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GIORNATA INTERNAZIONALE DI STUDIO

ALLA RICERCA...
DEL RESPIRO PERDUTO!

APPROCCIO MULTILATERALE E INTEGRATO
PER LA PREVENZIONE, CURA E BENESSERE

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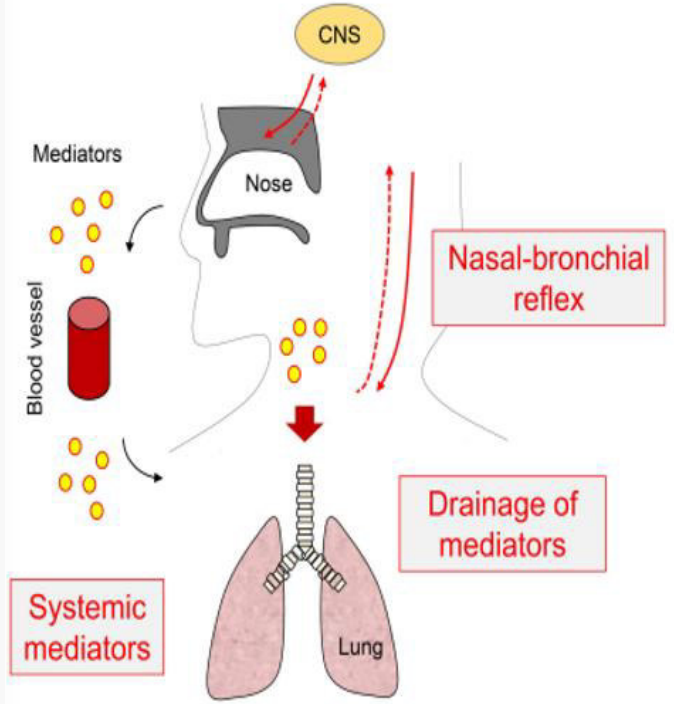


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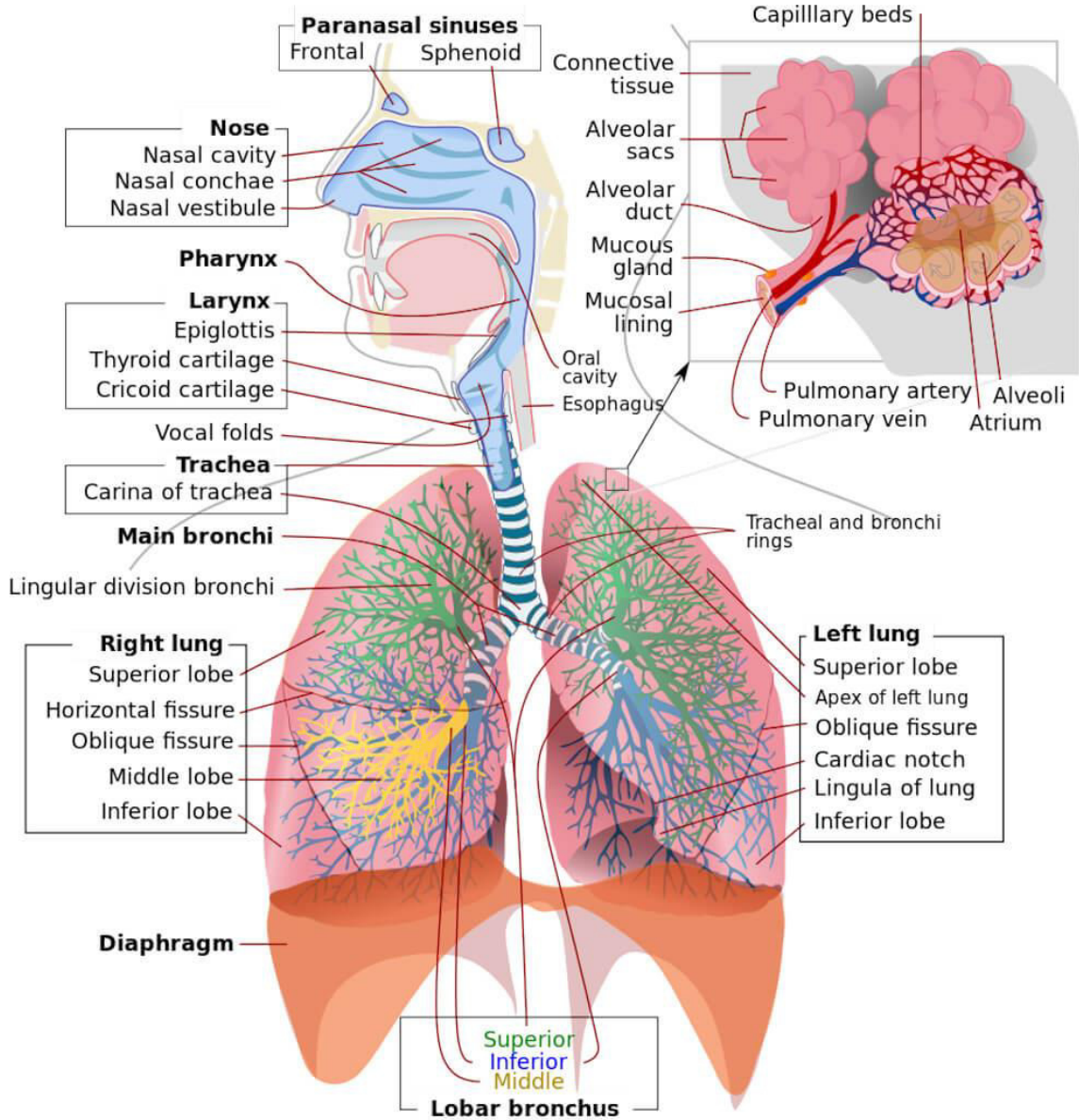
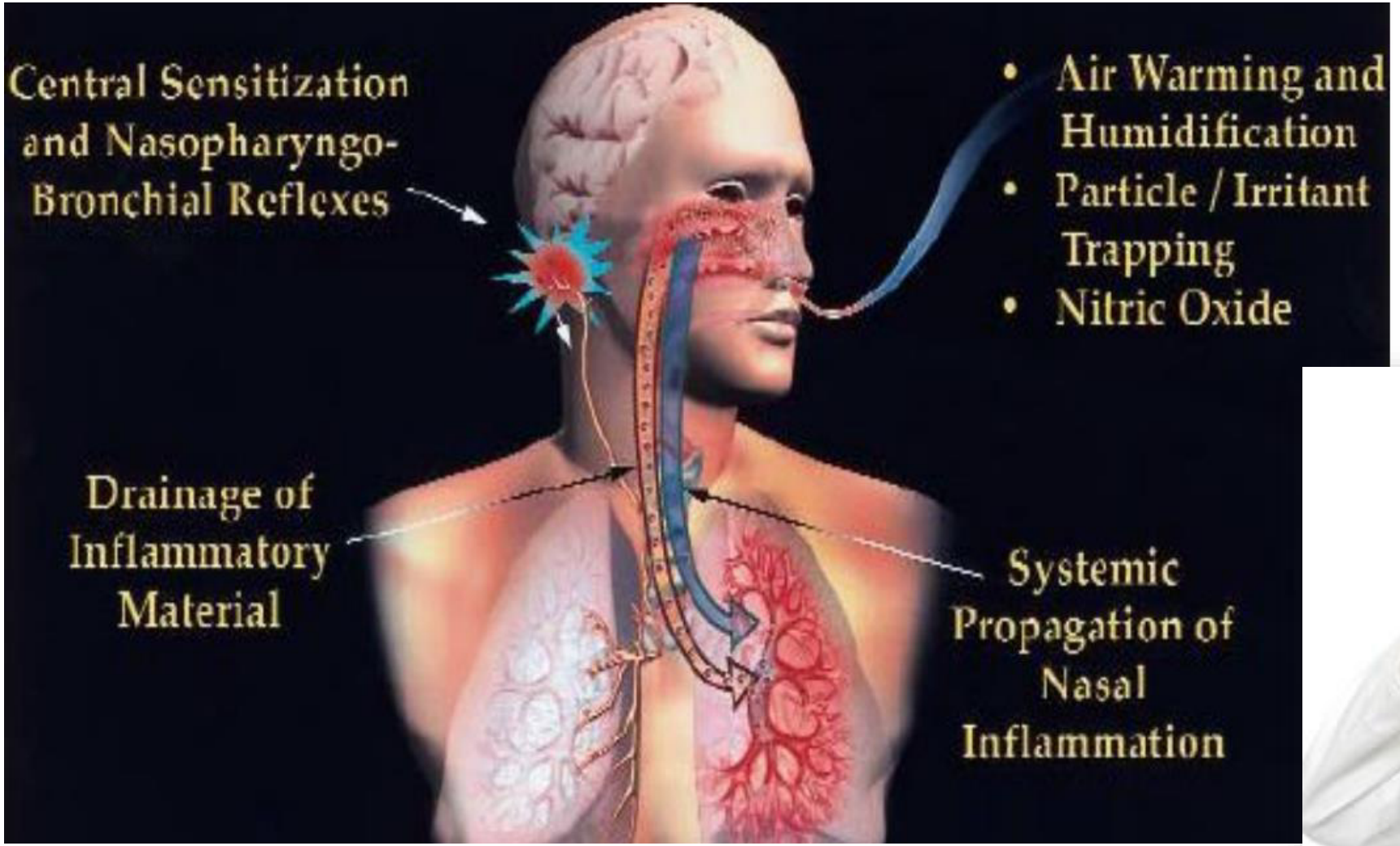
C. Vicini

La Sindrome Rino-Sinuso-Bronchiale nella pratica clinica: strumenti diagnostici e terapeutici

Indicatori clinici e inquadramento diagnostico: basi anatomo-fisiologiche





Uno sguardo sulle Interazioni fisiopatologiche

MAYO CLINIC

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Chronic sinusitis

Symptoms & causes | Diagnosis & treatment | Doctors & departments

Symptoms

Common signs and symptoms of chronic sinusitis include:

- Nasal inflammation
- Thick, discolored discharge from the nose (runny nose)
- Drainage down the back of the throat (postnasal drainage)
- Blocked or stuffy (congested) nose causing difficulty breathing through your nose
- Pain, tenderness and swelling around your eyes, cheeks, nose or forehead
- Reduced sense of smell and taste

Other signs and symptoms can include:

- Ear pain
- Headache
- Aching in your upper jaw and teeth
- Cough or throat clearing
- Sore throat
- Bad breath
- Fatigue

Lai *et al. Cough* 2013, **9**:18
http://www.coughjournal.com/content/9/1/18

Cough

REVIEW Open Access

Epidemiology of cough in relation to China

Kefang Lai, Jiayu Pan, Ruchong Chen, Baojuan Liu, Wei Luo and Nanshan Zhong*

Abstract

Cough is one of the most common complaints for which patients seek medical attention. Misdiagnosis and mistreatment of cough exist commonly in China. The prevalence of acute cough caused by upper airway infection fluctuates between 9% and 64% in the community, for chronic cough, the prevalence >10% in most surveys, ranging from 7.2%-33%. The common causes of chronic cough are upper airway cough syndrome (previously called as post nasal drip syndrome [PNDS]), cough variant asthma (CVA), gastroesophageal reflux related cough (GERD) and eosinophilic bronchitis (EB). There is a regional discrepancy regarding the prevalence of common causes of cough and distribution of gender among China, UK, USA, the most common cause of chronic cough in China are CVA, followed by UACS, EB and atopic cough (AC), the male is almost equal to female in numbers in China. The risk factors for cough includes cold air, smoking, environmental pollutants, noxious substances and allergens, and unreasonable diet habits.

Keywords: Cough, Epidemiology, Etiology, Risk factor, Quality of life

Table 2 Causes of chronic cough in different regions

	N	Asthma	PNDS	GERC	EB	Other causes
USA						
Irwin RS [27] (1980)	49	25%	29%	10%		CB 12%
Poe [52] (1989)	139	35%	26%	5%	/	CB 7%
Irwin RS [28] (1990)	102	24%	41%	21%	/	CB 5%
Mello [29] (1996)	88	14%	38%	40%	/	/
UK						
Brightling CE [31] (1999)	91	18%	24%	8%	13%	
Birring SS [53] (2004)	236	17%	12%	15%	7%	PIC 7%
Kastelik JA [54] (2005)	131	24%	6% *	22%	/	PIC 8%
Australia						
Carney IK [32] (1997)	30	23%	73% *	93%	10%	ACEI 23%
Turkey						
Ayik S [34] (2003)	36	3%	22%	22%	33%	PIC 6%
Japan						
Fujimura M [41] (2005)	176	36%	18%*	2%	/	AC 29% #
Korea						
Joo JH [33] (2002)	92	16%	33%	/	12%	CB 15%
China						
Yang ZM [37] (2005 Shanghai)	105	51.4%	26.7%	1.9%	5.7%	PIC 8.5%
Lai KF [35] (2006 Guangzhou)	194	14%	17%	12%	22%	AC 12%
Lu GL [36] (2009 Beijing)	123	33.3%	24.4%	20.3%	4.9%	AC 3.3%
Lai KF [19] (2012)	704	32.6%	18.6%	4.6%	17.2	AC 13.2%

Abbreviations: *PNDS* Post-nasal drip syndrome, *GERC* Gastroesophageal reflux-related cough, *EB* Eosinophilic bronchitis, *AC* Atopic cough, *PIC* Post-infectious cough, *CB* chronic bronchitis, *ACEI* ACEI-related cough.
The definition of atopic cough in Japan is somewhat different from that in China.


ONCE
UPON A TIME

Jan. 28, 1905.]

PATHOLOGICAL RELATIONS OF NOSE DISEASE. [The British Medical Journal 177

on a busy day, and the symptoms pre- deferred further nasal examination and e. Two days later I was summoned to what operation I had performed without Happily this had only consisted in the m and the rhinoscopic mirror—not even ppeared that the patient, on her return from the hospital, had complained of increased headache, had in the course of the day become unconscious, and had died during the following night after several convulsive attacks. At the *post-mortem* examination a basal purulent meningitis was found and a perforation, probably of a syphilitic nature, in the sphenoid bone near the sella turcica.

Meningitis Affected by Eye Symptoms.

In many cases the meningitis or other cerebral symptoms arose consecutively to an orbital abscess or to one or another of the various eye complications before mentioned. Thus in one case blindness of both eyes developed eight days before the fatal meningitis (Duplay), in another strabismus was observed three weeks before basal meningitis (Grünwald), in another ptosis, dilated pupil, paralysis of eye muscles two weeks before basal meningitis (Demarquay), disease of visual power and ptosis before intradural abscess (Russell), blindness and exophthalmos of both eyes before basal meningitis (Raymond), etc.

Several cases of fatal meningitis have been observed after operation on the adnasal cavities, we will take it not because they were operated on, but on account of the operation being performed too late.

Literature.

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DISEASES OF THE NOSE IN THEIR RELATIONSHIP TO PATHOLOGICAL CONDITIONS OF OTHER ORGANS.

By ADOLPH BRONNER, M.D.,
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Nasal obstruction is very common in the north of England, it is frequently overlooked, and its resu ment of children are most disastrous and chief cause of nasal obstruction in infar nasal mucous membrane. We know that t bones are (relatively) larger than in ad posterior and anterior ends of the mucous bones are thickened. A slight catarrh of brane will thus readily give rise to Infants are particularly liable to rhinitis; bility of infection during birth; they often they are frequently nearly suffocated by eiderdowns, etc., they crawl about on the floor or the dirty and dusty carpet. In nasal growths are the commonest cause of The results of nasal obstruction can b classes:

1. The effect on the general health and child.
2. The effect on the neighbouring parts The most disastrous result is the c development of the lungs and chest. The chest is generally fairly broad, but the lo and contracted. If the child is rickety course, more marked, but there can be ver without rickets. The children keep the gives them a stupid expression. They ar less, irritable, sleep heavily, and often wa and scream. They do not get on well take a dislike to outdoor sports and exe is frequently much affected, and they h stammer and stutter.

A very important question has recently to whether children with nasal obstruction are more liable to infection (local and general) than children who can breathe through the nose. We know, thanks to the excellent work of StClair Thomson and others, that no micro-organisms are found on the posterior parts of the healthy mucous membrane, and that the air passing into the naso-pharynx through the normal nares is practically free from germs. These stick to the moist mucous membrane, and are destroyed there. In cases of nasal obstruction the mucous membrane and the tonsils become diseased, and the micro-organisms entering through the mouth settle on these affected parts, grow there very rapidly, and give rise to general and local infection—tubercle bacilli, diphtheria bacilli, germs of scarlet fever, measles, whooping-cough, etc.

In infants nasal obstruction is specially deleterious. Infants involuntarily breathe through the nose, and have frequently great difficulty in learning to breathe through the mouth. If you watch an infant asleep you will see that the tongue is pressed tightly against the hard palate, and that the breathing is entirely nasal. When there is nasal obstruction the infant does not readily adapt itself to mouth breathing; it sleeps restlessly, and is constantly waking and screaming. There is also increased difficulty in suckling. The child cannot suckle long together—it has to stop every few seconds to open the mouth and get breath. The result is imperfect oxidation of the blood, and impaired nutrition.

Nasal obstruction also affects the neighbouring organs and parts to a considerable extent. The mouth is generally open, and thus the muscles of the face and jaws become extended and relaxed. The gums are dry and inflamed, which often causes malformation and disease of the teeth. The hard palate is high and very arched. The upper front teeth become displaced. The nasal septum is bent. The mucous membrane of the nares is swollen, and often shows polypoid degeneration.

Reflex Symptoms.

We have all of us heard a great deal too much and are utterly sick of the so-called "nasal reflexes." At one time every disease or pain of the human body was proved, by nasal specialists, to be of nasal origin. Personally I do not believe that a small innocent spur of the nasal septum does give rise to hundreds of ailments. Numerous and varied reflex symptoms are, however, very frequently due to disease or irritation of the mucous membrane of the nares, and can be cured by local treatment of the same, and by that only. Many cases of asthma, hay fever, vasomotor rhinitis, spasm of the glottis, catarrh of the trachea, of the bronchi, irregular heart, cardialgia, conjunctivitis, asthenopia, contraction of the field of vision, neuralgia, megrim, epilepsy, vertigo, enuresis, hysteria, dysmenorrhœa, etc., are often of nasal origin, though of course not always.

Many cases of asthma are of nasal origin. In every case of

Many cases of asthma are of nasal origin. In every case of asthma the nares should be most carefully examined, and any obstruction, polypus, etc., removed, and any diseased mucous membrane treated with the galvano-cautery. And yet I am constantly seeing cases of asthma which have been under treatment for years, and in which the nose has never been examined. Many of these I have relieved by treating the nares, but only after irreparable damage has been done to the patient's health and lungs.

the nares of numerous women during the period of menstruation, and found that if you apply cocaine to the anterior part of the lower turbinate, or to the tubercle of the septum, you relieve the pain. If you destroy the mucous membrane over these areas, menstruation is permanently less painful. These

Nihil sub sole novum

Pulmonary Pharmacology & Therapeutics (2002) **15**, 261–266
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PULMONARY PHARMACOLOGY & THERAPEUTICS

Review

Diagnosis and Treatment of Chronic Cough due to Gastro-esophageal Reflux Disease and Postnasal Drip Syndrome

Richard S. Irwin and J. Mark Madison

Division of Pulmonary, Allergy, and Critical Care Medicine, University of Massachusetts Medical School, Worcester, MA, USA

SUMMARY: **Gastro-esophageal reflux disease (GERD) and postnasal drip syndrome (PNDS) are common causes of chronic cough. In patients with normal chest radiographs, GERD most likely causes cough by an esophageal–bronchial reflex. When GERD causes cough, there may be no gastrointestinal symptoms up to 75% of the time. While 24-h esophageal pH monitoring is the most sensitive and specific test in linking GERD and cough in a cause and effect relationship, it has its limitations. There is no general agreement on how to best interpret the test and it cannot detect non-acid reflux events. While some patients improve with minimal medical therapy, others require intensive regimens. Surgery may be efficacious when intensive medical therapy has failed. Because there are no pathognomonic findings of PNDS, the diagnosis is inferential and is based upon a combination of clinical findings, the results of ancillary testing, and the response to specific therapy. Specific therapy depends upon the rhinosinus disease(s) causing the PND. A common error in managing PNDSs is to assume that all H_1-antagonists are equally efficacious. The second-generation, relatively non-sedating H_1-antagonists have been found to be less effective than the first-generation agents in treating cough due to non-histamine-mediated PNDSs.**

KEY WORDS: **Cough, Cough due to gastro-esophageal reflux disease, Cough due to postnasal drip syndrome.**

CHEST
Volume 129, Issue 1, Supplement January 2006, Pages 63S-71S

Supplement

Diagnosis and Management of Cough: ACCP Evidence-Based Clinical Practice Guidelines

Chronic Upper Airway Cough Syndrome Secondary to Rhinosinus Diseases (Previously Referred to as *Postnasal Drip Syndrome*): ACCP Evidence-Based Clinical Practice Guidelines

Melvin R. Pratter MD, FCCP

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https://doi.org/10.1378/chest.129.1_suppl.63S

Objective:

To review the literature on postnasal drip syndrome (PNDS)-induced cough and the various causes of PNDS. Hereafter, PNDS will be referred to as *upper airway cough syndrome* (UACS).

