| 'Nasal turbinate'     | n.e.                    | Concha nasal paradoxal 61% (25/41)                                  |
| 'Concha bullosa (of middle turbinate)' | n.e.        | Concha média bolhosa 82,9% (34/41)                                 |
| 'Middle turbinate'    | Concha nasi media       | Concha nasal media 51,2% (24/41)                                    |
| 'Basal lamella of middle turbinate' | n.e.     | Lamela basal da concha 53,7% (22/41)                               |
| 'Interlamellar cell'  | n.e.                    | Célula interlamellar 78% (32/41)                                    |
| 'Middle meatus'       | Meatus nasi medius      | Meato médio 48,8% (24/41)                                           |
| 'Ostioeatal complex'  | n.e.                    | Complexo óstio-meatal 85,4% (35/41)                                 |
| 'Superior turbinate'  | Concha nasi superior    | Concha nasal superior 51,2% (21/41)                                 |
| 'Superior meatus'     | Meatus nasi superior    | Meato superior 48,8% (20/41)                                        |
| Suggested term (EPOS) | Terminologia Anatômica | 3 Termos mais sugeridos por ordem de frequências e termo proposto (sublinhado) |
|----------------------|-------------------------|--------------------------------------------------------------------------|
| "Supreme turbinate" | Concha nasi suprema | Concha nasal suprema 51,2% (21/41) | Concha suprema 48,8% (20/41) |
| "Paradoxical middle turbinate" | n.e. | Meato supremo nasal 48,8% (20/41) | Meato supremo 48,8% (20/41) |
| "Spheno-ethmoidal recess" | Recessus sphenethmoidalis | Recesso esfenentoetmoidal 73,2% (30/41) | Recesso esfeno-etoetmoidal 26,8% (11/41) |
| "Sphenopalatine foramen" | Foramen sphenopalatinum | Forame esfenopalatino 82,9% (34/41) | Forame da Artéria esfenopalatina 17,1% (7/41) |
| "Olfactory cleft" | Sulcus olfactorius | Fenda olfatória 70,7% (29/41) | Sulco olfatório 17,1% (7/41) |
| "Olfactoryibre(s)" | Fila olfactoria (Sing.: rum olfactorium) | Fibra(s) olfatoria(s) 48,8% (20/41) | Fibras do nervo olfatório 46,3% (19/41) |
| "Choana" | Choana (Plur.: choonae); Apertura nasal posterior | Coana (coananas) 97,6% (20/41) | Abertura nasal posterior 2,4% (1/41) |
| "Maxillary sinus" | Sinus maxillaris | Seio maxilar 95,1% (19/41) | Cavidade Paranasal Maxilar 4,9% (2/41) |
| "Maxillary sinus ostium" | n.e. | Óstio do Seio maxilar 70,7% (29/41) | Óstio natural do seio maxilar 29,3% (12/41) |
| "Accessory ostium" | n.e. | Óstio acessório do seio maxilar 87,8% (36/41) | Óstio supranumerário do seio maxilar 7,3% (3/41) |
| "Maxillary hiatus" | Hiatus maxillaris | Hiato maxilar 97,6% (40/41) | Tba 2,4% (1/41) |
| "Infraorbital canal" | Canalis infraorbitalis | Canal do nervo infraorbital 61% (25/41) | Canal infraorbital 39% (16/41) |
| "Zygomatic recess" | n.e. | Recesso zigomático 87,8% (36/41) | Recesso do osso zigomático 12,2% (5/41) |
| "Alveolar recess" | n.e. | Recesso alveolar 68,3% (28/41) | Processo alveolar 31,7% (13/41) |
| "Prelacrical recess" | n.e. | Recesso pré-lacrimal 100% (41/41) | |
| "Lacrimal eminence" | n.e. | Eminência lacrimal 58,5% (24/41) | Proeminência do osso lacrimal 41,5% (17/41) |
| "Canine fossa" | Fossa canina | Fossa canina 100% (41/41) | |
| "Anterior fontanelle" | n.e. | Fontanelha anterior 100% (41/41) | |
| "Posterior fontanelle" | n.e. | Fontanelha posterior 100% (41/41) | |
| "Maxillary artery" | Arteria maxillaris | Artéria maxilar 78% (32/41) | Artéria maxilar interna 22% (9/41) |
| "Ethmoidal complex" | Cellae ethmoidales | Células etmoidais 70,7% (29/41) | Complexo etmoidal 26,8% (11/41) |
| "t.b.a." | Cellae ethmoidales mediae | Células etmoidais medios 53,7% (22/41) | Lamelóide anterior 2,5% (1/41) |
| "Posterior ethmoidal cells" | Cellae ethmoidales posteriores | Células etmoidais posteriores 95,1% (39/41), substituído por Complexo | Etmoíde posterior 4,9% (2/41) |

