Di Bartolomeo's Syndrome,* Translational Symptoms of Patulous Eustachian Tube Anomaly in Current Medicine

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Educational Objective

To recognize the semeiotic symptoms of a Patulous Eustachian tube (PET) in the perfunctory, Otologic examination, as an anomaly contrary to any closed Eustachian tube Dysfunction (ETD).

Objectives

To demonstrate the unique clinical symptoms resulting from contemporary etiology of PET, as witnessed in 20th century medicine and lifestyles.

Methods

FDA, IND 40,202: Phases I and II were completed in the first 6 years. During phase III clinical trials, the FDA informed us by phone in the 8th year, that they lost the entire file. The FDA would allow the study to recycle the subjects and start over, again. The drug-free, PatulEND®, was later developed.

Results

The PET anomaly was determined not to be rare, but instead misdiagnosed for centuries.

Conclusions

DiBartolomeo Syndrome is a clinical entity that results directly from the reflux and/or the flow of air (venturi) through the tube, the compromised rheologic properties of the mucosal blanket and surface tension along the tube.

Discussion

The semeiotic spectrum of symptoms includes the mild, intermittent (semi-patulous) phenomenon of tubal rales and the alternative continuously patulous state generating the pathognomic symptom of autophony, active only with erect posture, soon accompanied by exaggerated anxiety.

The **more** common, intermittent **reflux**, generates tubal rales which sound different depending on surface contact and moisture content. It is too frequently misdiagnosed as ETD.

The **less** common patulous variant, with continuous airflow resulting in pathognomonic autophony and amphoric sounds, due to the luminal diameter and alterations in the rheology of the mucous blanket and surface tension.

SYMPTOMS and FINDINGS	PET	ET dysfunction
Autophonia	Semeiotic	Absent
Plugged ear, stuffy	Present	Present
Positional symptoms	Upright only	Any position
Hearing	Normal / low freq	Normal / conductive
Nasal congestion, allergies	Improvement	Causative
Constitutional symptoms	None	Variable
Otologic ear examination	Normal	Retraction / fluid
Nasal examination	Normal	Rhinorrhea / congestion
Tympanic membrane	Matches breath sounds	Retraction / fluid
Decongest, vaso-constrict, steroids, estradiol	Contraindicated	Helpful
Head down, supine	Total relief	No change or worse
Excessive weight loss	Onset or worse	No change
Examination advised	Otologist	Personal physician

WARNINGS and PRECAUTIONS
Avoid vigorous nose blowing or playing wind instruments. When using pressurized squeeze bottle/nasal-sinus rinses if you have a URI, otitis media or using CPAP.

PATULOUS MEDICAMENTOUS
Decongestants and Vaso-constrictors
Steroids Estradiol, and Diuretics
Anti-epileptic drug Keppra Levetiracetam
Anti-anxiety drugs: benzodiazepine, valium, Cymbalta

CHARACTERISTICS	BIOACTIVE EFFECTS
Source of vitamin C / antioxidants	Humans cannot synthesize vit. C. Exogenous source is required.
Method of pH levels	Low pH inhibits the resistance and virulence of microorganisms. Specific pH levels enhance nutrient-tissue metabolic reactions.
Epithelial adherence	PatulEND® reduces adherence by biofilm and abiotic products.
Antioxidant properties	PatulEND® activates metabolites to break down free oxygen radicals.
Surfactant properties	PatulEND® has surface tension lowering properties to release the biofilm and toxic products from the host membranes.
Enzymatic co-factors	Facilitates pre-collagen formation and strengthens tissue healing.
Bioavailability	Vitamin C enhances chloride (Cl) transport across membranes via trans-membrane conductance regulator channels (TR-Cl).
Altered gene expression	PatulEND® inhibits activation of NF-kB of endothelial cells.

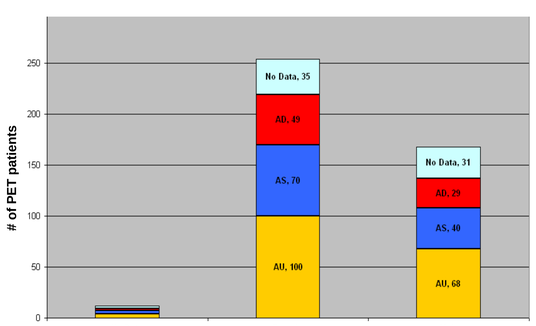

Figure 1: PET patients - ear(s) effected and sex.

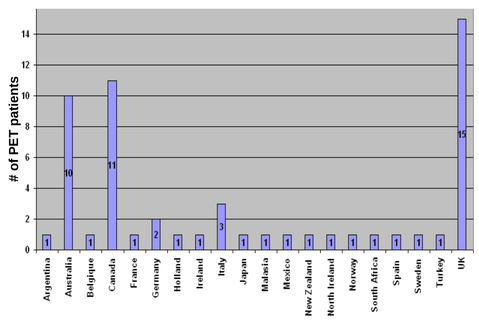

Figure 2: PET patients outside the US in 2010. (US patients = 378 Total patients = 434.)