Rouadi et al. World Allergy Organization Journal (2021) 14:100618
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WORLD ALLERGY ORGANIZATION JOURNAL

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WAO-ARIA consensus on chronic cough - Part II: Phenotypes and mechanisms of abnormal cough presentation – *Updates in COVID-19*

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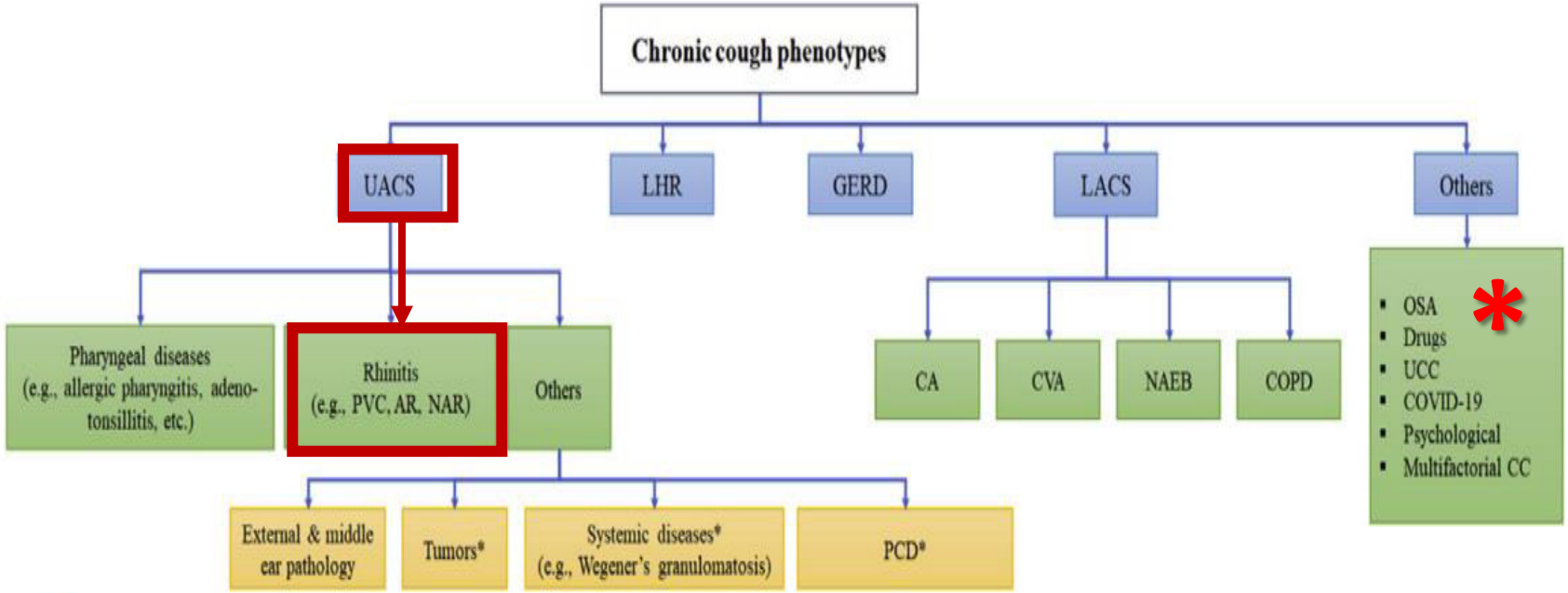

Fig. 1 Classification of chronic cough phenotypes, Abbreviations: AR (Allergic rhinitis), CA (Classic asthma), CC (Chronic cough), CVA (Cough variant asthma), COPD (Chronic obstructive pulmonary disease), GERD (gastroesophageal reflux disease), LACS (Lower airway cough syndrome), LHR (Laryngeal hyperresponsiveness), NAEB (Non-asthmatic eosinophilic bronchitis), NAR (Non allergic rhinitis), OSA (Obstructive sleep apnea), PCD (Primary ciliary dyskinesia), PND (Post-nasal drip), PVC (Post-viral cough), UACS (Upper airway cough syndrome), UCC (Unexplained chronic cough), *disease of rare occurrence.

medical sciences

MDPI

Review

Regulation of Interaction Between the Upper and Lower Airways in United Airway Disease

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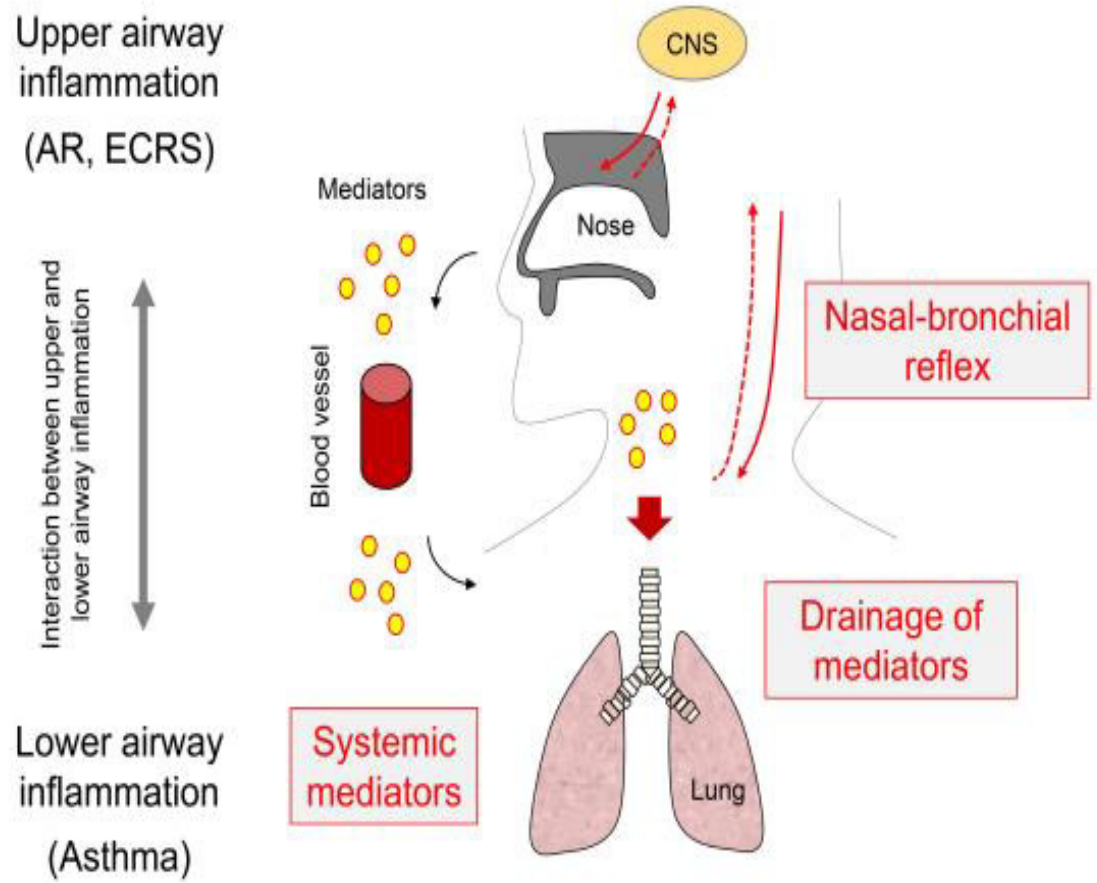


Figure 1. Schema of mechanisms of interaction between upper and lower airway inflammation. Red line and dot-line indicate parasympathetic and trigeminal nerve, respectively. AR, allergic rhinitis; CNS, central nervous system; ECRS, eosinophilic chronic rhinosinusitis.

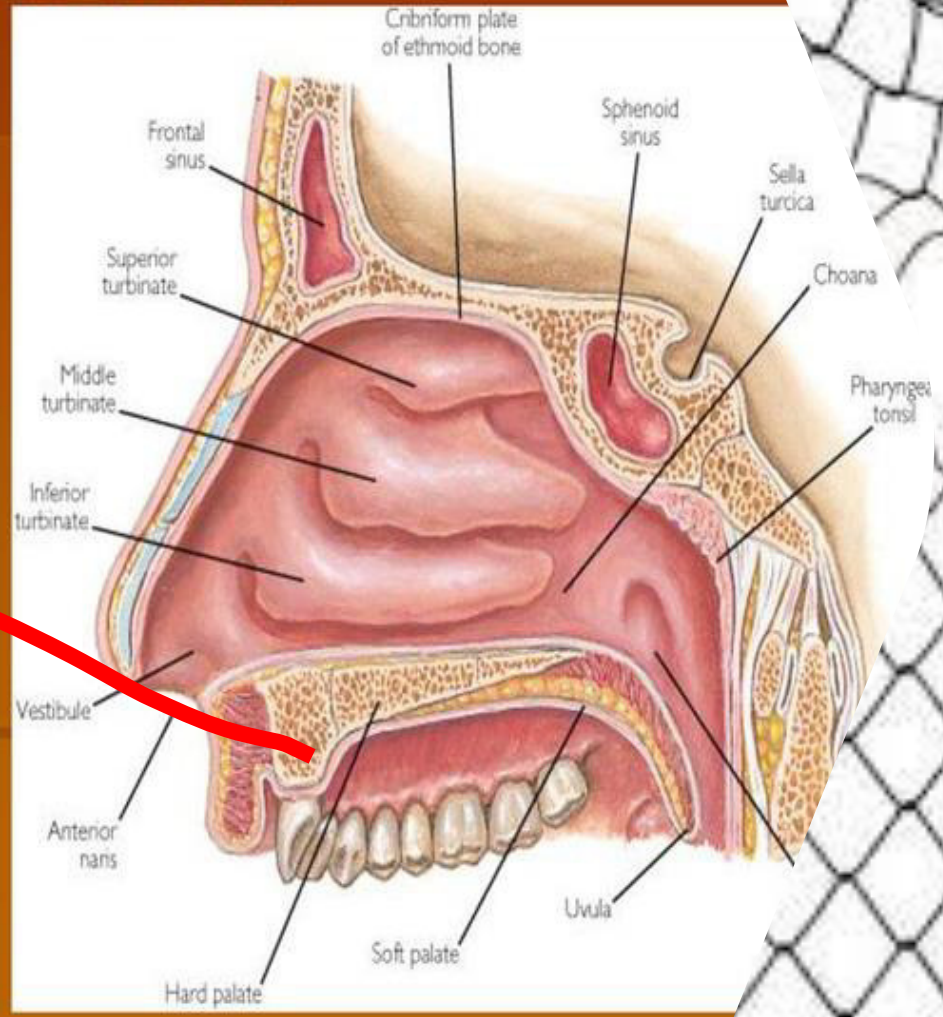
Meccanismi di interazione- classificazione “pragmatica” per il «clinico in trincea»

- ✓Perdita delle funzioni difensive
- ✓United Airways Concept
- ✓Post Nasal Drip Concept
- ✓Systemic Spread of Inflammation
- ✓Alterazione dei riflessi naso-bronchiali
- ✓Altro (naso e OSA, naso e GERD)


LIZIA

Nose – 5 functions

- Provide **airway** for respiration
- Moisten & warm air
- **Filter** air (mucus & cilia) (breath in thru nose & out thru mouth)
- Site of **olfactory** (smell) receptors
- **Resonating** chamber for sound waves (hold your nose closed & see how you sound!)

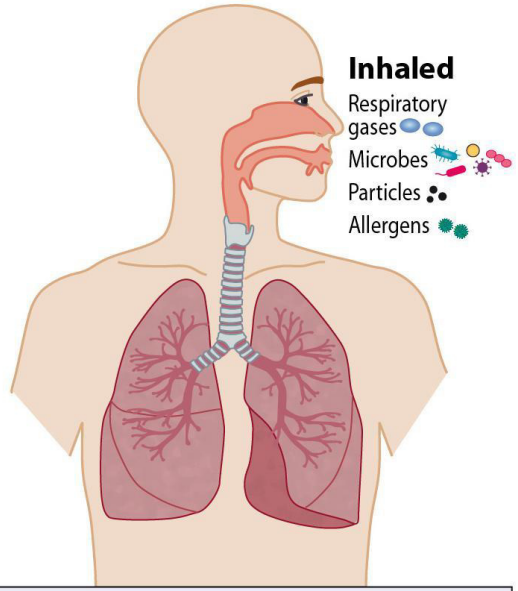



Atelier de la beauté

Upper airways

Sinonasal tract

- **Mucus** with lipolysaccharides, mucins
- Surfactants, lactoferrin, defensins kill or neutralize micro-organisms.
- Protease inhibitors defend against environmental proteases.
- **MCC**: Cilia move mucus with captured micro-organisms and particles away from lower airways
- Microbiota communicates with sinonasal barriers and host immune system
- PPRs detect PAMPs and DAMPs from foreign particles
- Active transport of particles, allergens
- Epithelial physical barriers: such as TJs, adherens junctions: with claudins, desmogleins, ZOs, cadherins, connexins
- **EMT** turnover and repair. EMT related factors include such as MMPs, periostin
- Epithelial basal progenitor cells: epithelial self-renewal, repair injuries

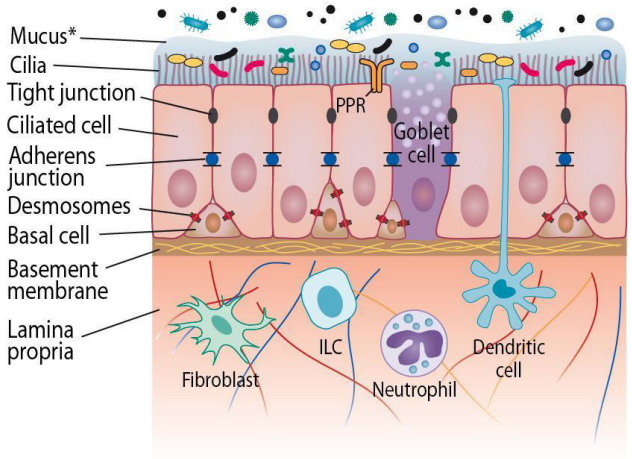


Lower airways

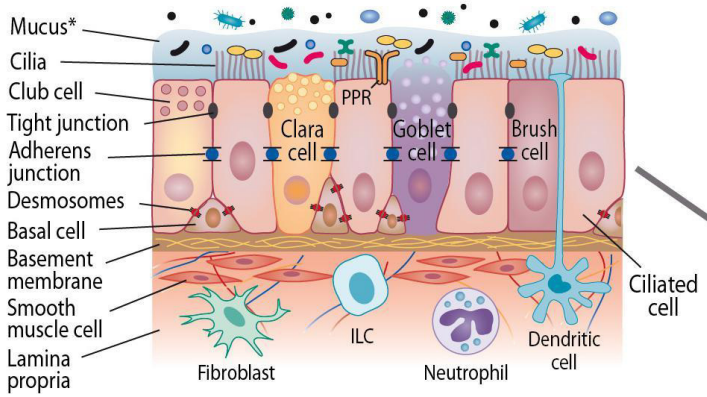
Trachea, bronchi, bronchioles

- **Mucus** secreted by goblet cells
- Mucins bind micro-organisms and disrupt bacterial aggregation.
- Lysozyme, lactoferrin, human-b-defensins, SP-A, SP-D to kill or neutralize micro-organisms
- **MCC**: Cilia move mucus away from lower airways. MCC is influenced by mechanical stress, inflammatory and neurochemical signals
- Microbiota communicates with barriers and host immune system
- PPRs detect PAMPs and DAMPs from foreign particles –> homeostasis or immune responses
- UPR helps in clearing pathogens and infection
- Epitelial physical barriers: TJs, adhesions; with surface galyxes, claudins, connexins, paranexins, ZOs
- Smooth muscle contraction: acetylcholine, histamine, cysteinyl leucotrienes

Normal upper airway epithelium

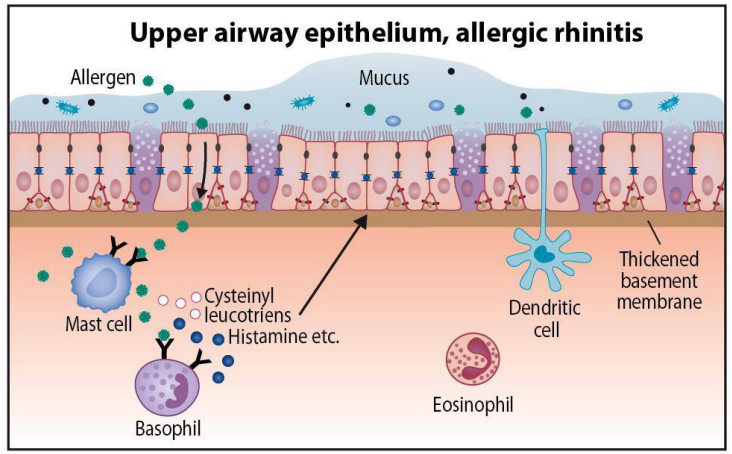


Normal lower airway epithelium

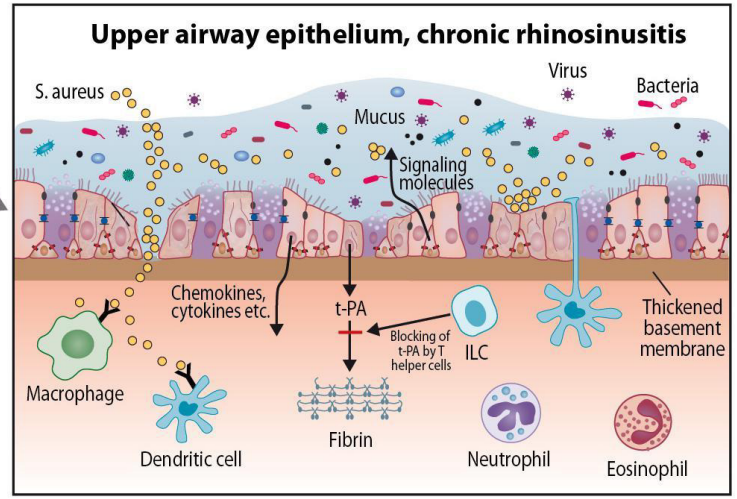


*Mucus + lipopolysaccharides, mucins, surfactants, lactoferrin, defensins, protease inhibitors

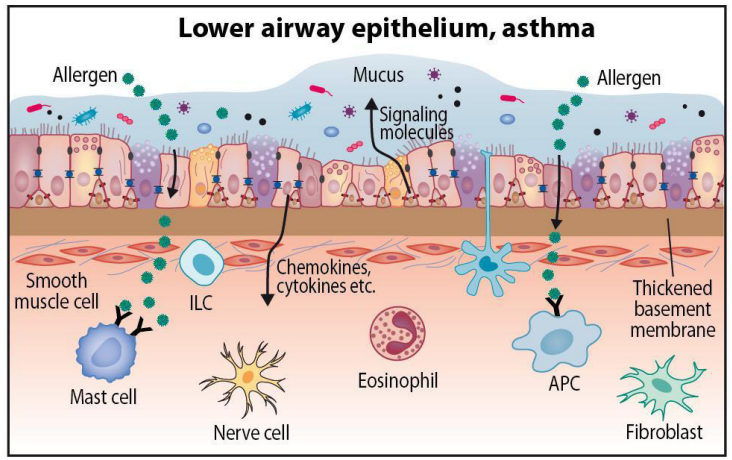
Upper airway epithelium, allergic rhinitis