Note: t.b.a. stands for “to be assigned.”
| Suggested term (EPOS) | Terminologia Anatómica | 3 Termos mais sugeridos por ordem de frequências e termo proposto (sublinhado) |
|-----------------------|------------------------|---------------------------------------------------------------|
| °Anterior ethmoidal artery’’ | Arteria ethmoidalis anterior | Arteria etmoidal anterior 100% (41/41)° |
| °Accessory ethmoidal artery’’ | n.e. | Arteria etmoidal acessória 58,5% (24/41)° |
| °Posterior ethmoidal artery’’ | Arteria ethmoidalis posterior | Arteria etmoidal posterior 100% (41/41)° |
| °Anterior ethmoidal complex’’ | Cellulae ethmoidales anteriores | Complexo etmoidal anterior 12,2% (5/41)° |
| °Agger nasi’’ | Agger nasi | Célula do Agger nasi 2,43% (1/41) |
| °Agger nasi cell’’ | n.e. (cellula ethmoidalis anterior) | Célula Agger Nasi 92,7% (38/41)° |
| °Uncinate process’’ | Processus uncinatus | Processo uncinado 78% (32/41)° |
| °Everted uncinate process’’ | n.e. | Processo uncinado evertido 78% (32/41)° |
| °Aerated uncinate process’’ | n.e. | Processo uncinado pneumatizado 80,5% (33/41)° |
| °Basal lamella of uncinate process’’ | n.e. | Lamela basal do processo uncinado 80,5% (33/41)° |
| °Inferior semilunar hiatus’’ | Hiatus semilunar | Hiato semilunar inferior 90,2% (37/41)° |
| °Superior semilunar hiatus’’ | n.e. | Hiato semilunar superior 85,4% (35/41)° |
| °Ethmoidal bulla’’ | Bulla ethmoidalis | Bólha etmoidal 7,3% (3/41) |
| °Basal lamella of ethmoidal bulla’’ | n.e. | Lamela basal da Bólha etmoidal 7,3% (3/41) |
| °Suprabullar recess’’ | n.e. | Recesso supra-bólhuso 4,9% (2/41) |
| °Retrobullar recess’’ | n.e. | Recesso retro-bólhuso 4,9% (2/41) |
| °Supraorbital recess’’ | n.e. | Recesso supra-orbitário 2,45% (1/41) |
| °Infraorbital cell’’ | n.e. | Célula infra-orbitária 2,4% (1/41) |
| °Ethmoidal infundibulum’’ | Infundibulum ethmoidale | Infundíbulo etmoidal 22% (9/41) |
| °Terminal recess’’ | n.e. | Recesso terminal 100% (41/41)° |
| °Frontal recess’’ | n.e. | Recesso frontal 97,6% (40/41)° |
| °t.b.a.’’ | Ductus nasofrontalis | Ducto nasofrontal 68,3% (28/41) |
| °Lacrimal bulge’’ | n.e. | A ser abandonado 41,5% (17/41) |
| °Ethmoidal crest’’ | Crista ethmoidalis | Crista etmoidal do osso palaiano 26,8% (11/41) |
| °Frontal sinus drainage pathway’’ | n.e. | Via da drenagem do Seio frontal 26,8% (11/41)° |
| Suggested term (EPOS) | Terminologia Anatômica | 3 Termos mais sugeridos por ordem de frequências e termo proposto (sublinhado) |
|-----------------------|-------------------------|--------------------------------------------------------------------------------|
| "Frontal sinus"       | Sinus frontalis         | Seio frontal 95,1% (39/41)                                                    |
| "Frontal intersinus septum" | Septum sinuum frontalis | Seio intersinus septum 92,7% (38/41)                                          |
| "Frontal sinus infundibulum" | n.e. | Infundíbulo do seio frontal 63,4% (26/41)                                      |
| "Frontoethmoidal cells" | Bullae frontales (sing.: bulla frontalis) | Células frontoethmoidais 97,6% (40/41)                                        |
| "Intersinus septal cell" | n.e. | Célula septal intersinus 63,4% (26/41)                                         |
| "a ser abandonado"    | n.e. | a ser abandonado 85,4% (35/41)                                                 |
| "Frontal sinus opening" | Apertura sinus frontalis | Óstio do Seio Frontal 48,8% (20/41)                                            |
| "Frontal beak"         | Spina frontalis (ossis frontalis) | Espina Frontal 41,5% (17/41)                                                  |
| "Posterior ethmoidal complex" | Cellulae ethmoidales posteriores | Células etmoidais posteriores 80,5% (33/41)                                   |
| "Sphenoethmoidal cell" | n.e. (cellula ethmoidalis posterior) | Célula eseno-etmoidal 48,8% (20/41)                                           |
| "Basal lamella of superior turbinate" | n.e. | Lamela basal da concha nasal superior 100% (41/41)                             |
| "Lamina papyracea"     | Lamina orbitalis ossis ethmoidalis | Lâmina papirácea da parede medial da órbita 87,8% (36/41)                    |
| "Orbital apex"         | n.e. | Âpice orbitário 100% (41/41)                                                   |
| "Annulus of Zinn"      | Annulus tendineus communis | Anel tendinoso comum 58,5% (24/41)                                            |
| "Ophthalmic artery"    | Arteria ophthalmica     | Artéria Oftálmica 100% (41/41)                                                |
| "Sphenoid sinus"       | Sinus sphenoidalis      | Seio Esfenoidal 97,6% (40/41)                                                 |
| "Sphenoid intersinus septum" | Septum sphenoidale | Septo interesfenoidal 56,1% (23/41)                                           |
| "Sphenoid septations"  | n.e. | Septos Intraesfenoidais 75,6% (31/41)                                          |
| "Sphenoid sinus ostium" | Ostium (apertura) sinus sphenoidalis | Óstio do seio esfenoidal 100% (41/41)                                         |
| "Planum sphenoidale"   | Jugum sphenoidale      | Plano esfenoidal 100% (41/41)                                                 |
| "Sellar loor"          | n.e. | Assoalho da sela türça 73,2% (30/41)                                           |
| "Pterygoid (Vidian) canal" | Canalis pterygoideus | Canal pterígóide 43,9% (18/41)                                                |
|                       |                       | Caverna paranasal 92,7% (3/41)                                                |
|                       |                       | Caverna frontal 2,45% (1/41)                                                  |
|                       |                       | Seio interfrontal 7,3% (3/41)                                                 |