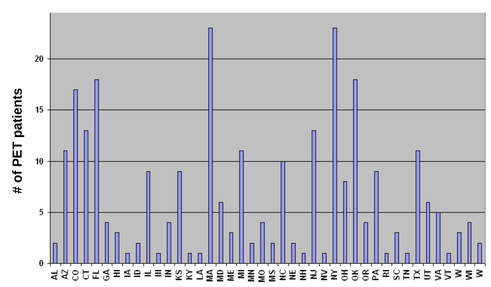

Figure 3: PET patients by state in 2010. (California patients = 104)

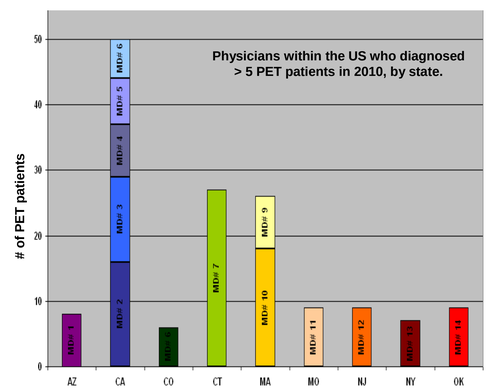

Figure 4: US physicians who diagnosed >5 PET patients. (In 2010, a total 250 physicians, internationally, diagnosed PET and referred a total of 305 patients for treatment. Another 129 patients (30%) were unable to find a proper diagnosis and were self-referred, 19 of which were from outside the US.)

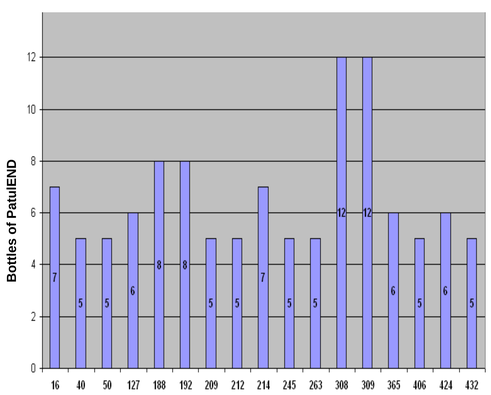

Figure 5: In 2010, 76% of PET patients used one bottle. Represented above are the 17 (4%) PET patients who used > 4 bottles.

Relevant Literature

Carlborg, B, Farmer, J., *Pressure gradients affecting the labyrinth during hypobaric pressure: experimental study*. Ann Otol Rhinol Laryngol 1997, 106:495-502.

DiBartolomeo, J.R., Henry, D.F., *A New Medication To Control Patulous Eustachian Tube Disorders* The American Journal of Otology. July1992, 13:323-327.

DiBartolomeo, J.R., Henry, D.F., DiBartolomeo, M., *Patulous Eustachian Tube Disorders - A New Nasal Medication* The New Frontiers of Oto-Rhino-Laryngology in Europe. June, 1992, 1:219-221.

DiBartolomeo, J.R., *Medical Management of the Patulous Eustachian Tube.* (Medikamentozna liecba patentnej slucovej trubice). Coroby hlavy a krku (Head Neck Diseases) Solvakia. 1992, ISSN1210-0447:5-7.

Dueker, C.W., Lambertsen, C.J., Rosowski, J.J. and Saunders, J.C., *Middle Ear Gas Exchange in Isobaaric Counter diffusion.* The American Physiological Society. 1979.

Goldstein, B., Shulman, A., and Avitable, M. J., *Clear Tinnitus, Middle-Ear Pressure, and Tinnitus Relief: A Prospective Trial.* International Tinnitus Journal, 2007, 13(1):29-39.

Horikoshi T., Imamura S., Matsuzaki Z, Umeda T, Uchida M, Mitsuka K, Kinouchi H., *Patulous Eustachian tube in spontaneous intracranial hypotension syndrome*. Headache. January, 2007, 47(1):131-5.

*Piercy, S., *Autophonia/ Patulous Eustachian Tube Disorder: An Audiologist's Personal Account.* Presented at the annual meeting of The Speech and Hearing Association of Virginia, Harrisonburg, VA (March 2003).

Poe, Dennis S., *Diagnosis and Management of the Patulous Eustachian Tube*, Otology & Neurology, 2007, 28:668-677.

Tideholm, B, Brattmo, M, Carlborg, B., *Middle ear pressure: effect of body position and sleep*. Acta Otolaryngol (Stockh) 1999; 119:880-885

Acknowledgments

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