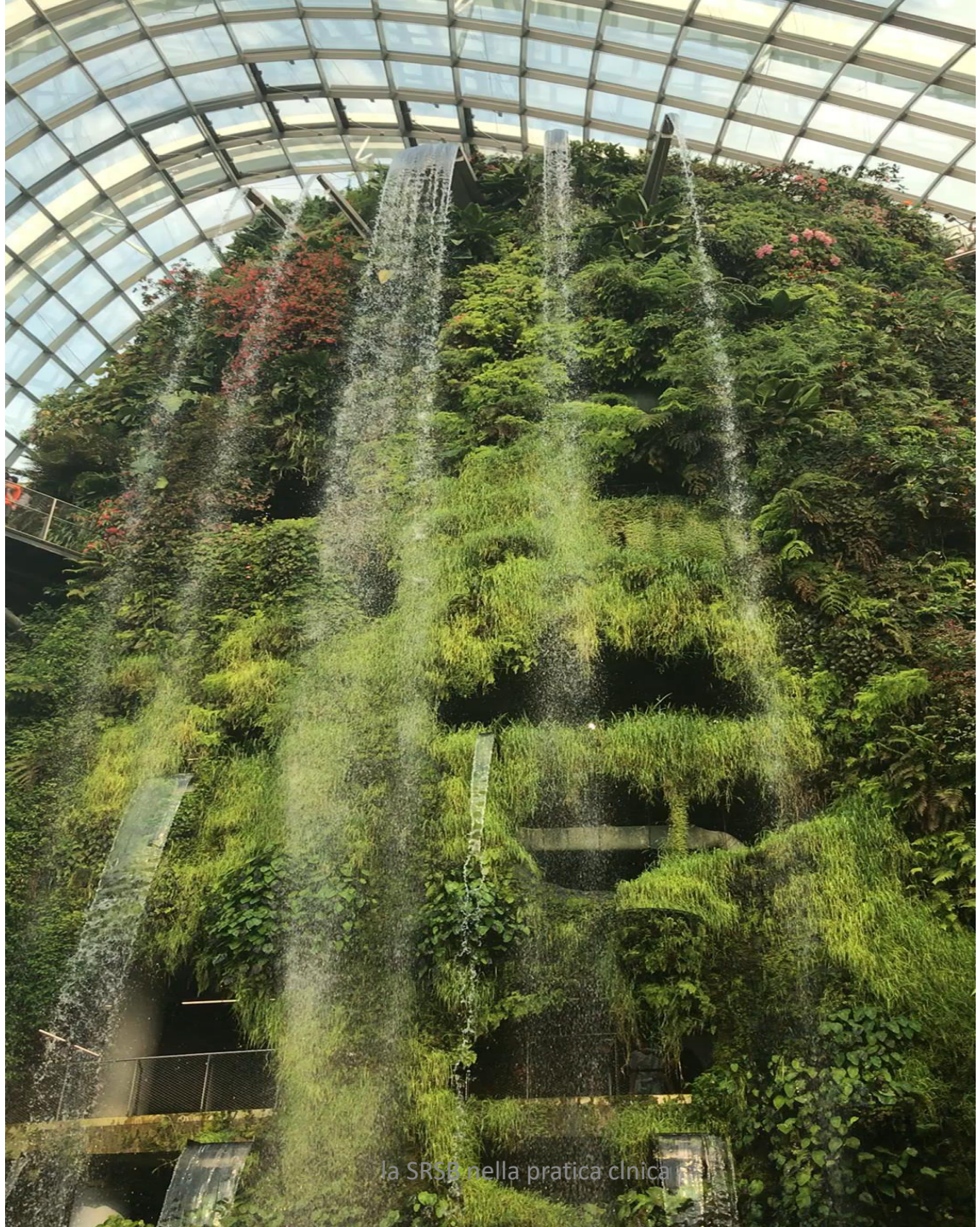


Upper airway epithelium, chronic rhinosinusitis



Lower airway epithelium, asthma



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Review Article

Mechanism of Lower Airway Hyperresponsiveness Induced by Allergic Rhinitis

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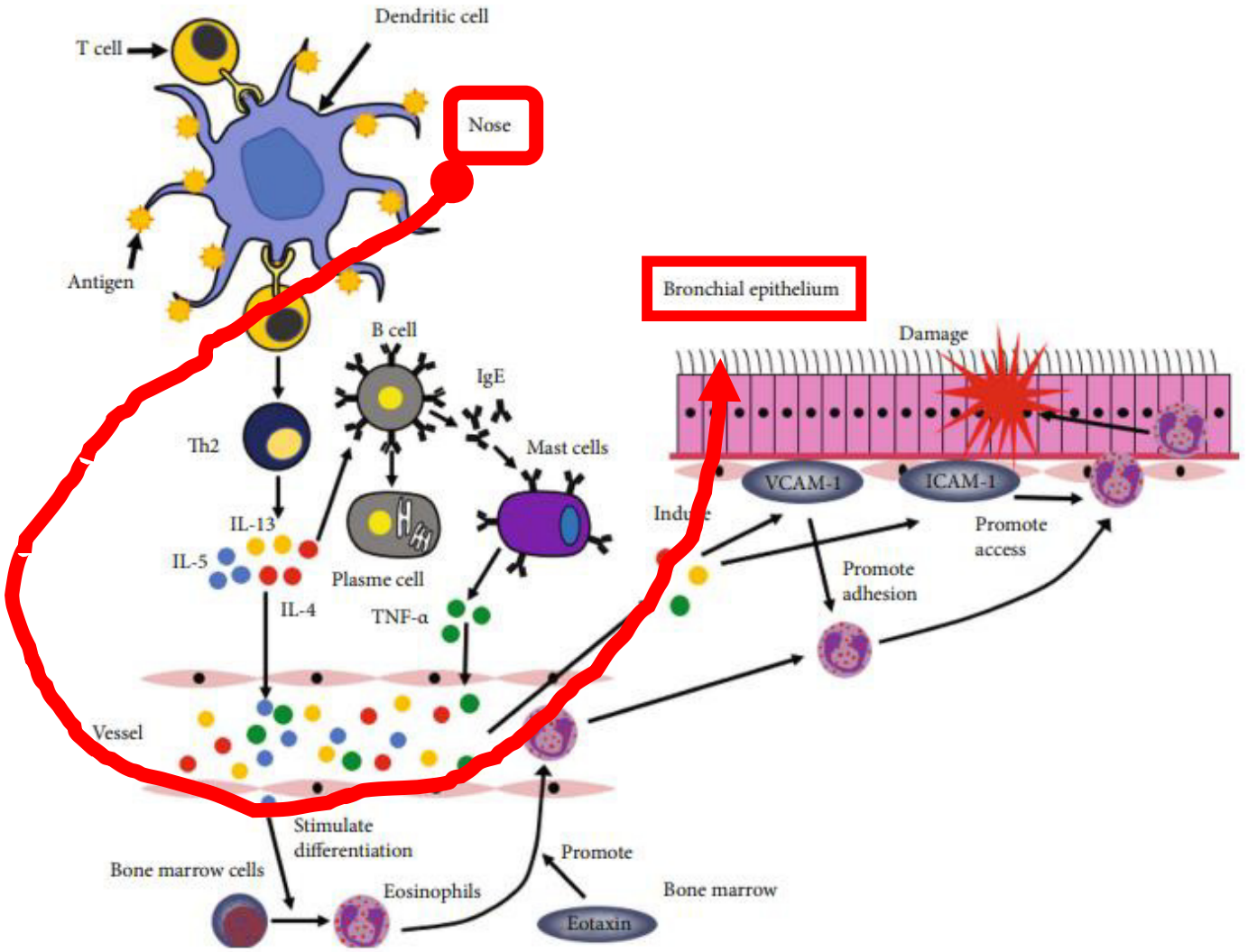


FIGURE 1: After the upper airway is stimulated by allergens, the inflammatory factors and cytokines produced by the upper airway cause the aggregation of eosinophils in the lower airway, which causes the hyperresponsiveness of the lower airway.


HOME SECURITY

Section of Laryngology

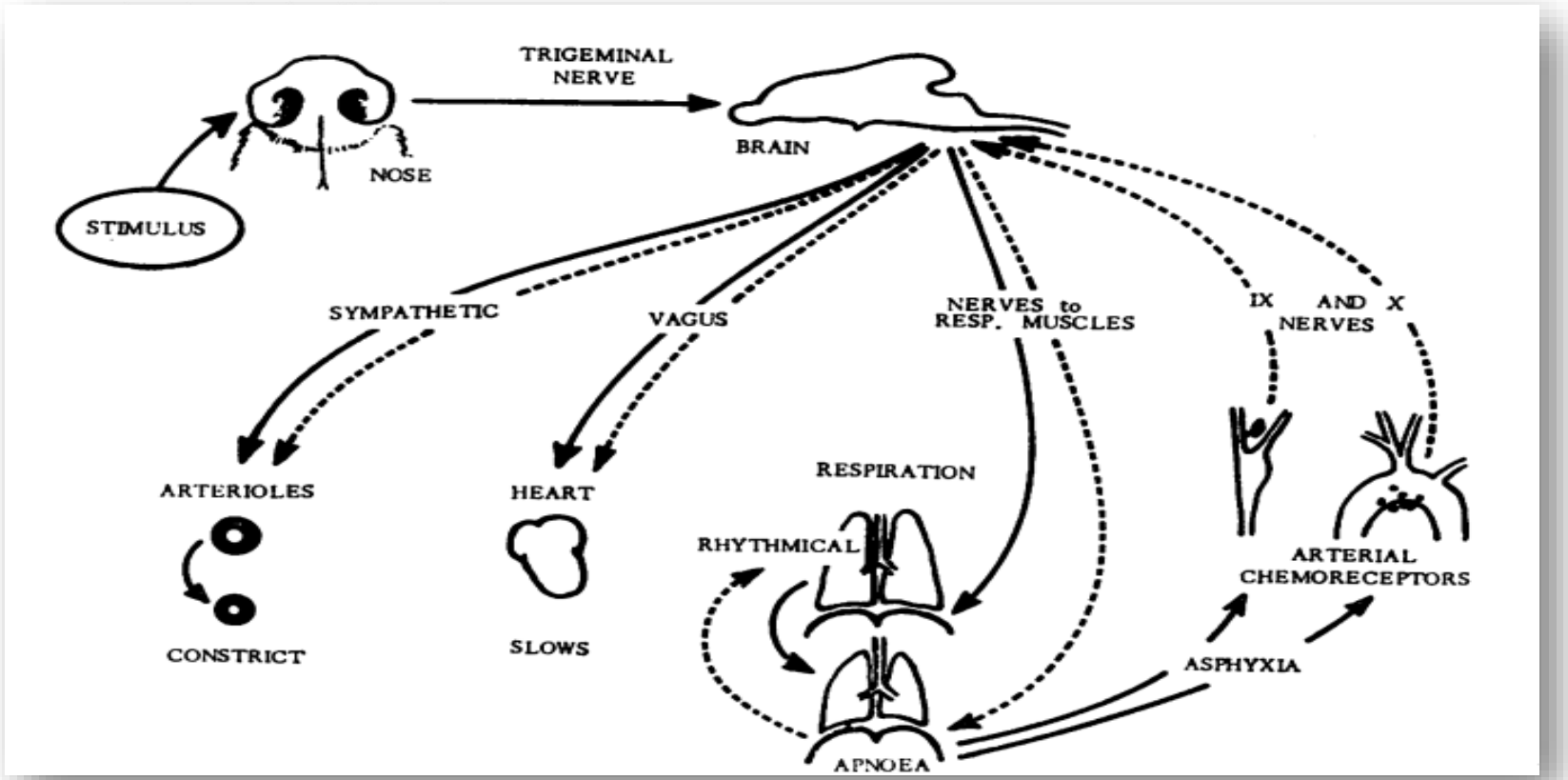
President H D Brown Kelly FRCS

Meeting March 7 1969

Papers

Nasal Reflexes

by Jennifer E Angell James MB
and Professor M de Burgh Daly MD SCD
(*Department of Physiology, St Bartholomew's Hospital Medical College, London*)



Nasal reflexes

1. Smell reflex: increases secretions of saliva & gastric juice

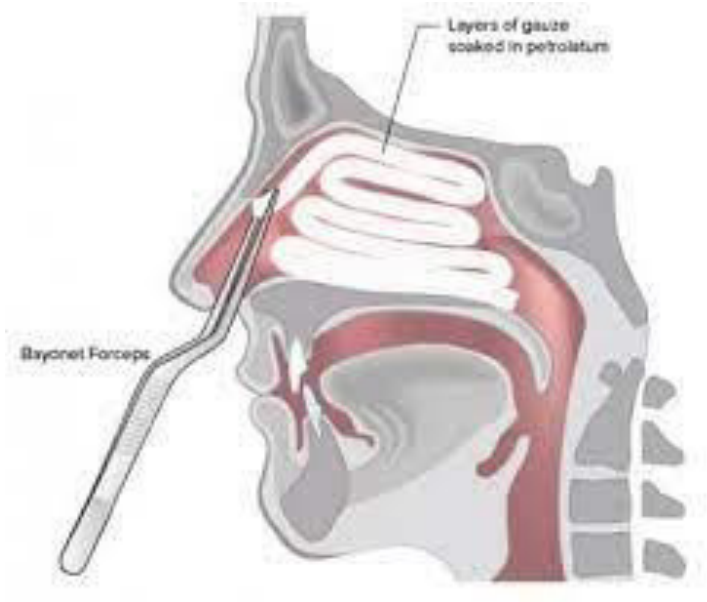
2. Naso-pulmonary reflex:

   Chronic, severe nasal obstruction

   → increased pulmonary resistance

   → pulmonary hypertension

3. Sneeze reflex: protection against F.B.



Sobh *et al. The Egyptian Journal of Bronchology* (2021) 15:32
https://doi.org/10.1186/s43168-021-00079-6

The Egyptian Journal of Bronchology

RESEARCH Open Access

Elimination of nasal obstruction improves pulmonary functions and oxygenation

Eman Sobh[1*], Fatma Elhussieny[2] and Taghreed Ismail[3]

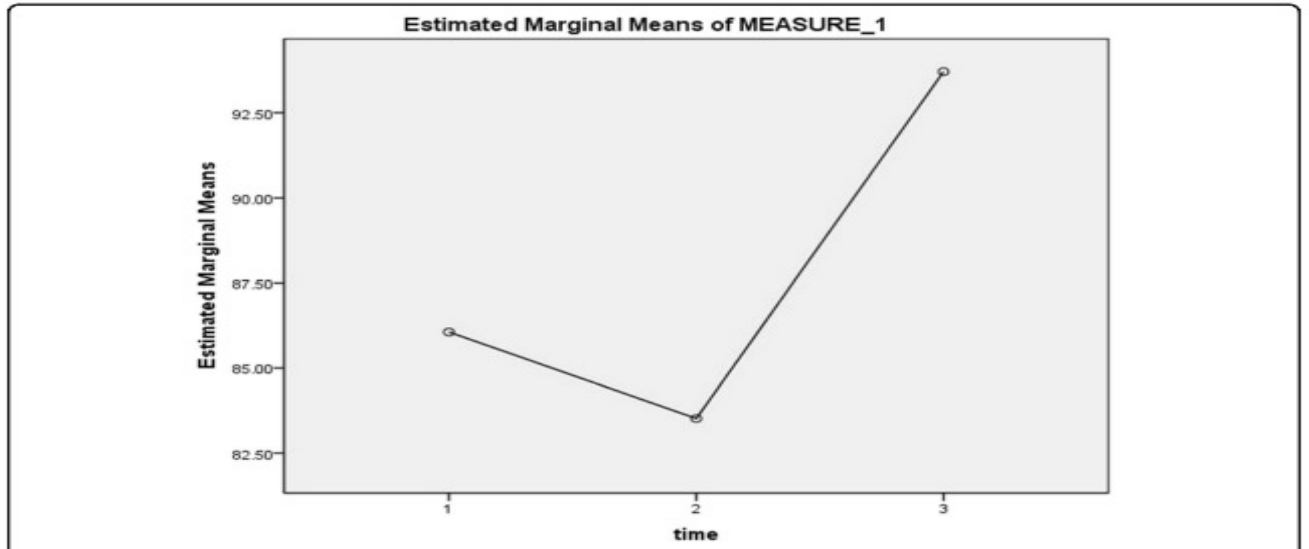


Fig. 1 Changes observed in PaO_2 over time. Hypoxemia was present at baseline and a further decrease was observed with nasal packing and significant improvement was detected after removal of nasal packs

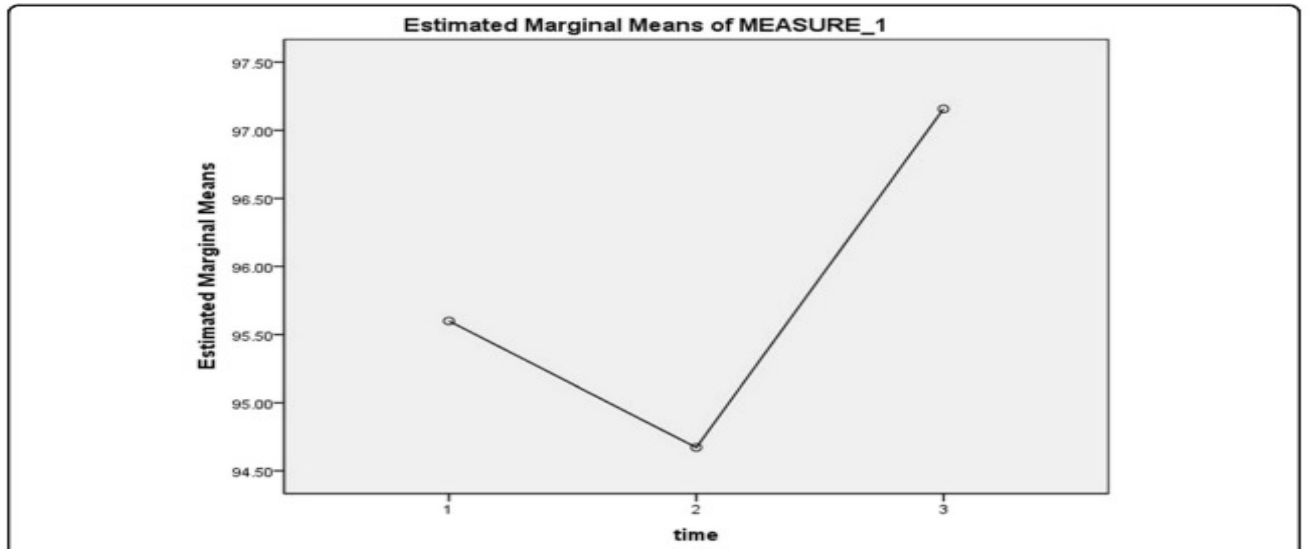
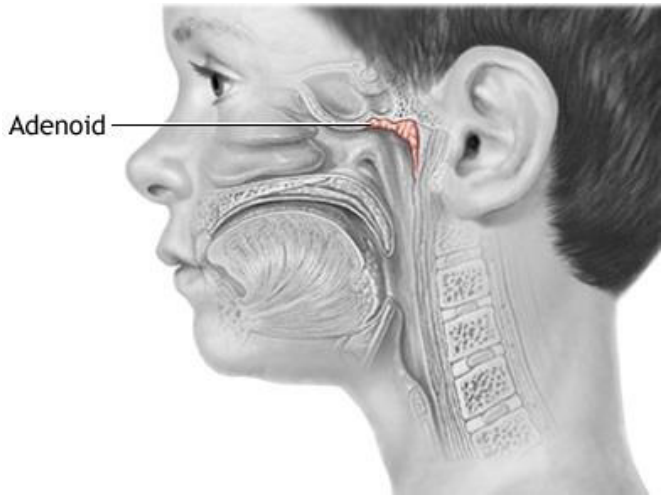


Fig. 2 Changes observed in oxygen saturation over time. Oxygen saturation was low at baseline and a further decrease was observed with nasal packing and significant improvement was detected after removal of nasal packs



Journal of Asthma and Allergy

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ORIGINAL RESEARCH

Changes in Cough Reflex Sensitivity in Children After Removal of Hypertrophied Adenoid Tissue

Jan Sojak[1], Peter Durdik[2], Eva Omar Mohamedova[3], Marian Grendar[4], Miroslava Lucanska[5], Martin Jozef Pec[6], Milos Tatar[7], Renata Pecova[7]