|                       |                       | Infundíbulo frontal 7,3% (3/41)                                               |
|                       |                       | Célula intrafrontal 2,4% (1/41)                                               |
|                       |                       | Célula do seio sinusal 2,5% (1/41)                                            |
|                       |                       | Bula frontal 14,6% (6/41)                                                     |
|                       |                       | Abertura do Seio frontal 34,1% (14/41)                                        |
|                       |                       | Recesso frontal 17,1% (7/41)                                                  |
|                       |                       | Espinha nasal superior 24,4% (10/41)                                          |
|                       |                       | Complexo Etmoidal 9,8% (4/41)                                                 |
|                       |                       | Complexo Etmoidal 9,8% (4/41)                                                 |
|                       |                       | Célula de Onodi 43,9% (18/41)                                                 |
|                       |                       | Célula etmoidal posterior 7,3% (3/41)                                         |
| Suggested term (EPOS)          | Terminologia Anatómica | 3 Termos mais sugeridos por ordem de frequências e termo proposto (sublinhado) |
|--------------------------------|------------------------|------------------------------------------------------------------------------|
| "Foramen rotundum"            | Foramen rotundum       | Forame redondo 100% (41/41)                                                  |
| "Lateral recess of sphenoid sinus" | n.e.                  | Recesso lateral do seio esfenoidal 100% (41/41)                              |
| "Optic nerve tubercle"         | Tuberculum nervi optici | Tubérculo do nervo óptico 97,6% (40/41)                                      |
| "Optic nerve canal"            | Canalis opticus        | Canal do nervo óptico 100% (41/41)                                           |
| "Carotid artery bulge"         | n.e. Proeminência da artéria carótida | Proeminência da artéria carótida interna 2,4% (1/41)                         |
| "Optico-carotid recess"        | n.e.                   | Recesso óptico-carotídeo 100% (41/41)                                        |
| "Lateral craniofaryngeal (Sternberg s) canal" | n.e.                  | Canal lateral crânio-faríngeo 56,1% (23/41)                                  |
| "Sphenoid rostrum"            | Rostrum sphenoidale    | Rosto do seio esfenoidal 100% (41/41)                                        |
| "Vomerovaginal canal"          | Canalis                | Canal vomero-vaginal 97,6% (40/41)                                           |
| "Palatovaginal canal"          | Canalis palatovaginalis | Canal palato-vaginal 95,1% (39/41)                                           |
| "Anterior cranial fossa"       | Fossa cranii anterior  | Fossa craniana anterior 75,6% (31/41)                                       |
| "Olfactory fossa"              | n.e.                   | Fossa olfatória 70,7% (29/41)                                                |
| "Cribriform plate"             | Lamina cribrosa (ossis etmoidalis) | Lâmina cribriforme 53,7% (22/41)                                                   |
| "Cribriform foramina"          | Foramina cribrosa      | Forames cribriformes 58,5% (24/41)                                           |
| "Lateral lamella of cribiform plate" | n.e.                  | Lamella lateral da lâmina cribriforme 58,5% (24/1)                           |
| "Ethmoidal roof"               | n.e.                   | Teto do etmoidé 61% (25/41)                                                  |
| "Crista galli"                 | Crista galli           | Crista galli 95,1% (39/41)                                                   |
| "Pneumatized crista galli"     | n.e.                   | Crista galli pneumatizada 95,1% (39/41)                                      |
| "Foramen caecum"               | Foramen caecum         | Foramen cego 75,6% (31/41)                                                   |
| "Middle cranial fossa"         | Fossa cranii media     | Fossa craniana media 80,5% (33/41)                                           |
| "Sella (turcica)"              | Sella turcica          | Sela turcica 92,7% (38/41)                                                   |
| "Tuberculum sellae"            | Tuberculum sellae      | Tubérculo selar 65,9% (27/41)                                                |
| "Dorsum sellae"                | Dorsum sellae          | Dorso selar 58,5% (24/41)                                                    |
| "Anterior clinoid process"     | Processus clinodeus anterior (plur.: processus clinodei anteriores) | Processo clinóide anterior 92,7% (38/41)                                       |
| "Supraclinoíde process"        | Processus supraclinoide anterior (plur.: processus supraclinoidei anteriores) | Processo supraclinóide anterior 92,7% (38/41)                                       |
called "meatus" in other parts of the human body. Although this option received fewer votes, it would be the most appropriate one: "Inferior meatus" 53.7% (22/41) vs. "Inferior nasal meatus" 43.9% (18/41); "Middle meatus" 48.8% (20/41) vs. "Middle nasal meatus" 17.1% (7/41); Superior meatus 48.8% (20/41) vs. "Superior nasal meatus" 41.5% (17/41). Another recommended term that did not receive the most votes was "supreme nasal meatus" instead of "nasal supreme meatus". The most voted term, "nasal supreme meatus", suggests that meatus is above the nose.