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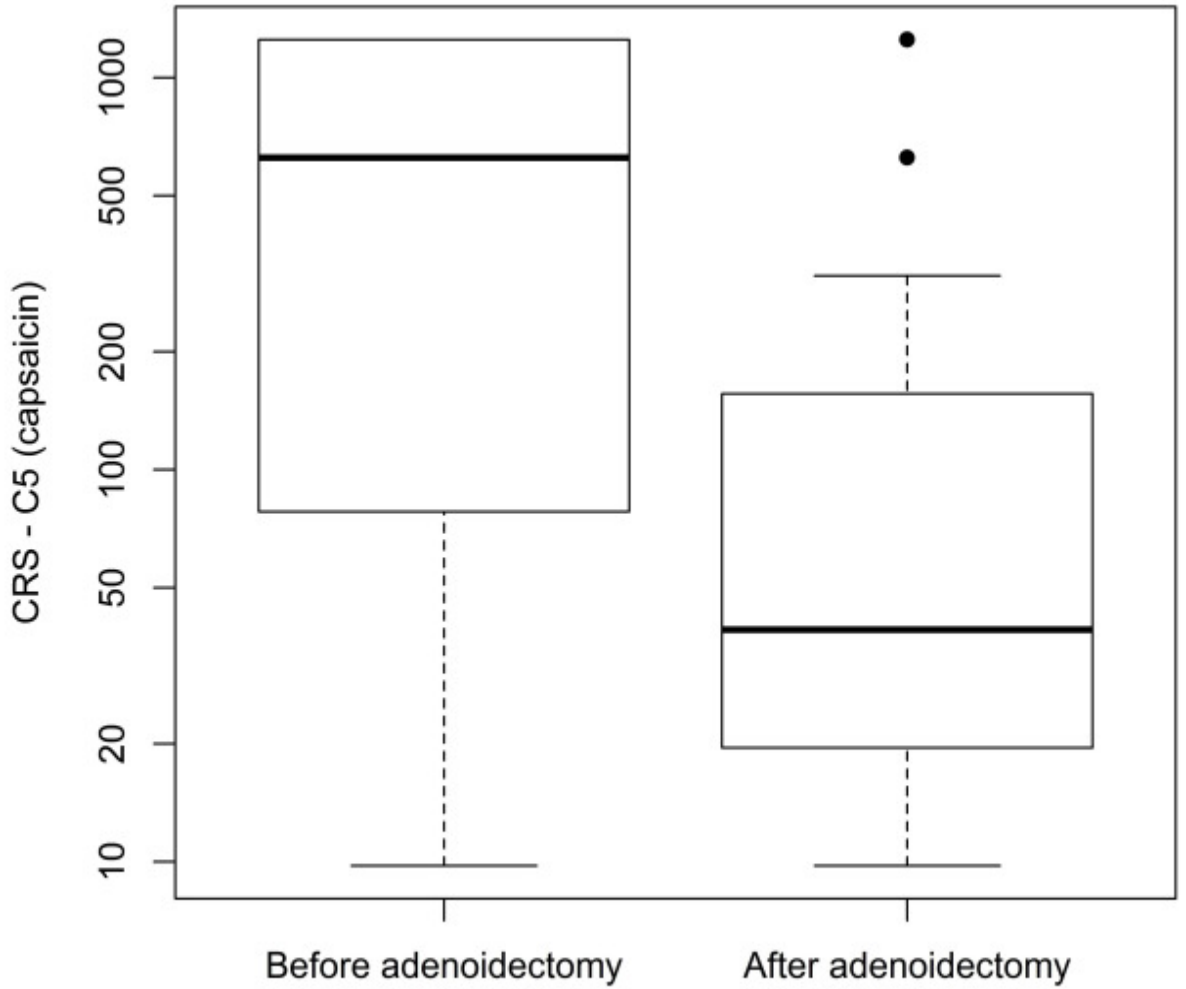
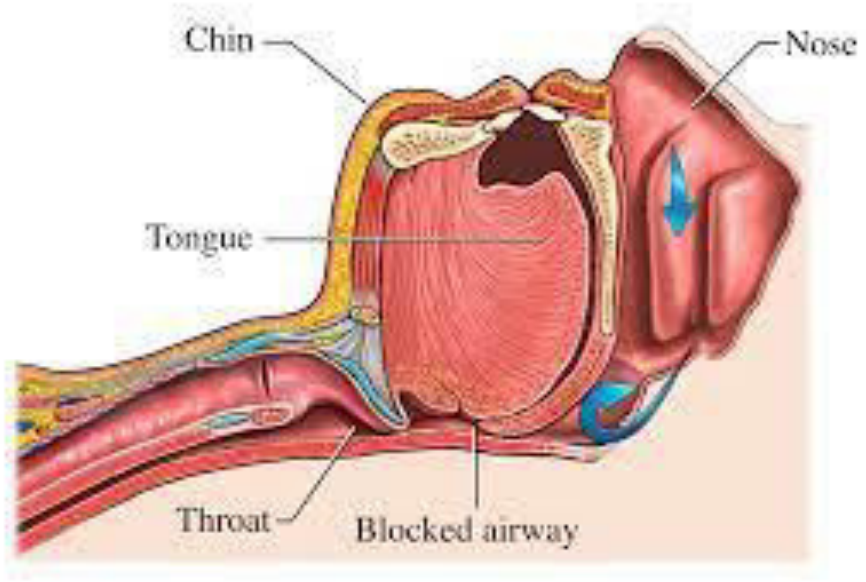
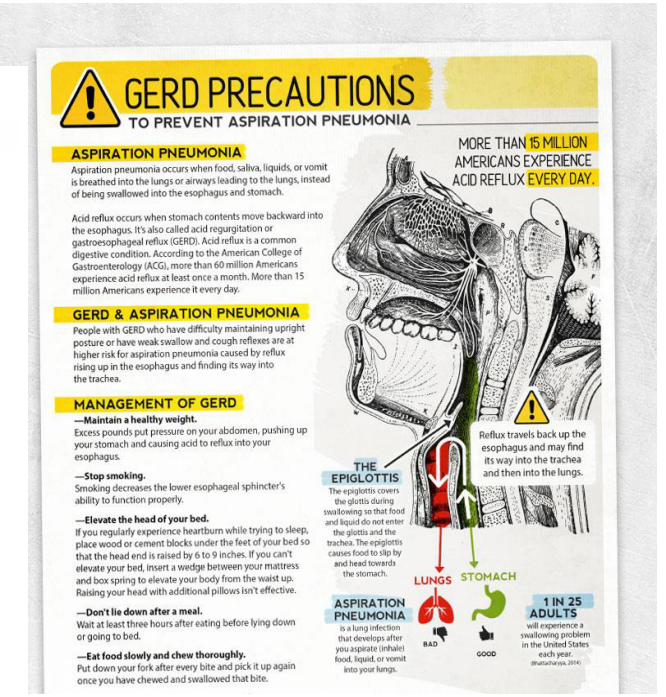


Figure 2 Cough reflex sensitivity (CRS) – C5 values before and after endoscopic adenoidectomy in children with chronic cough. C5, concentration of capsaicin causing at least five coughs (P=0.022).

Nose Obstruction, MouthBreathing, Obstructive Sleep Apnea





Gastroesopgaheal reflux ← Obstructive sleep apnea ← obesity

↓ ↓

Increased aspiration risk, Intrathoracic pressure changes

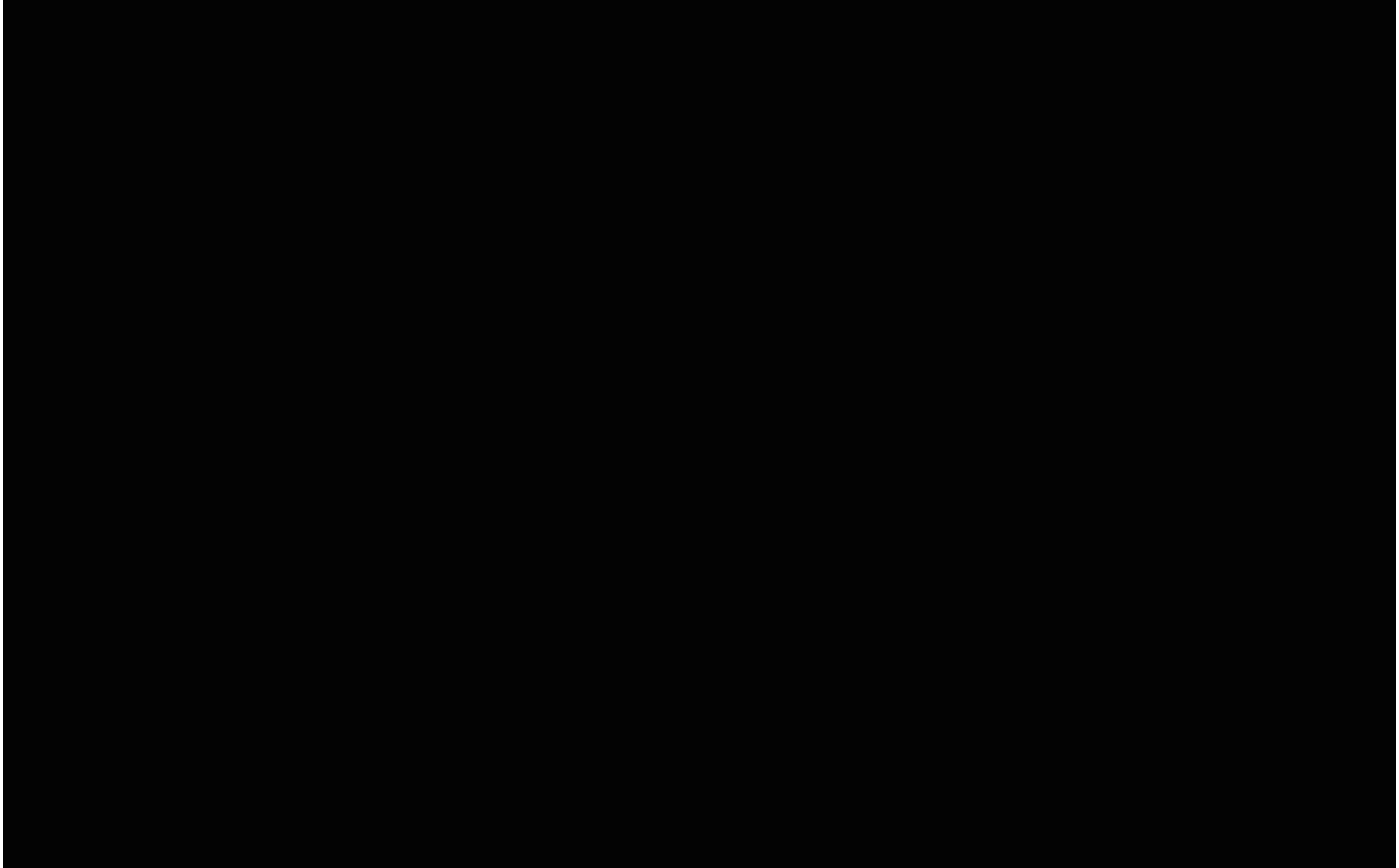
Chronic cough Impaired swallowing reflex

pH changes in esophagus Increased aspiration risk

(Possibly in trachea), Increased pneumonia risk

hyperventilation induced apnea

Increased pneumonia risk



To cite: Ando A, Smallwood D, McMahon M, *et al*. *Thorax* 2016;**71**: 323–329.

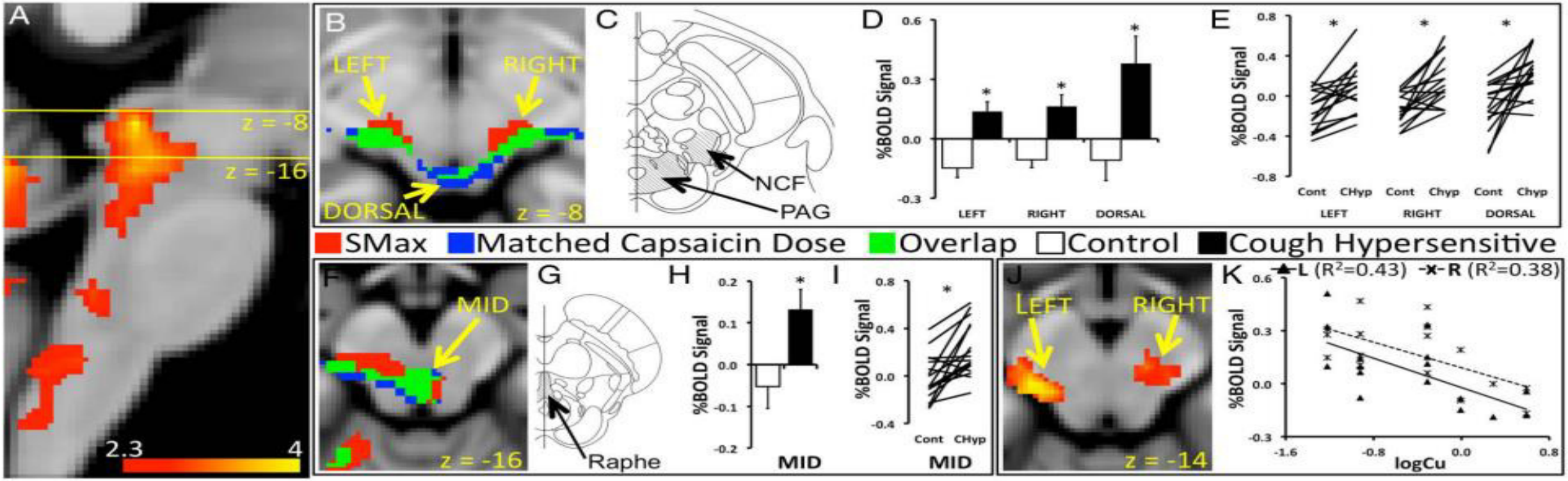
BMJ

ORIGINAL ARTICLE

Neural correlates of cough hypersensitivity in humans: evidence for central sensitisation and dysfunctional inhibitory control

Ayaka Ando,[1,2] David Smallwood,[3] Marcus McMahon,[4] Louis Irving,[3] Stuart B Mazzone,[1] Michael J Farrell[5]

These findings provide insight into the central neurobiology of cough hypersensitivity and suggest that both central amplification of cough sensory inputs and reduced capacity to suppress cough motor behaviours define patients with problematic cough.



ACTA OTORHINOLARYNGOLOGICA ITALICA 2011;31:27-34

RHINOLOGY

Rhino-Bronchial Syndrome. The SIO-AIMAR (Italian Society of Otorhinolaryngology, Head Neck Surgery-Interdisciplinary Scientific Association for the Study of the Respiratory Diseases) survey

La Sindrome Rino-Bronchiale. Indagine conoscitiva SIO-AIMAR (Società Italiana di Otorinolaringologia e Chirurgia Cervico-Facciale-Associazione Italiana Malattie Respiratorie)

D. PASSALI, F. DE BENEDETTO[1], M. DE BENEDETTO[2], F. CHIARAVALLOTI[1], V. DAMIANI[3], F.M. PASSALI[4], L.M. BELLUSSI AND THE WORKING GROUP*

Department of Human Pathology and Oncology, ENT Clinic, University of Siena, Siena; [1] Division of Pneumology, "S.S. Annunziata" Hospital, Chieti; [2] Division of Otorhinolaryngology, "V. Fazzi" Hospital, Lecce; [3] ENT Department S. Giovanni Hospital, Rome [4] Otorhinolaryngology Clinic, Department of Surgery, University "Tor Vergata" of Rome, Rome, Italy

* A. Camaioni (Rome), S. Carlone (Rome), G. Caruso (Siena), E. Colombo (Milan), A. Croce (Chieti), N. D'Agnone (Macerata), C. Giordano (Turin), G.E. Giorgis (Turin), V. Grassi (Brescia), S. Locicero (Milan), S. Nardini (Vittorio Veneto), G.C. Passali (Siena-Rome), G. Rizzotto (Vittorio Veneto), P. Rottoli (Siena), M. Toraldo (Lecce), A. Tubaldi (Macerata)

The Consensus Report on the Rhino-Bronchial Syndrome, processed in 2003 by the interdisciplinary group of the Italian Otorhinolaryngology Society (SIO) and the Interdisciplinary Association for the Study of the Respiratory Diseases (AIMAR) defined the Rhino-Bronchial Syndrome (RBS) as ***"a nosologic entity which develops when a hyper-reactive process or a recurrent or chronic inflammation of the upper airways, or anatomical alterations of the rhinosinusal district, facilitate the development of an inflammatory state, on an infectious or immunological basis, in the lower airways, compromising also their function"***

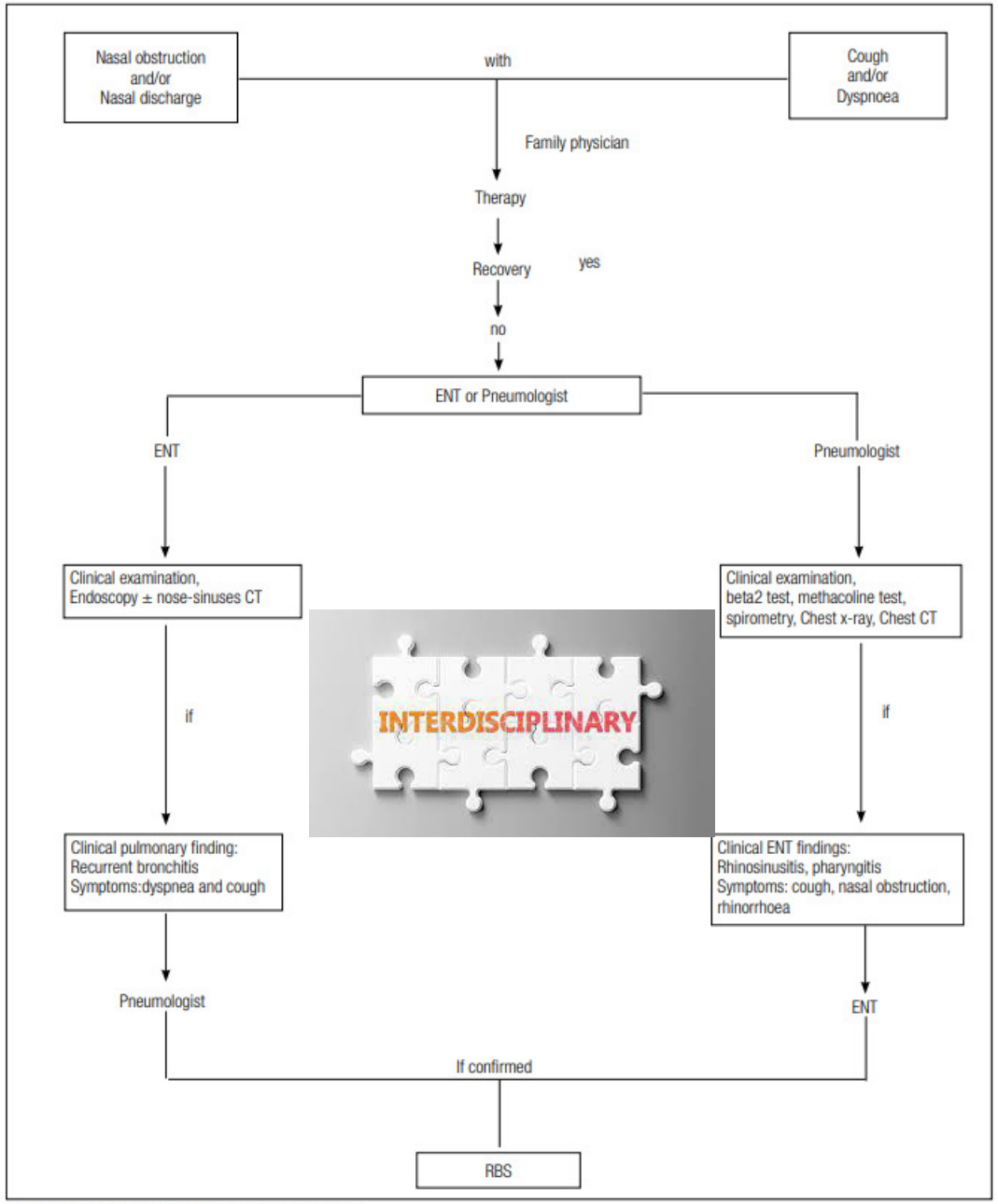


Fig. 5. Integrated multidisciplinary diagnostic flow chart.

ACTA OTORHINOLARYNGOLOGICA ITALICA 2011;31:27-34

RHINOLOGY

Rhino-Bronchial Syndrome. The SIO-AIMAR (Italian Society of Otorhinolaryngology, Head Neck Surgery-Interdisciplinary Scientific Association for the Study of the Respiratory Diseases) survey

La Sindrome Rino-Bronchiale. Indagine conoscitiva SIO-AIMAR (Società Italiana di Otorinolaringologia e Chirurgia Cervico-Facciale-Associazione Italiana Malattie Respiratorie)

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Major Criteria: Upper airways: nasal obstruction, post-nasal drip, cough. Lower airways: cough, dyspnoea, sputum.

Minor Criteria: Rhinorrhoea, itching, anosmia, sore throat, facial pain, nose bleeding, fever.

RINITI E RINOSINUSITI

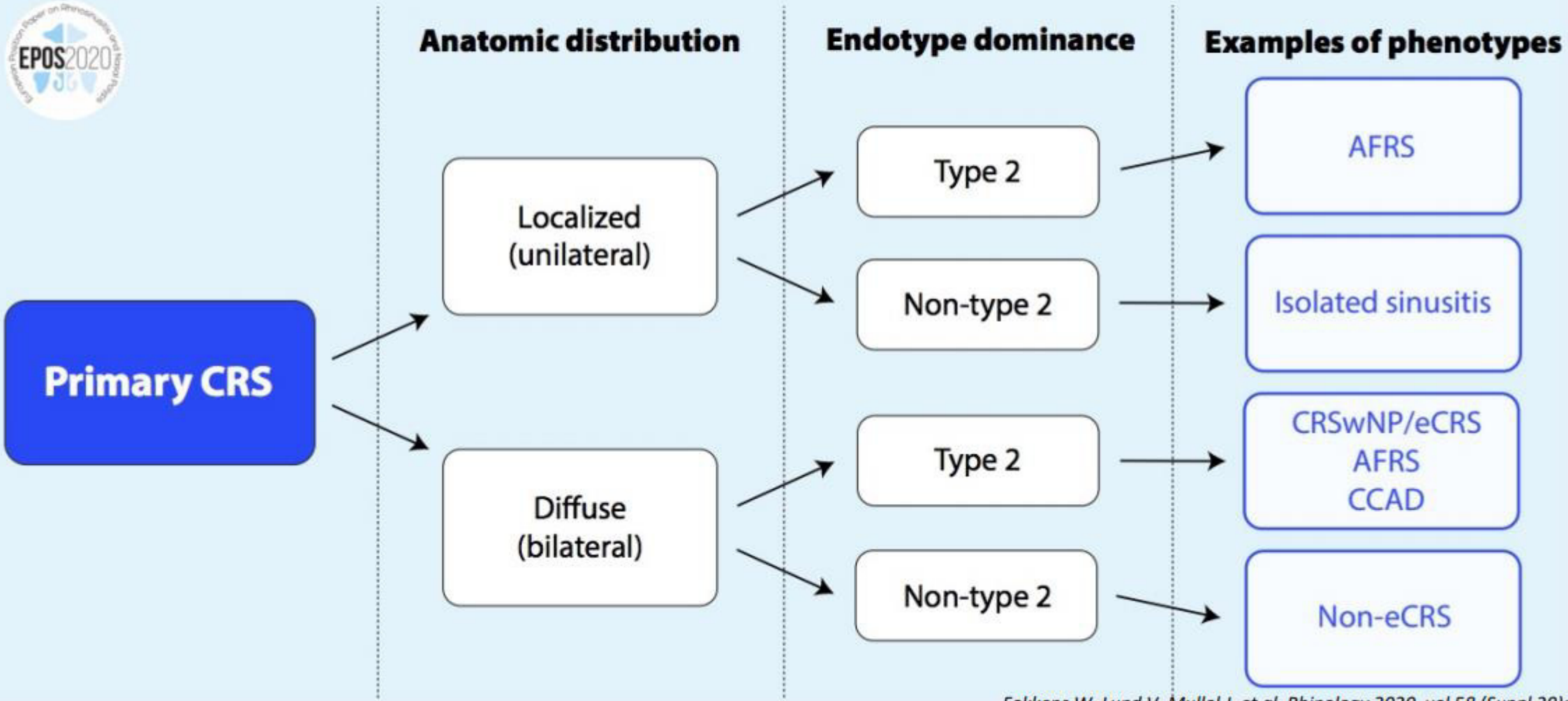
Quali patologie nasali e rino-sinusali posso trovare nella Sindrome Rino-Sinuso-Bronchiale?

CLASSIFICAZIONE GENERALE DELLE RINOPATIE

(From Gelardi M, with permission)

 22

New Classification of CRS



Fokkens W, Lund V, Mullol J, et al. Rhinology 2020, vol 58 (Suppl 29): 1-464.
web: www.epos2020.com, rhinologyjournal.com

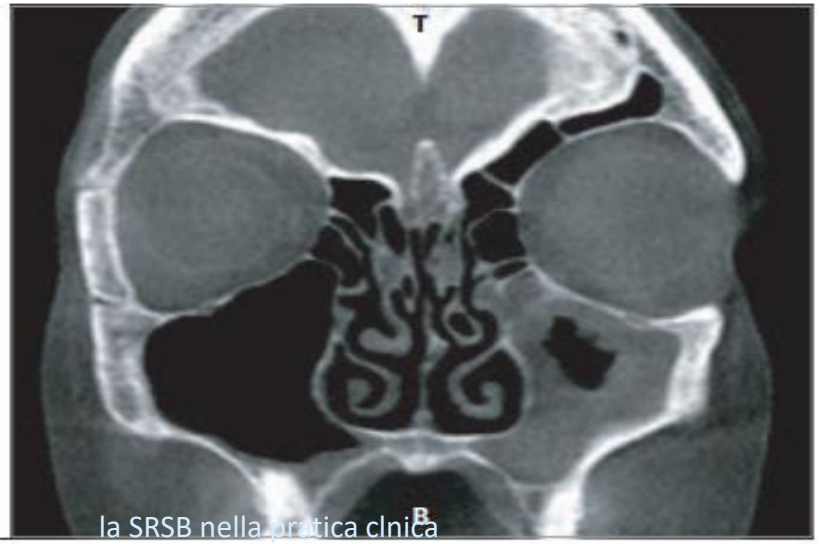
Figure 2. Primary Localized Non-Type 2 Chronic Rhinosinusitis

A Left frontal sinus disease

B Left sphenoid disease

C Purulence in middle meatus

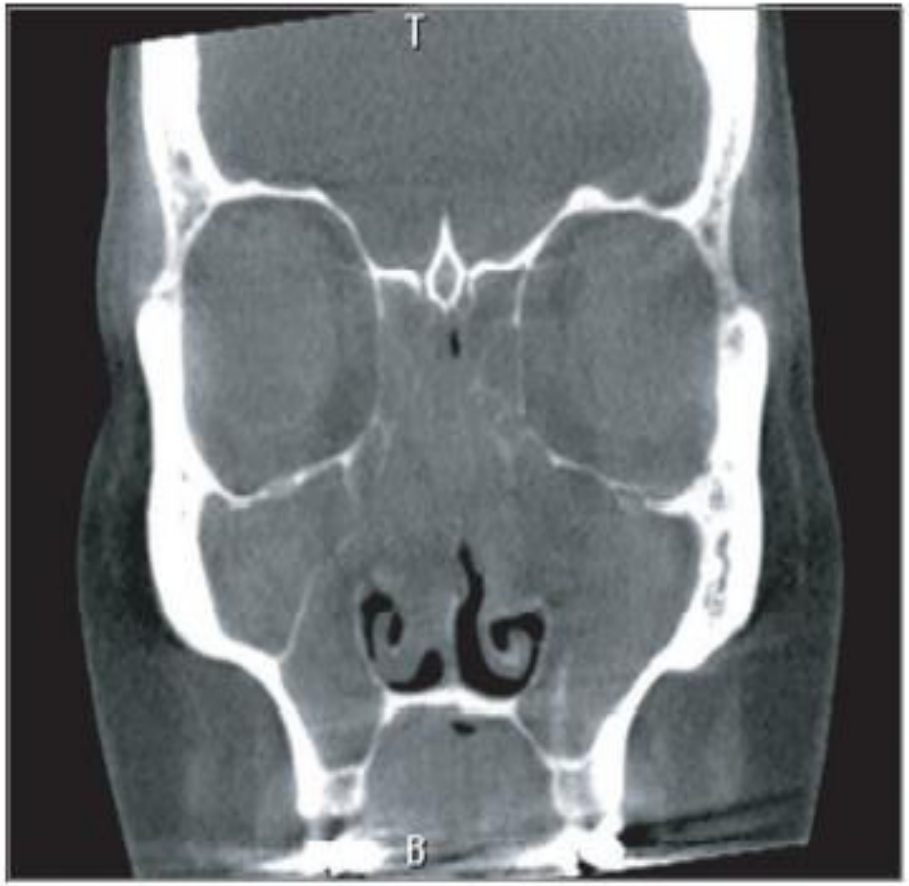
D Left OMC disease



A, Coronal computed tomography (CT) scan showing isolated left frontal sinus disease. B, Axial CT scan showing isolated left sphenoid disease. C, Nasal endoscopy with purulence within the middle meatus for this non-type 2 disease process. D, Coronal CT scan showing isolated left ostiomeatal complex (OMC) disease. These images are examples of traditional ostial occlusion chronic rhinosinusitis disease or isolated sinusitis.

Figure 3. Primary Diffuse Type 2 Dominant Chronic Rhinosinusitis (CRS): Eosinophilic CRS (eCRS) or Adult-Onset Eosinophilic Nasal Polyposis

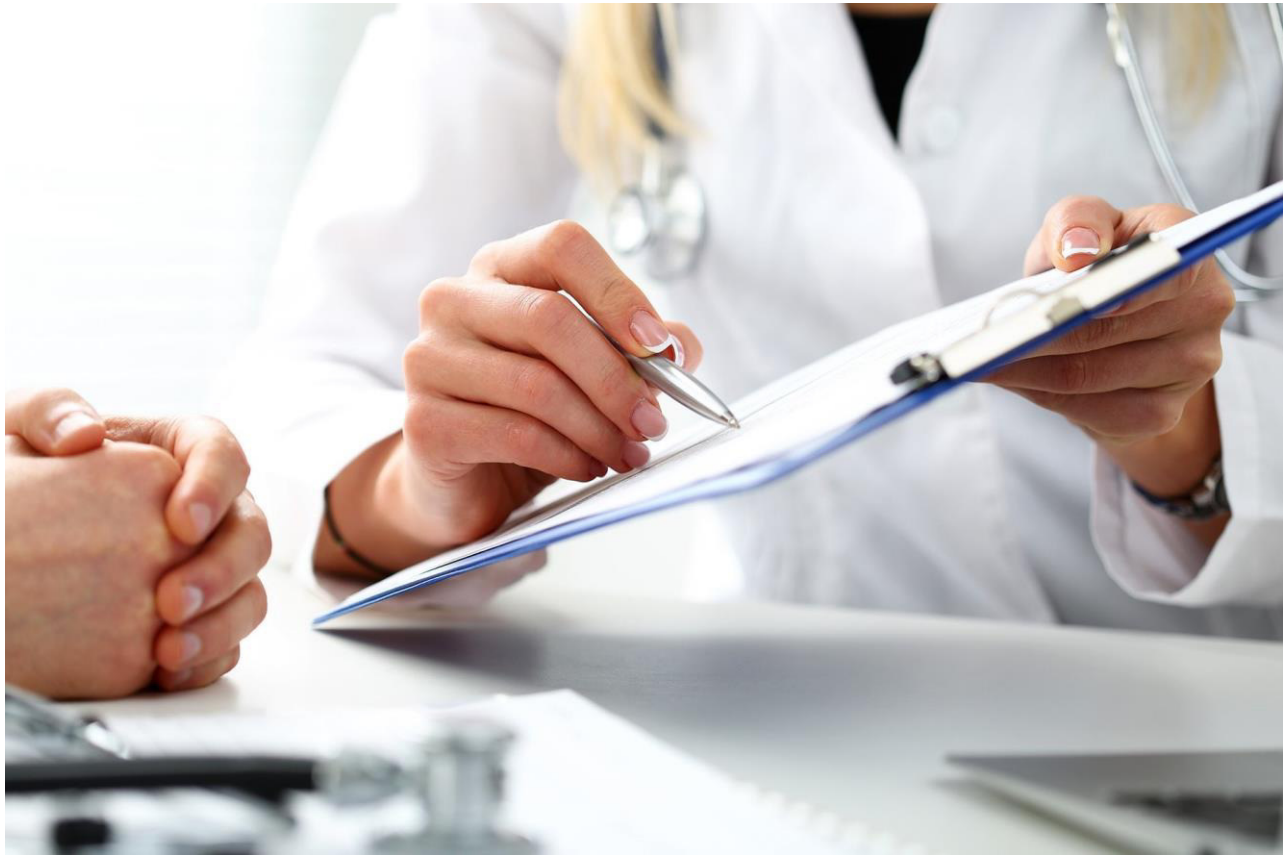
A Pansinus involvement of eCRS



B Middle meatal mucosal edema and eosinophilic secretions

A, Coronal computed tomography scan showing the typical pansinus involvement of eCRS. B, Nasal endoscopy showing extensive middle meatal mucosal edema and eosinophilic secretions. The size of the polyps does not always reflect the severity of the inflammatory process. This type of CRS is often associated with adult-onset asthma. These patients obtain significant relief from corticosteroid use.

CRS e QoL



I.D.:_____ **SINO-NASAL OUTCOME TEST (SNOT-22)** DATE:_____

Below you will find a list of symptoms and social/emotional consequences of your rhinosinusitis. We would like to know more about these problems and would appreciate your answering the following questions to the best of your ability. There are no right or wrong answers, and only you can provide us with this information. Please rate your problems as they have been over the past two weeks. Thank you for your participation. Do not hesitate to ask for assistance if necessary.

1. Considering how severe the problem is when you experience it and how often it happens, please rate each item below on how "bad" it is by circling the number that corresponds with how you feel using this scale: →	No Problem	Very Mild Problem	Mild or slight Problem	Moderate Problem	Severe Problem	Problem as bad as it can be		5 Most Important Items
1. Need to blow nose	0	1	2	3	4	5		○
2. Nasal Blockage	0	1	2	3	4	5		○
3. Sneezing	0	1	2	3	4	5		○
4. Runny nose	0	1	2	3	4	5		○
5. Cough	0	1	2	3	4	5		○
6. Post-nasal discharge	0	1	2	3	4	5		○
7. Thick nasal discharge	0	1	2	3	4	5		○
8. Ear fullness	0	1	2	3	4	5		○
9. Dizziness	0	1	2	3	4	5		○
10. Ear pain	0	1	2	3	4	5		○
11. Facial pain/pressure	0	1	2	3	4	5		○
12. Decreased Sense of Smell/Taste	0	1	2	3	4	5		○
13. Difficulty falling asleep	0	1	2	3	4	5		○
14. Wake up at night	0	1	2	3	4	5		○
15. Lack of a good night's sleep	0	1	2	3	4	5		○
16. Wake up tired	0	1	2	3	4	5		○
17. Fatigue	0	1	2	3	4	5		○
18. Reduced productivity	0	1	2	3	4	5		○
19. Reduced concentration	0	1	2	3	4	5		○
20. Frustrated/restless/irritable	0	1	2	3	4	5		○
21. Sad	0	1	2	3	4	5		○
22. Embarrassed	0	1	2	3	4	5		○

2. Please mark the most important items affecting your health (maximum of 5 items)_____ ↑

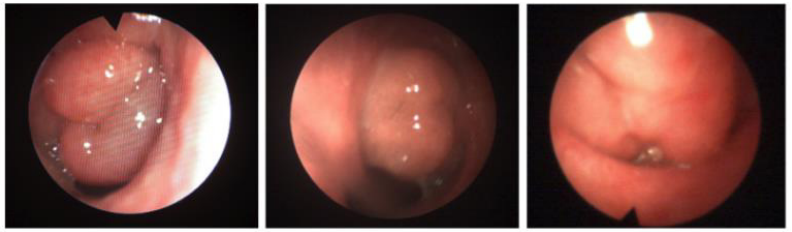
Adenoidite

… recent evidence indicated that adenoid diseases are the major cause of UACS. As patients with chronic cough are mainly admitted to the departments of Pediatrics or Respiration for treatment, and the anatomical locations of adenoids are hidden, the misdiagnosis and missed diagnosis of chronic adenoiditis are common.

The features of cough caused by chronic adenoiditis are as follows:

(1) cough occurring or worsening upon postural change and

(2) cough mainly occurring after falling asleep or when waking up in the morning.



Review

Journal of INTERNATIONAL MEDICAL RESEARCH

Journal of International Medical Research
48(11) 1–8

DOI: 10.1177/0300060520971458
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SAGE

Chronic adenoiditis

Hai Wang

Abstract

In addition to acute adenoiditis and adenoid hypertrophy/vegetation, chronic adenoiditis is another disease of the adenoids. However, most physicians overlook chronic adenoiditis or confuse it with adenoid hypertrophy/vegetation. The incidence of chronic adenoiditis has increased in recent years as a result of higher rates of chronic nasopharyngeal or upper airway infections. The clinical characteristics of chronic adenoiditis can include but are not restricted to the following: long-term infection (especially bacterial infection); obstruction of the upper airway; infections of adjacent regions, such as the nose, nasal sinus, pharyngeal space, middle ear, and atlantoaxial joint; induced upper airway cough syndrome; and the presence of several "infectious-immune" diseases, including rheumatic fever, autoimmune nephropathy, and anaphylactoid purpura. To date, no consensus on the treatment of chronic adenoiditis is available. However, adenoidectomy can address the local obstruction, and some patients benefit from systemic or local anti-bacterial therapy. Physicians in the Departments of Otolaryngology, Respiration, and Pediatrics should be familiar with the clinical manifestations of chronic adenoiditis and try to develop effective treatment methods for this disease.

Keywords

Adenoids, adenoid hypertrophy, adenoidectomy, chronic adenoiditis, infection, upper airway obstruction

Date received: 18 March 2020; accepted: 13 October 2020

Table III. Etiology of upper airway cough syndrome

Cause of UACS	Number of patients (percentage of all patients with UACS)
Perennial allergic rhinitis	10 (28%) Dust mites – 8 Other allergens – 2
Nonallergic rhinitis with eosinophilia	4 (11%)
Nonallergic rhinopathy	5 (14%)
Atrophic rhinitis	3 (8%)
Drug-induced rhinitis	2 (0.5%)
Rhinosinusitis	6 (17%)
Unknown	6 (17%)

UACS – upper airway cough syndrome

Incidenza Relativa%

Chronic cough – assessment of treatment efficacy based on two questionnaires

Marta Dąbrowska[1], Elżbieta M. Grabczak[1], Magdalena Arcimowicz[2], Anna Domeracka-Kołodziej[2], Joanna Domagała-Kulawik[1], Rafał Krenke[1], Marta Maskey-Warzęchowska[1], Bożena Tarchalska-Kryńska[3], Paulina Krasnodębska[1], Ryszarda Chazan[1]

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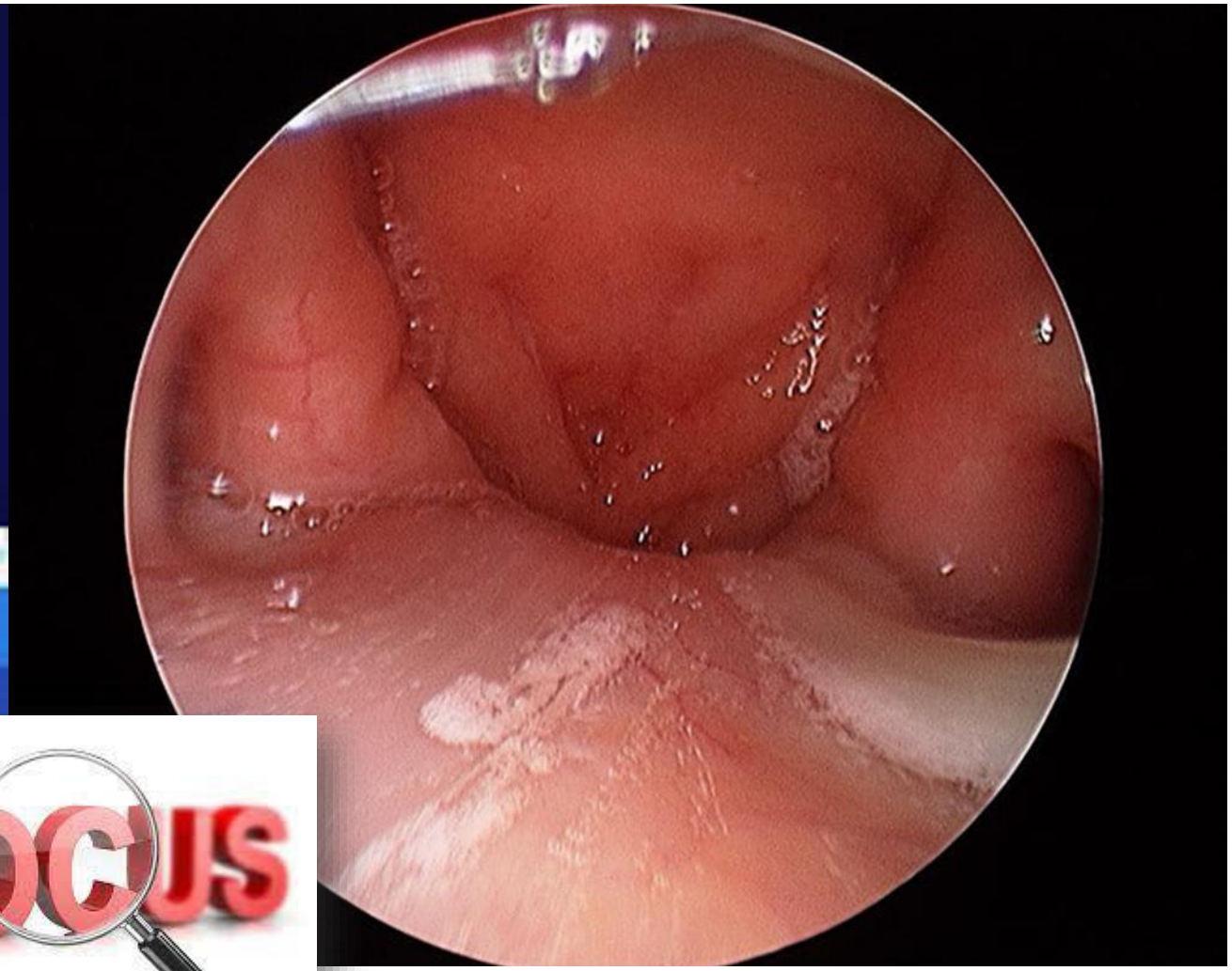
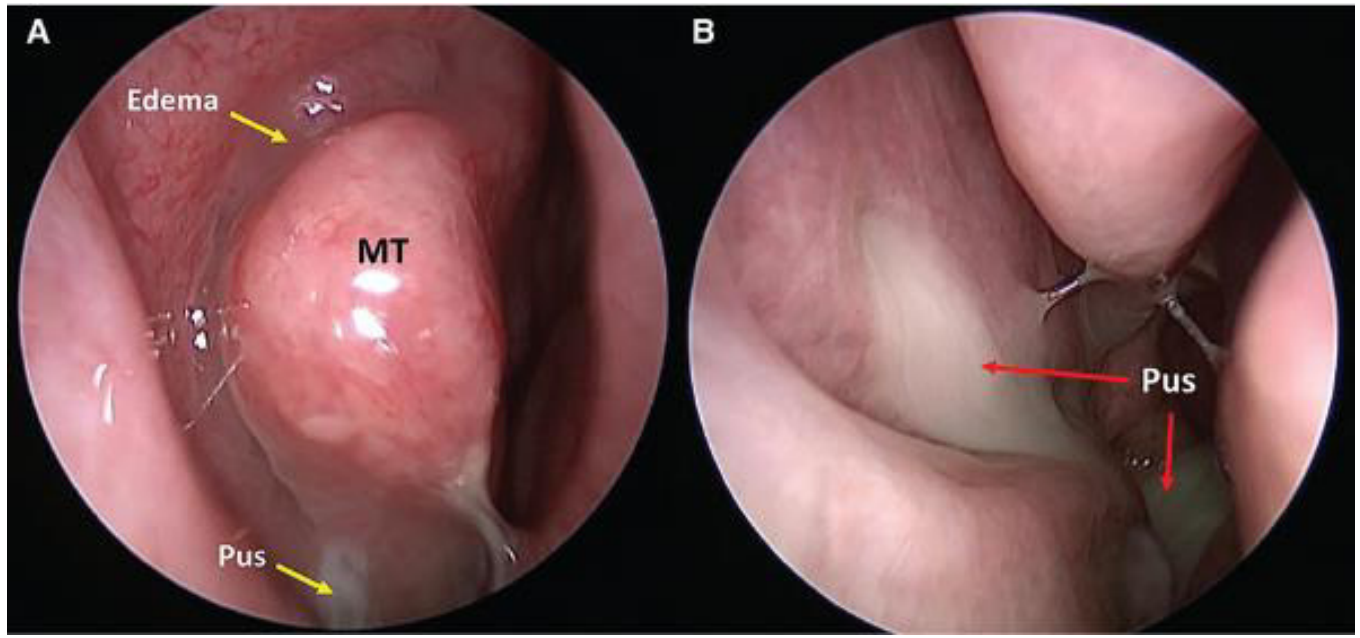
HEALTHY
POST-NASAL DRIP
RETROSCOLO NASALE