The term "olfactory fiber(s)", 48.8% (20/41), although receiving the most votes, was also passed over for another term, because it is important to indicate that it is a "nerve" and to add the term "nerve". We chose to use "olfactory nerve fibers", 46.3% (19/41).

It was suggested that the site should be added to the term "accessory ostium", 87.8% (36/41), since there are other accessory ostia in the body, and the term "accessory ostium of maxillary sinus" was suggested.

Despite the diverse voting, it was proposed that the term "ethmoidal cells" be replaced by "complexo etmoidal" following the English term "ethmoidal complex". The "ethmoidal complex" would be subdivided into "anterior ethmoidal complex" and "posterior ethmoidal complex"; also diverging from the most voted terms: "anterior ethmoidal cells" and "posterior ethmoidal cells" for the same reason.

The term "frontal sinus drainage pathway" was also re-discussed consensually and we chose "Via da drenagem do Seio frontal" (26.8%; 11/41). Although it has been suggested that we use the term "frontal recess" (63.4%, 24/41) to designate this structure, the chosen term emphasizes that it is a different entity from the "frontal recess", the proposed term of which is "Recesso frontal" (97.6%; 40/41). Although controversial, the terms "frontal recess" and "frontal sinus drainage pathway" are generally distinct entities. The frontal recess is generally defined as the most anterosuperior part of the ethmoid, inferior to the sinus opening. Its use as a synonym of "frontal sinus drainage pathway" is not appropriate, since the drainage pathway of the frontal sinus through the frontal recess is a complex one, altered by the configuration of the air cells within it and by the different connections of the uncinate process.

It commonly includes the frontal recess, but is not constituted exclusively by it. Usually, the frontal recess is posteriorly delimited by the anterior wall of the ethmoid bulla (if that is fixed at the base of the skull), anteroinferiorly by the agger nasi, laterally by the lamina papryacea and inferiorly by the terminal recess of the ethmoid infundibulum, if present. The term "ducto nasofrontalis" (from the anatomical terminology, "Ductus nasofrontalis") was abandoned because the frontal sinus drainage pathway is not a true duct. The term "maxillary crest" (from the term "Lacrimal bulbige" in English) was defined for this important structure as a point of reference for endoscopic dacryocystorhinostomy and is formed by the frontal process of the maxilla.

**Final consideration**

We propose an adapted version in Portuguese of the "European Anatomical Terminology of the Internal Nose and Paranasal Sinuses", that will help with the publication of technical announcements, scientific publications and the teaching of the internal anatomical terms of the nose and paranasal sinuses in Brazil.

**Conflicts of interest**

The authors declare no conflicts of interest.

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