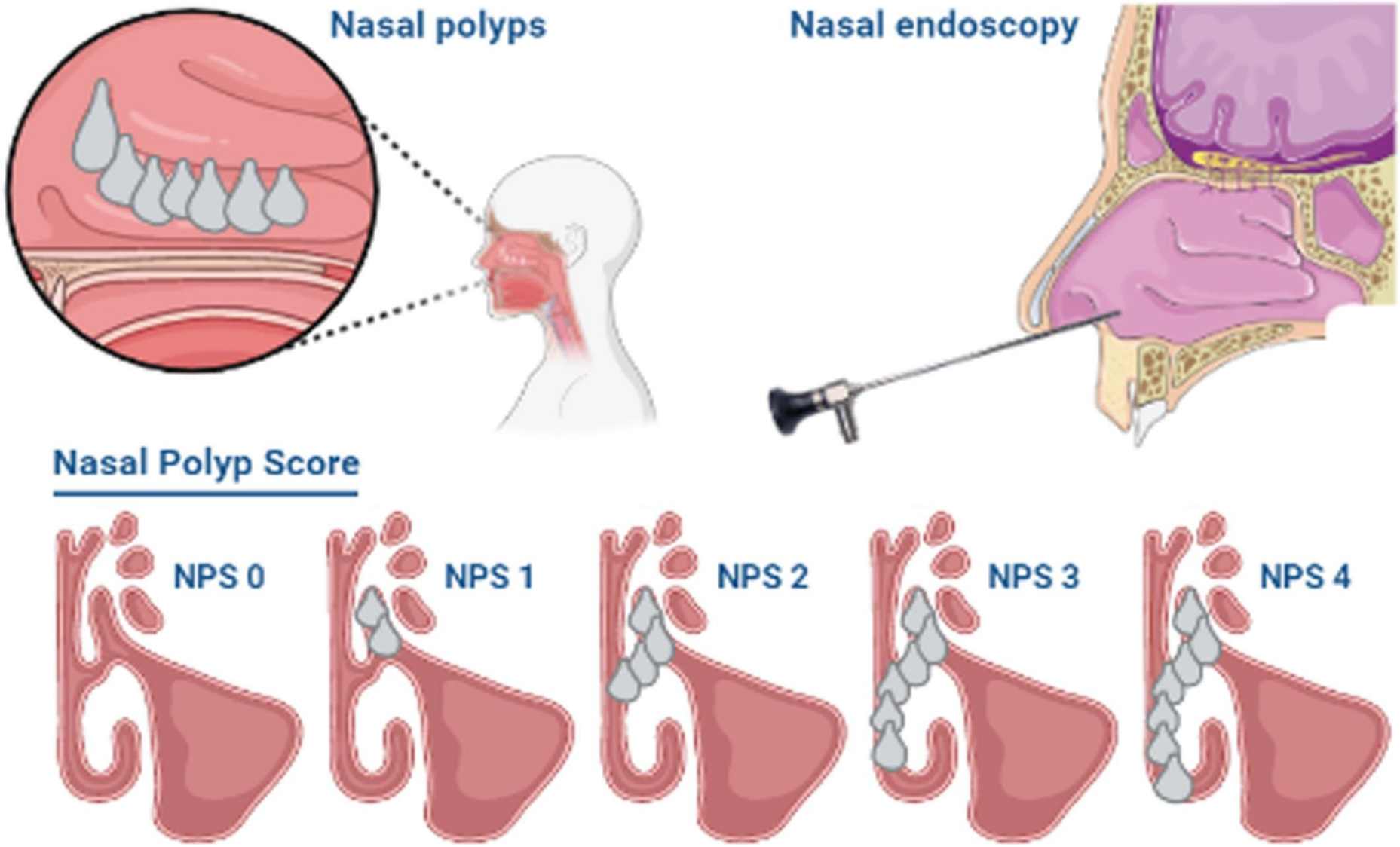



FOCUS

Nasal endoscopy and CT scan are complementary in the assessment of various anatomical variations in the ostiomeatal complex and in intrasinus mucosal disease. Combination of CT scan PNS and fiber optic diagnostic nasal endoscopy is excellent for precise evaluation of nose and paranasal sinuses.



Endoscopic scoring of nasal polyposis



Lund–Mackay Computed Tomography Score Is Associated With Obstructive Pulmonary Function Changes in Chronic Cough Patients

American Journal of Rhinology & Allergy
2019, Vol. 33(3) 294–301

DOI: 10.1177/1945892418825094
journals.sagepub.com/home/ajr
SAGE

Shin Kariya, MD, PhD[1], Mitsuhiro Okano, MD, PhD[2], Takaya Higaki, MD, PhD[1], Tomoyasu Tachibana, MD, PhD[3], Toru Rikimaru, MD, PhD[4], and Kazunori Nishizaki, MD, PhD[1]

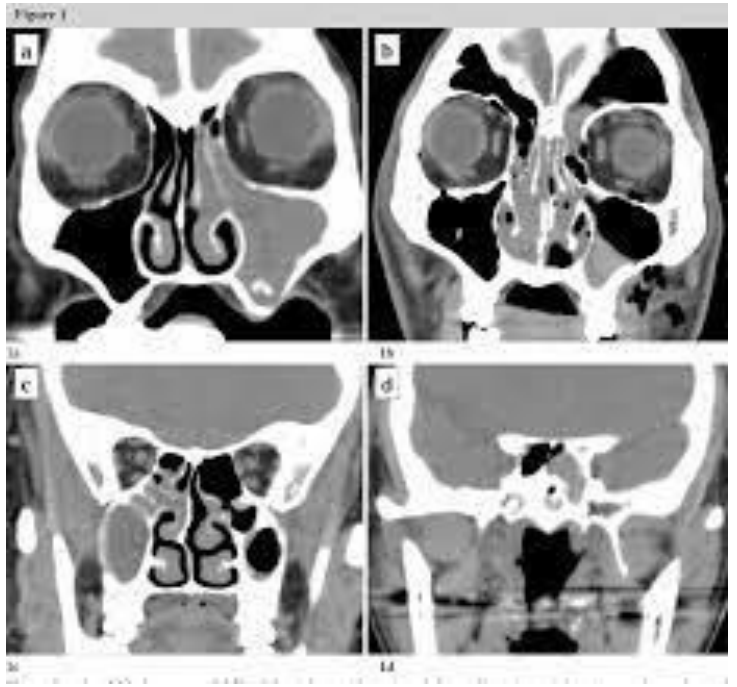
Results: The patients with an abnormal soft tissue shadow in the paranasal sinus had significant obstructive lung function. The percent predicted forced expiratory volume in 1 second ($FEV_{1.0}$) and the $FEV_{1.0}$/forced vital capacity ratio negatively correlated with Lund–Mackay CT scores both before and after bronchodilator inhalation. There was a statistically significant correlation between pulmonary function and eosinophil count.

Conclusion: The patients with chronic cough frequently had paranasal sinus abnormalities. The Lund–Mackay CT score may be useful for assessing the condition of the lower airway in chronic cough patients. Upper airway examinations should play a part in the management of chronic cough.

Chart 2. Lund-Mackay score of CT scan.

paranasal sinuses	Right	Left
Maxillary (0,1,2)		
Anterior Ethmoid (0,1,2)		
Posterior Ethmoid (0,1,2)		
Sphenoid (0,1,2)		
Frontal (0,1,2)		
Ostiomeatal Complex (0,2)*		
Total		

Note: 0- without abnormalities; 1- partial opacification; 2- total opacification
*0- no obstruction; 2- obstructed



Esami di Laboratorio

Concentrazione di Ossido Nitrico Nasale (nNO)

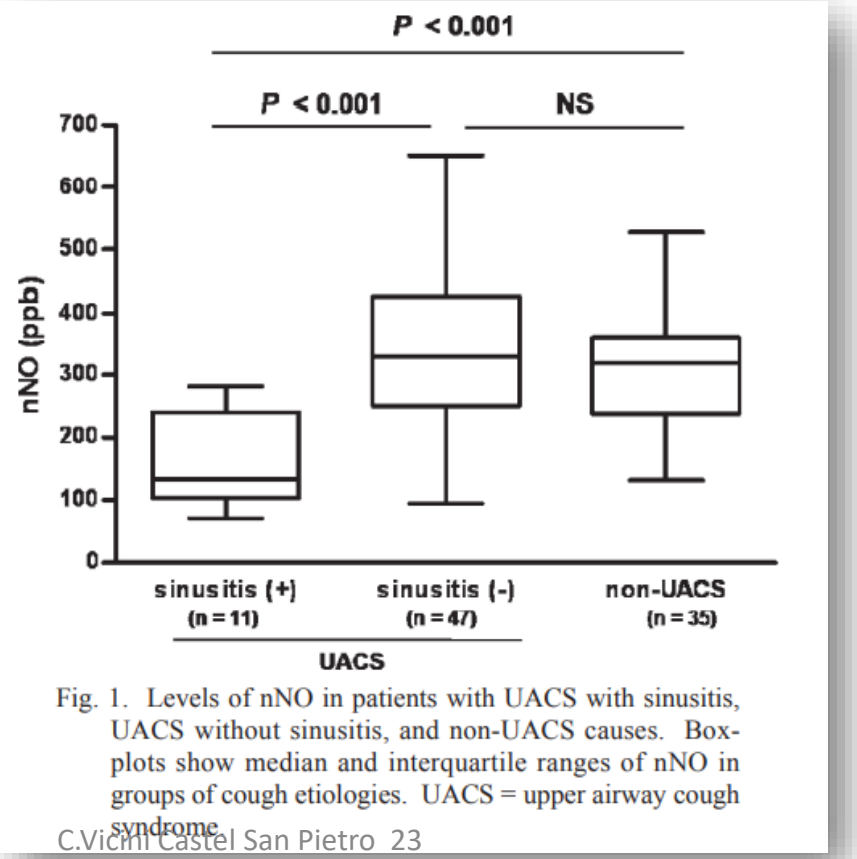


Fig. 1. Levels of nNO in patients with UACS with sinusitis, UACS without sinusitis, and non-UACS causes. Box-plots show median and interquartile ranges of nNO in groups of cough etiologies. UACS = upper airway cough syndrome.

Tohoku J. Exp. Med., 2011, **223**, 145-151

Measurement of Nasal Nitric Oxide Is Useful for the Diagnosis of Sinusitis-Induced Prolonged Cough

Sang-Heon Kim,[1] Jin Hyeok Jeong,[2] Hyun Jung Kwak,[1] Sung Heon Song,[1] Tae Hyung Kim,[1] Jang Won Sohn,[1] Dong Ho Shin,[1] Ho Joo Yoon[1] and Sung Soo Park[1]

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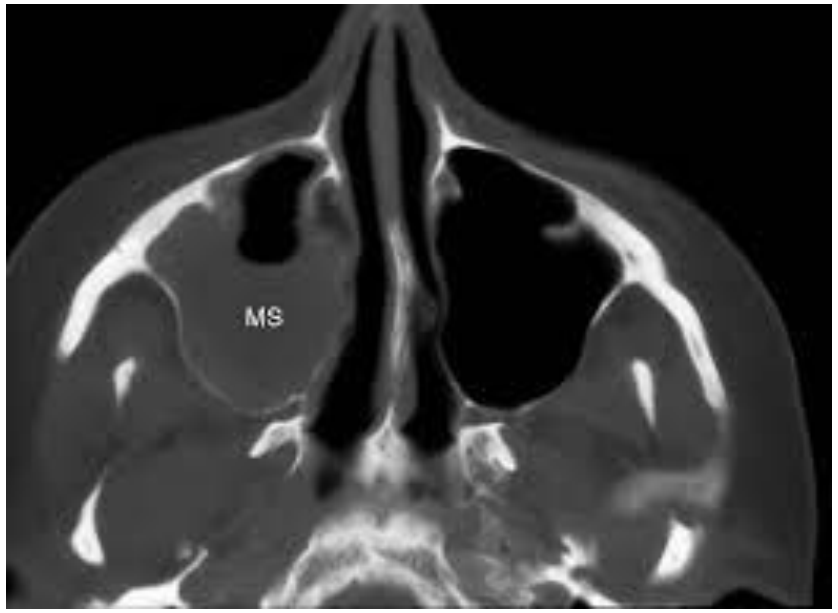
Upper airway cough syndrome (UACS), the most common cause of prolonged cough, is diagnosed based on clinical findings without specific diagnostic test. The concentration of nitric oxide in nasal cavity air (nNO) is influenced by allergic rhinitis and/or sinusitis, both of which are common causes of UACS. We measured nNO levels in patients with UACS and those with other causes. We also examined the usefulness of measuring nNO for differentiating patients with sinusitis from those without sinusitis. The study included 93 adult patients with prolonged cough lasting more than three weeks. Etiologies of cough were identified and nNO was measured at the initial investigation. UACS was diagnosed in 58 patients (62.4%), and sinusitis was identified in 11 (19.0%) of the 58 patients with UACS. Levels of nNO in UACS did not differ from non-UACS etiologies (316.2 ± 129.2 vs. 334.9 ± 88.2 ppb; $p = 0.452$), suggesting that the measurement of nNO could not discriminate UACS from other etiologies of prolonged cough. However, patients with sinusitis showed significantly decreased nNO levels (190.1 ± 114.8 ppb) compared with patients with UACS without sinusitis (345.7 ± 114.6 ppb; $p < 0.001$) and non-UACS patients (334.9 ± 88.2 ppb; $p < 0.001$). In a receiver operating characteristic curve analysis for the diagnosis of sinusitis in prolonged cough, the best sensitivity (73.2%) and specificity (81.8%) were obtained with a nNO cutoff value of 279.0 ppb. These findings imply that the measurement of nNO could be useful for diagnosis of prolonged cough associated with sinusitis.

Keywords: prolonged cough; nasal nitric oxide; upper airway cough syndrome; sinusitis
Tohoku J. Exp. Med., 2011, **223** (2), 145-151.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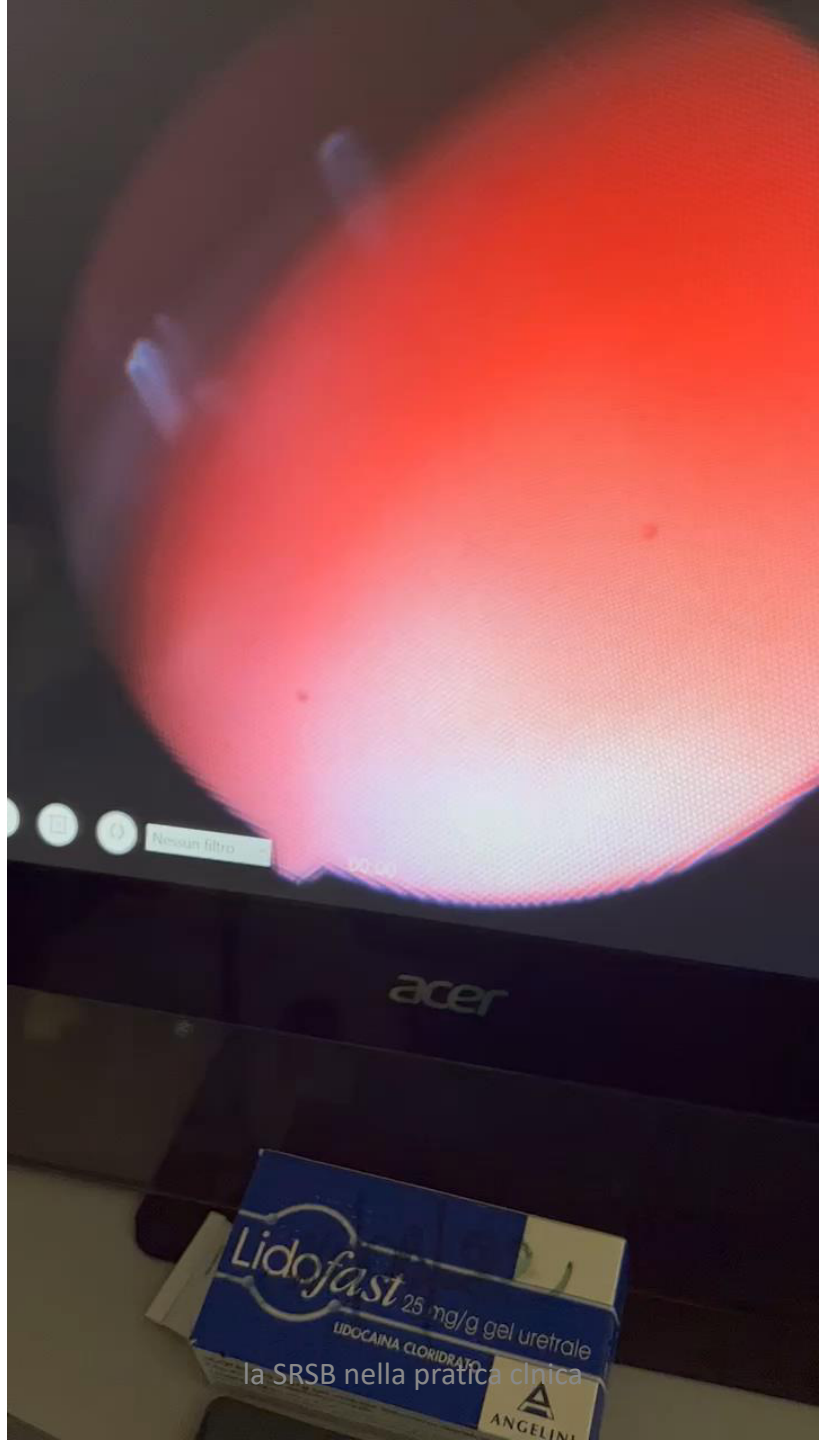
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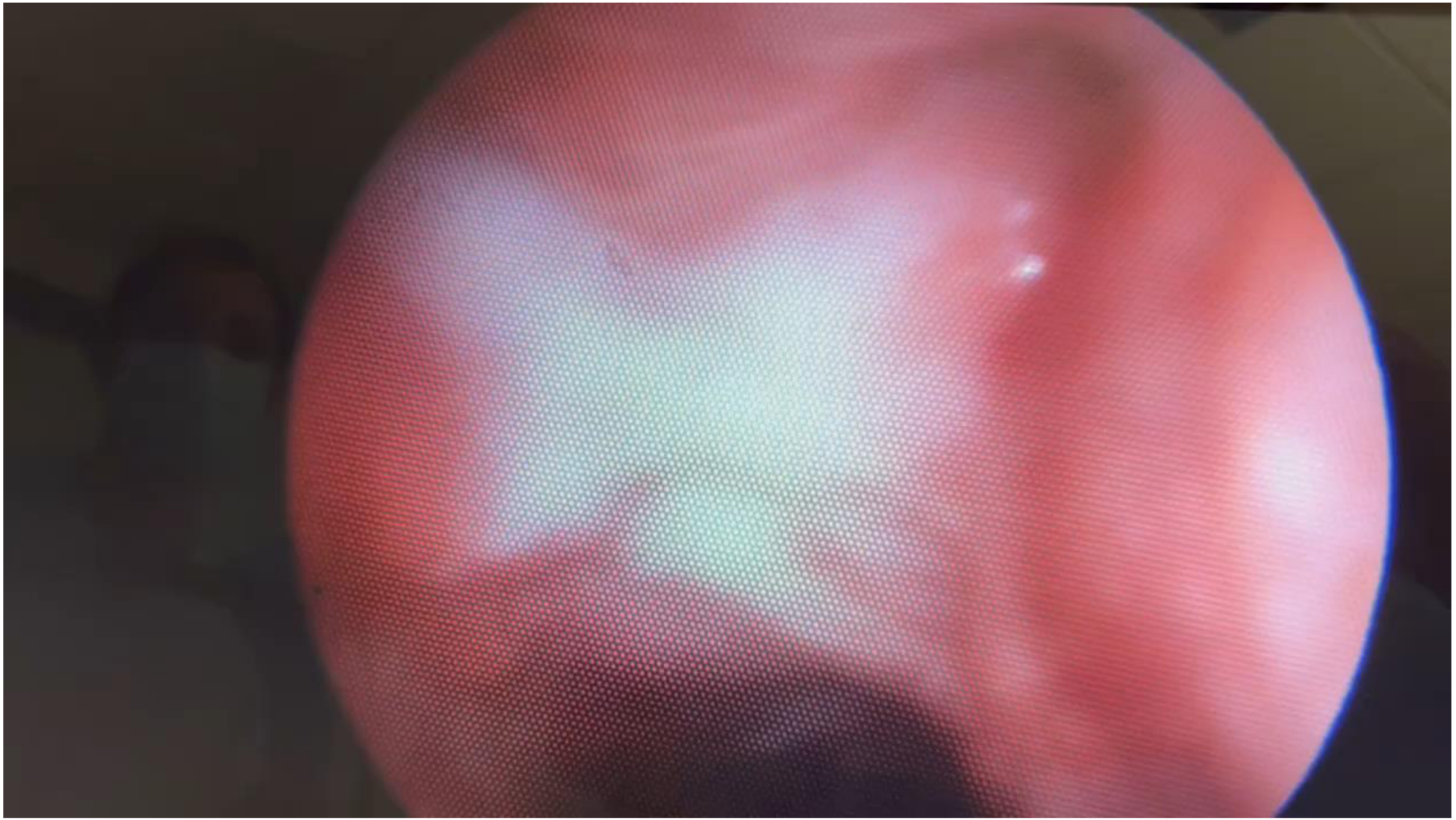

TOSSE e PND: possibile diagnosi

Postgrad Med J 1996; 72: 594–598 © The Fellowship of Postgraduate Medicine, 1996

Classic symptoms revisited

Diagnosis and management of chronic persistent dry cough

KF Chung, UG Lalloo

Department of Thoracic Medicine, Royal Brompton Hospital, National Heart & Lung Institute, London SW3 6LY, UK
KF Chung
UG Lalloo

Accepted 3 January 1996

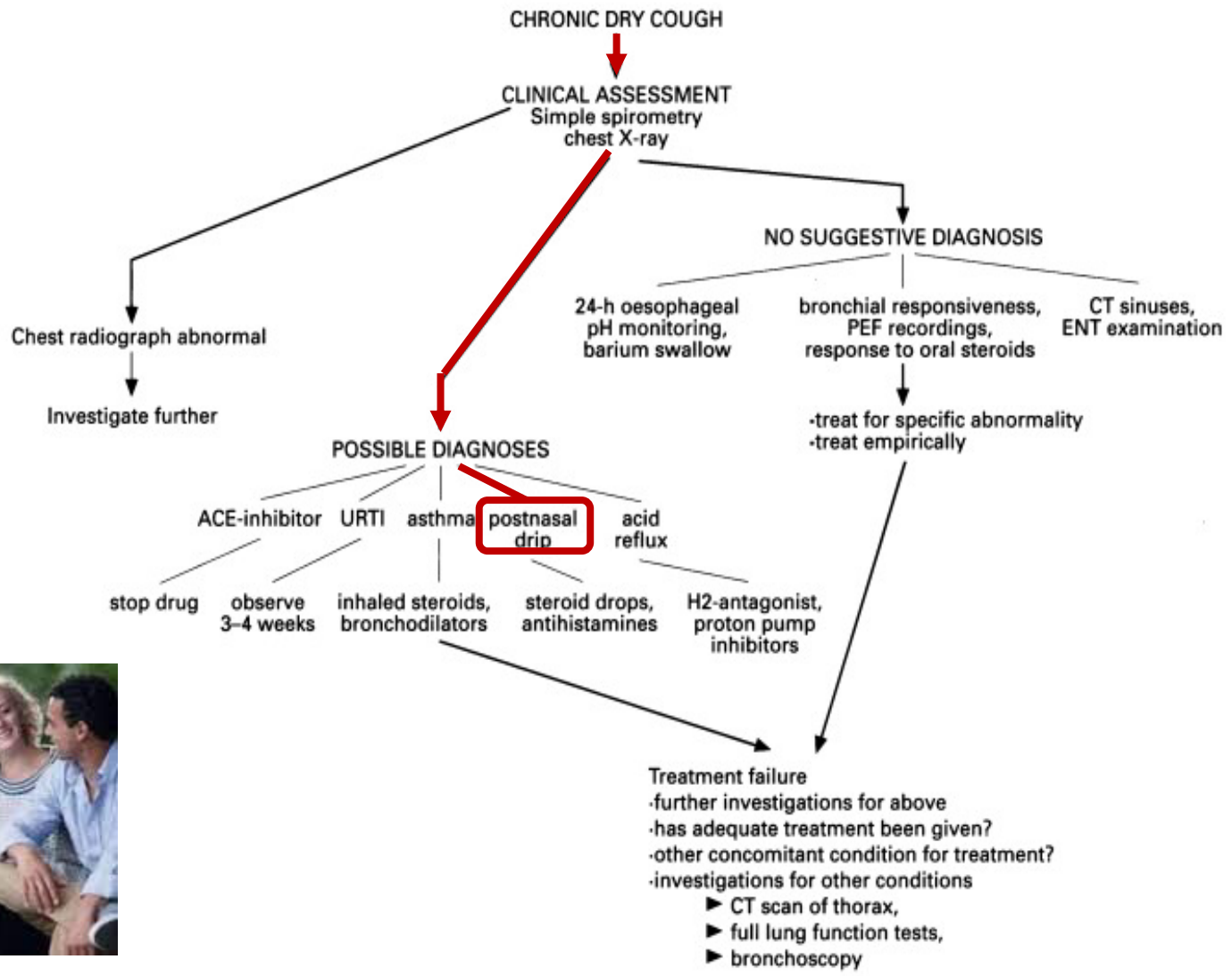

Figure Some approaches to the investigation of persistent dry cough. Abbreviations: ACE: angiotensin-converting enzyme; URTI: upper respiratory tract infection; PEF: peak expiratory flow; CT: computed tomography; ENT: ear, nose, and throat

in vivo 35: 1799-1803 (2021)
doi:10.21873/invivo.12440

PSD e durata della tosse

Retrospective Study of the Effects of Post-nasal Drip Symptoms on Cough Duration

TAKEO NAKAJIMA[1], TATSUYA NAGANO[2] and YOSHIHIRO NISHIMURA[2]

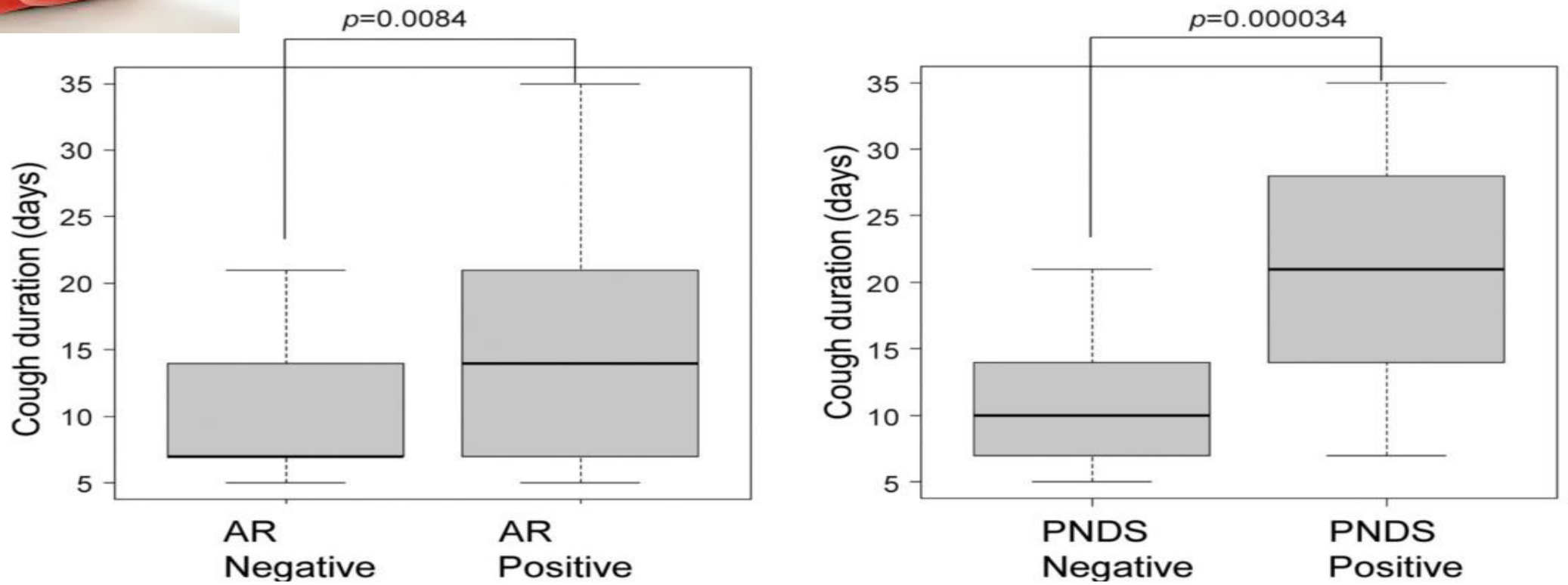

Figure 2. *Duration from first visit to cough disappearance. Cough duration in patients with allergic rhinitis (AR) or post-nasal drip symptoms (PNDS) was significantly longer than that in patients without AR (p=0.0084) or PNDS (p=0.000034), respectively. Bars indicate means.*

PND e terapia ex adj

Respiratory Medicine (2009) 103, 1700–1705

available at www.sciencedirect.com

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journal homepage: www.elsevier.com/locate/rmed

Postnasal drip and chronic cough: An open interventional study

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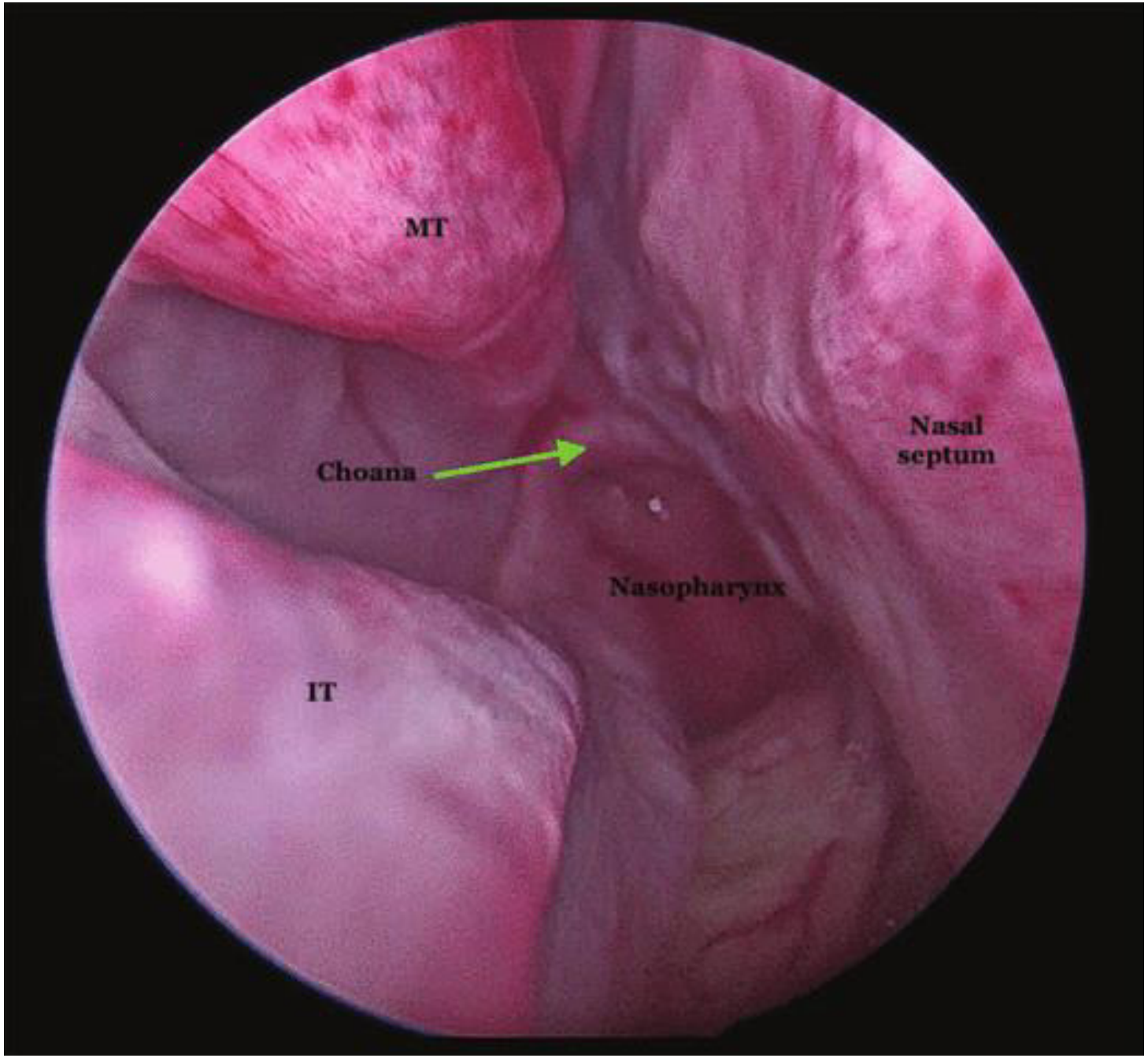
Received 3 December 2008; accepted 5 May 2009
Available online 29 May 2009

KEYWORDS
Cough;
Postnasal drip;
Rhinosinusitis

Summary
Background: The postnasal drip (PND) syndrome is often linked as a cause of chronic cough although this is disputed.
Objectives: We examined the effect of specific topical treatment of rhinosinusitis on cough in patients presenting with a chronic cough associated with a postnasal drip or 'nasal catarrh'.
Methods: Patients presenting with a chronic cough and who complained of PND were enrolled and symptoms of PND and cough were assessed by questionnaire and by a capsaicin cough response. Rhinosinusitis was assessed by questionnaires, direct examination of the nose and by high-resolution computed tomography. In an open study, they were treated with fluticasone nasules, ipratropium bromide and azelastine nasal sprays for 28 days, after which they were re-assessed.
Results: Eighteen out of 21 patients completed the study. All patients reported having the presence of mucus in the throat. Mean cough score improved post-treatment ($p < 0.05$), but there was no significant change in capsaicin cough sensitivity or nasal catarrh questionnaire score. There was improvement in anterior nasal discharge symptom scores ($p = 0.005$) and in endoscopic nasal scores post-treatment ($p < 0.01$), with a tendency to improved PND scores.
Conclusion: In a pilot open 'real-life' study treatment targeted towards rhinosinusitis accompanying PND syndrome and chronic cough led to an improvement in cough. A randomised controlled study is now needed to confirm or refute these findings.

E se non è possibile svelare il post nasal drip?

Esistono indizi indiretti in assenza di scolo retronasale?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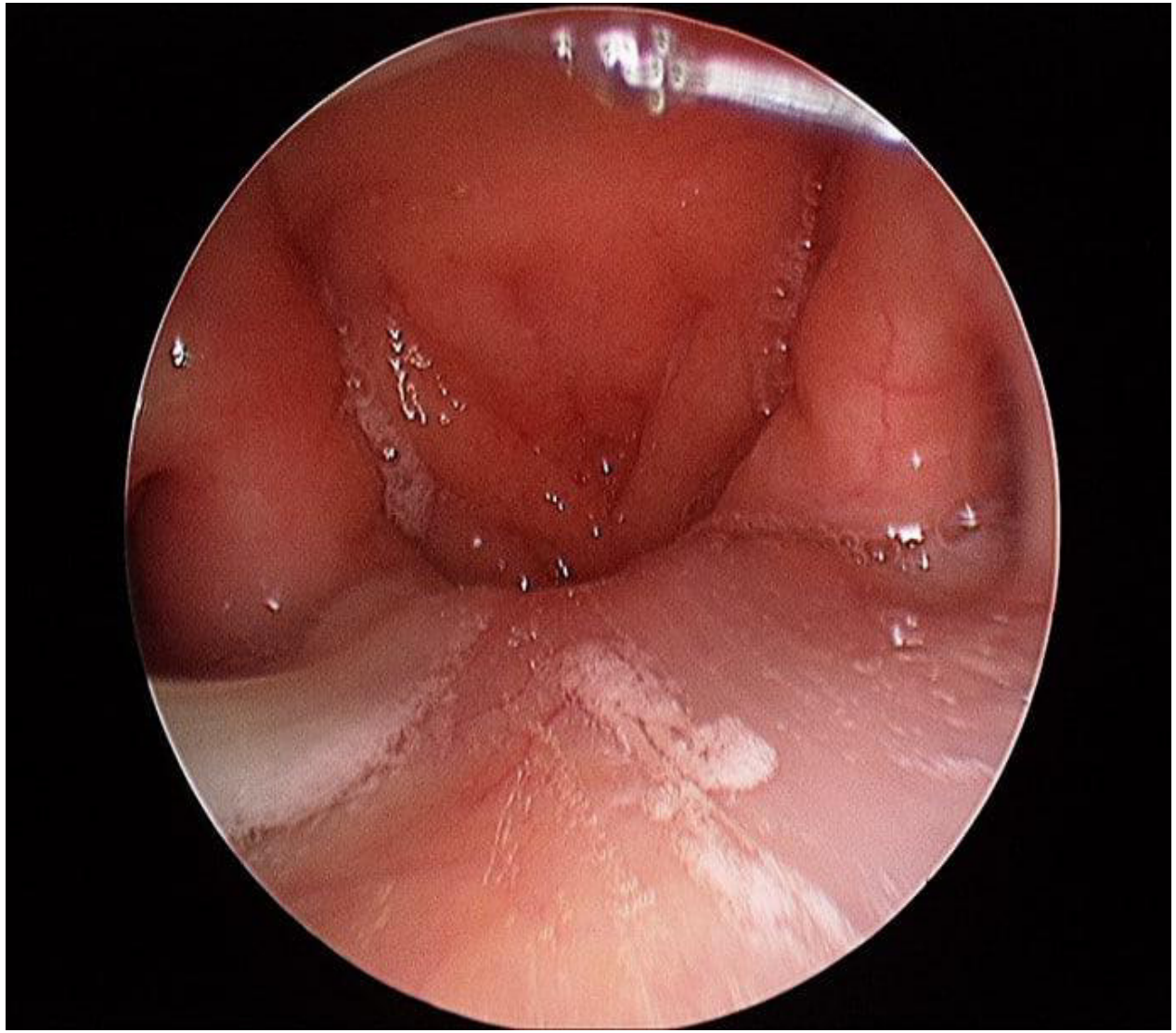
Nasal septum
Nasopharynx
IT



Compensatory hypertrophy of the inferior turbinate is seen when the nasal septum is deviated to the opposite side, and the turbinate seems to fill the empty space. **Protrusion** is where the turbinate extends more medially into the nasal cavity than expected. It may be more apparent on the coronal CT images when the conchal bone may be seen to make a less acute angle with the lateral nasal wall. Hyperplasia of the turbinate head and whole length of the turbinate may both occur with chronic rhinitis. Should the head enlarge, the turbinate may enlarge anteriorly and obstruct the nasal valve. Hyperplasia of the posterior end is said to occur in patients with chronic sinusitis and post-nasal discharge.

In patients with rhinitis, the effect of the nasal cycle is accentuated; patients may become aware of the cycling effect on their sensation of nasal obstruction that may become significantly worse whilst in the supine position due to nasal reflexes. In patients with severe forms of rhinitis or significant rhinosinusitis, the inferior turbinates may become chronically enlarged. This effect becomes even more so should the patient self-medicate with xylometazoline to try and decongest the nose.

Sarcoidosis is an unusual disorder that may cause quite severe inferior turbinate enlargement and should be

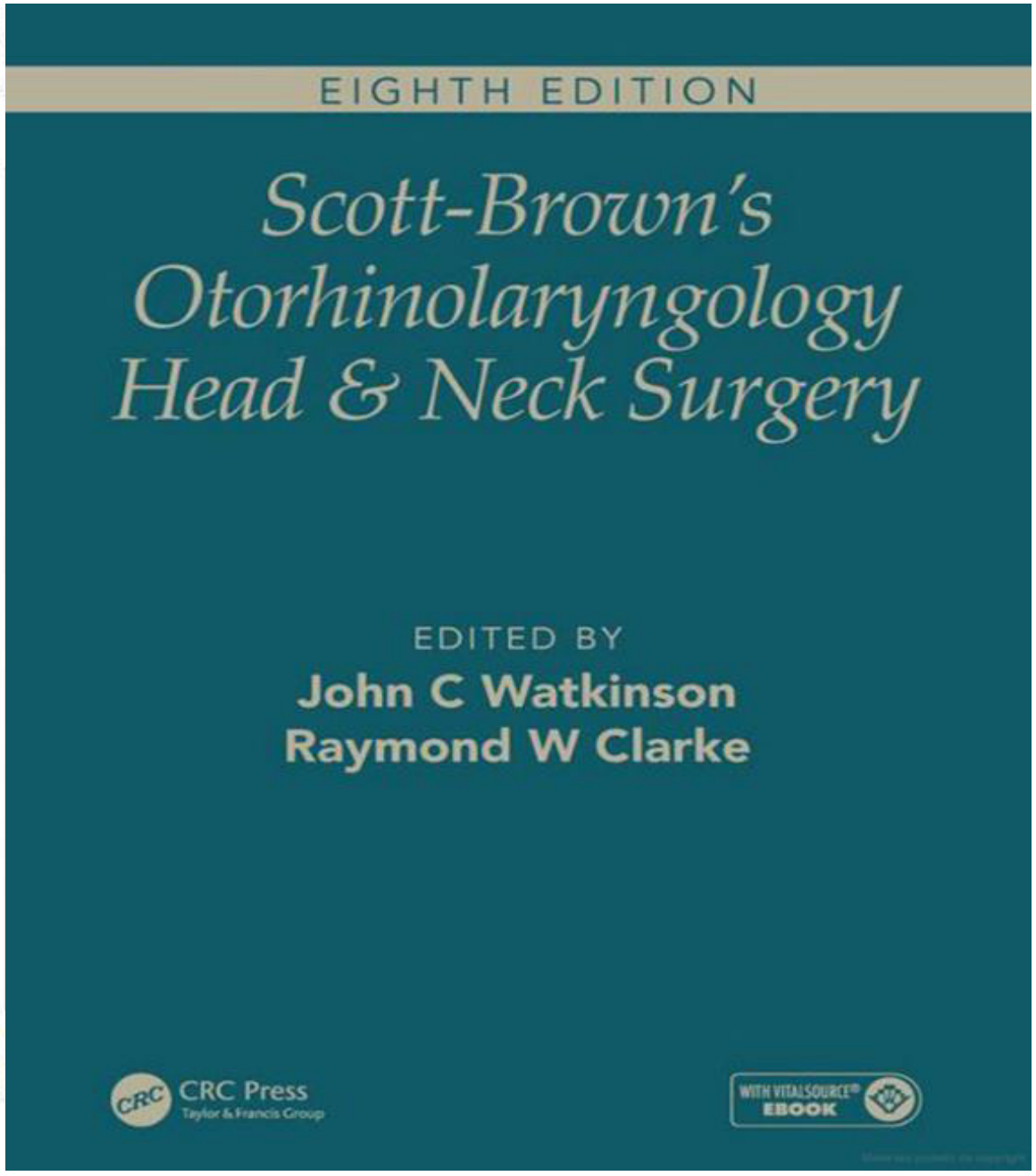


FIGURE 3 Endoscopic image of the oropharynx in patients with PNDS. Representative view showing a reddish curtain sign on the posterior pharyngeal wall behind the palatopharyngeal arch

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DOI: 10.1111/crj.13351

ORIGINAL ARTICLE

Clin Respir J. 2021;15:568–573.

WILEY

Characteristic appearance of the oropharynx in patients with postnasal drip (PND)-induced cough

Katsuyuki Tomita[1] | Tomoyuki Ikeuchi[1] | Hirokazu Touge[1] | Yosuke Nakamura[2] | Yuko Yamamoto[2] | Hiromi Takeuchi[2] | Akira Yamasaki[3]

TABLE 1 Characteristics of the patients

	Total (n = 135)	Without cough (n = 30)	With acute cough (n = 78)	With subacute cough (n = 20)	With chronic cough (n = 7)
Age, yrs	55.3 ± 17.2	57.1 ± 20.4	53.7 ± 16.6	57.6 ± 11.8	57.7 ± 23.6
Sex, %female	71.1%	71.1%	76.9%	65.0%	71.4%
Asthma	52.6%	52.6%	55.1%	50.0%	42.9%
Repeated events	26.7%	26.7%	28.2%	25.0%	0%
Symptoms					
Sore or scratchy throat	43.0%	56.7%	42.3%	25.0%	2.6%
Fever	27.0%	23.3%	30.8%	15.0%	14.3%
Runny nose	48.0%	63.3%	44.9%	40.0%	42.9%
Nasal voice	30.0%	43.3%	29.5%	20.0%	28.6%
Phlegm	41.0%	16.7%	50.0%	40.0%	57.1%
Physical findings					
Reddish curtain sign	89.6%	90.0%	92.3%	85.0%	71.4%
Laboratory data					
White blood cells, / μL	6,713 ± 2,677	6,597 ± 2,331	6,660 ± 2,795	6,375 ± 3,023	7,000 ± 1,911
C-reactive protein, mg/mL	1.0 ± 2.5	0.8 ± 1.5	1.3 ± 3.1	0.35 ± 0.79	0.14 ± 0.16

Note: Acute cough was defined as cough lasting less than 3 weeks, subacute cough as lasting between 3 and 8 weeks, and chronic cough as lasting more than 8 weeks.


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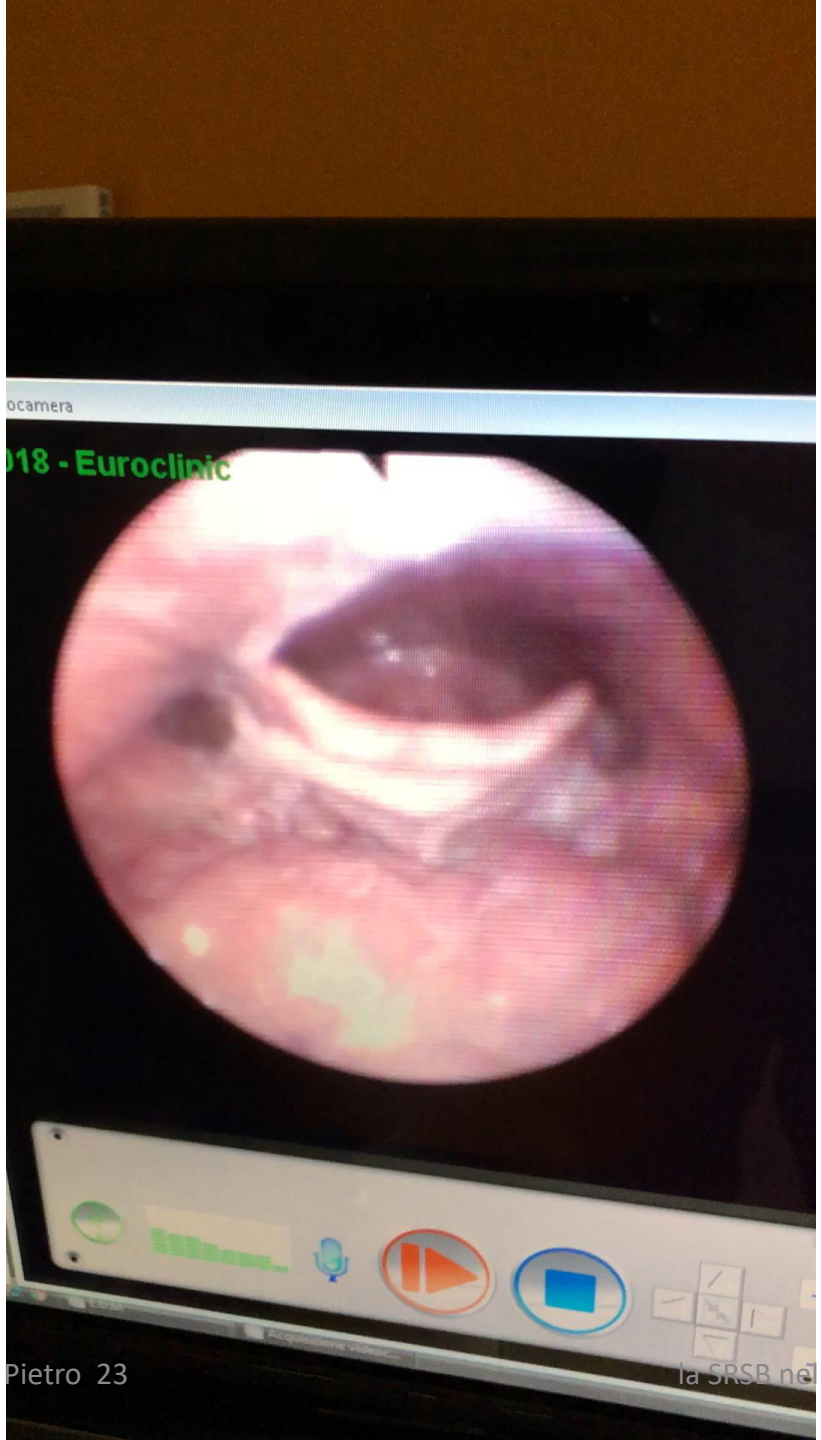
FAKE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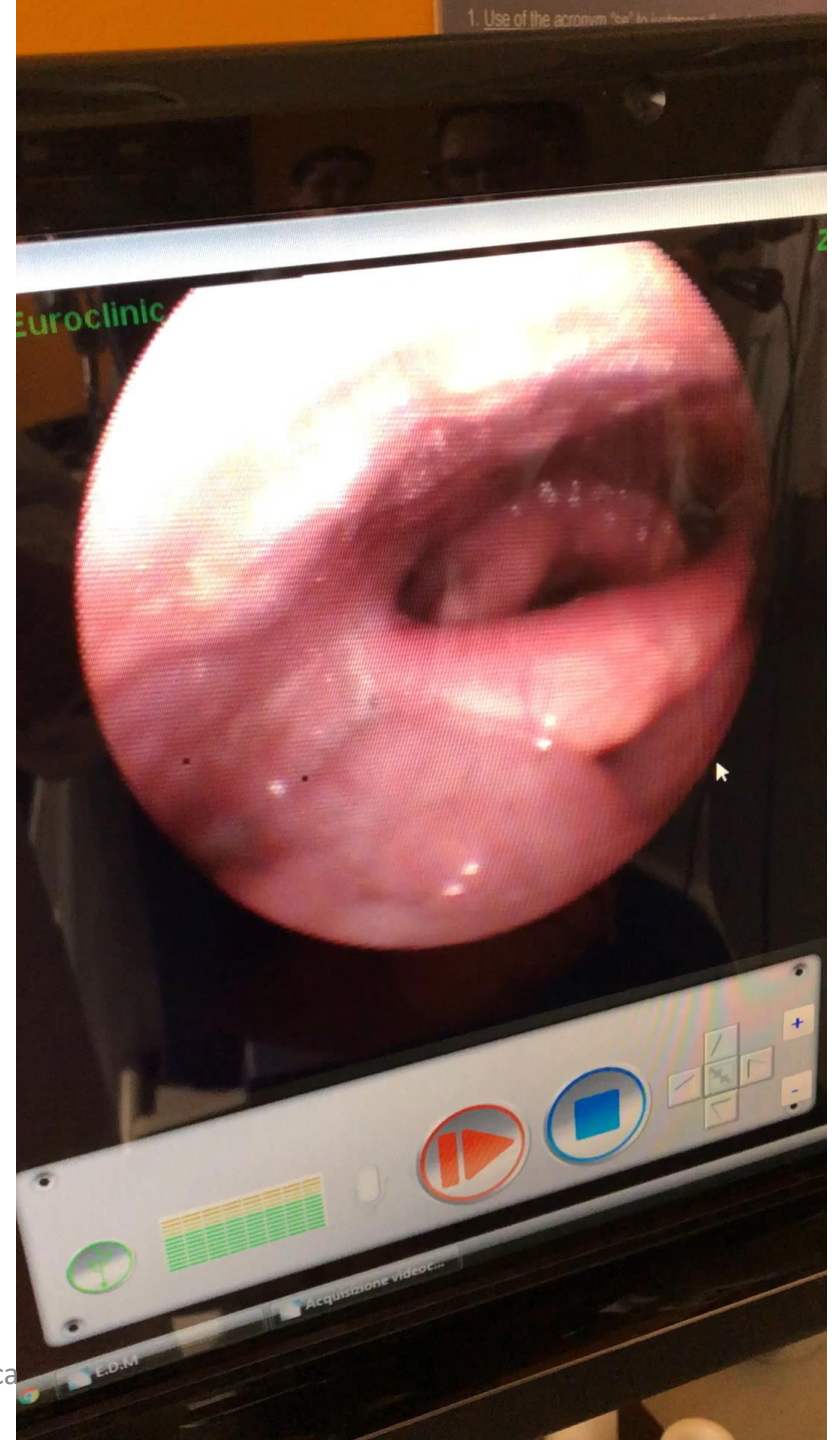
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Table 1. LTH Grades and Their Distribution in Both Groups.

	Total Median (Min/Max) n (%)	Control Median (Min/Max) n (%)	Study Median (Min/Max) n (%)	*P*
Age	38 (18/80)	42 (20/80)	37 (18/77)	.766[a]
Sex				
Female	71 (59.7)	22 (52.4)	49 (63.6)	
Male	48 (40.3)	20 (47.6)	28 (36.4)	
LTH Grade				
0	27 (22.7)	17 (40.5)[b]	10 (13.0)	**.002**[c]
1	37 (31.1)	13 (31.0)	24 (31.2)	
2	31 (26.1)	9 (21.4)	22 (28.6)	
3	24 (20.2)	3 (7.1)	21 (27.3)[d]	
LTH				
Absent	27 (22.7)	17 (40.5)	10 (13.0)	**.001**[e]
Present	92 (77.3)	25 (59.5)	**67 (87.0)**	4.6 (1.8–11.3)[f]

Abbreviations: LTH, lingual tonsil hypertrophy; Max: maximum; Min, minimum. Boldface values represent statistically significant *P* values.
[a]Mann–Whitney *U* test (Monte Carlo).
[b]Significant compared to the study group.
[c]Pearson χ^2 test (Monte Carlo).
[d]Significant compared to the control group.
[e]Pearson χ^2 test (Exact).
[f]Odds ratio (95% confidence interval).

Original Article

American Journal of Rhinology & Allergy
2020, Vol. 34(1) 87–92

DOI: 10.1177/1945892419875086
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Lingual Tonsil Hypertrophy in Patients With Allergic Rhinitis

Kübra Çoban, MD[1], Alper Köycü, MD[1], and Erdinc Aydın, MD[1]

Abstract

Background: Lingual tonsils, part of the Waldeyers' Ring, are located in base of the tongue. They are commonly observed in childhood, due to increased immunological activity. Several factors such as laryngopharyngeal reflux, younger age, smoking, and obesity are associated with hypertrophy of lingual tonsils (LTH) in adulthood. However, the relation between allergic rhinitis and LTH is not clearly highlightened in the literature so far.
Objective: To investigate the role of allergic rhinitis in the development of LTH.
Methods: Adult patients who were diagnosed with allergic rhinitis were included in the study group. The control group consisted of age- and sex-match healthy volunteers. Complete otorhinolaryngology examination including fiberoptic endoscopic evaluation was performed to both groups. Blood samples were obtained for total immunglobulin E levels, and skin prick tests were performed to both groups. Patients with allergy complaints and positive skin prick tests were included in the study group, while healthy volunteers with negative skin prick tests were enrolled in the control group. The grading for LTH was achieved by a physician who was blind to the study.
Results: The incidence of LTH was significantly higher in the study group when compared to the control group ($P = .001$). Similarly, the incidence of grade 3 LTH was significantly higher in the study group compared to the controls ($P = .002$).
Conclusion: According to our results, LTH is more frequently observed in patients with allergic rhinitis. Grade 3 representing larger LTH is more commonly seen in patients with allergic rhinitis.

Keywords
allergic rhinitis, lingual tonsil, lingual tonsil hypertrophy, sleep apnea, airway obstruction, dysphagia

Rhinology . 2006 Dec;44(4):270-3.

"Post-nasal drip syndrome": most patients with purulent nasal secretions do not complain of chronic cough

J O'Hara [1], N S Jones

PMID: **17216744**

Introduction: Post-nasal drip syndrome (PNDS) is quoted as a common cause of chronic cough. However, there is little evidence to explain the mechanism by which PNDS may stimulate the cough reflex. This cohort study looks at patients with purulent nasal secretions, who may best represent any potential candidate for PNDS, and observes the frequency of symptomatic coughing.

Methods: One-hundred and eight consecutive patients referred to a rhinology clinic with symptoms of chronic infective rhinosinusitis, all with purulent nasal secretions identified on nasendoscopy, were observed through investigation and treatment. Patients were initially treated with broad-spectrum antibiotics and nasal douching. The frequency of coughing was recorded pre- and post- treatment.

Results: Eighty-nine percent of patients complained of post-nasal secretions. Twenty-three (21%) patients complained of cough. Eight had co-existing asthma, 3 had bronchiectasis, 1 had sarcoid and 2 had had a recent respiratory tract infection. Therefore 9 patients (8%) had purulent nasal secretions and a cough with no other discernable pathology. Cough improved in 8 of the 9 patients following treatment. Cough improved in 9 of the 14 patients with other possible co-existing causes for cough.

Conclusions: Only a small proportion of patients with purulent rhinosinusitis without coexisting chest disease complain of cough. Although nasal disease may be a genuine cause for chronic cough it is unlikely to be as common a cause as has been reported. Postnasal secretions do not appear to be an adequate cause for cough and the term 'PNDS' should be replaced by rhinosinusitis when nasal disease is the cause of chronic cough.

Rhinology 2015 Jun;53(2):129-134. doi: 10.4193/Rhino14.210.

Simulated postnasal mucus fails to reproduce the symptoms of postnasal drip in rhinitics but only in healthy subjects

J Rimmer [1], J Hellgren [2], R J Harvey [1 3 4]

PMID: **26030035** DOI: 10.4193/Rhino14.210

Abstract

Background: Post nasal drip (PND) is a very common symptom associated with upper respiratory tract disorders. While easy to visualize, the concept of PND due to an increased volume of secretions which move from the posterior nasal choanae into the posterior nasopharynx/oropharynx may be overly simplistic. PND could also be associated with altered viscosity of nasal secretions. An alternative hypothesis is that the sensation of PND is due to mucosal inflammation resulting in heightened cough or irritant throat sensory dysfunction. The impact of viscous secretions on the symptoms of PND is assessed.

Methods: Healthy subjects and rhinitis patients were recruited. Patients were asked about PND symptoms with a 9 item PNDSS questionnaire at baseline and after the insertion of two different viscosities of artificial mucus utilizing hydroxypropyl methylcellulose at 1% and 4%.

Results: Sixty six patients were recruited. As expected, rhinitics had an increased sense of PND compared to healthy subjects at baseline. However, only healthy subjects could detect the increased viscosity of secretions and where rhinitics failed to respond. Cough was not induced in either group.

Conclusion: The mechanisms of PND in chronic patients and those with rhinitis are likely to have other aetiologies other than simply increased or more viscous secretions.

CHEST
Volume 129, Issue 1, Supplement, January 2006, Pages 63S-71S

Supplement

Diagnosis and Management of Cough: ACCP Evidence-Based Clinical Practice Guidelines

Chronic Upper Airway Cough Syndrome Secondary to Rhinosinus Diseases (Previously Referred to as *Postnasal Drip Syndrome*): ACCP Evidence-Based Clinical Practice Guidelines

Melvin R. Pratter MD, FCCP

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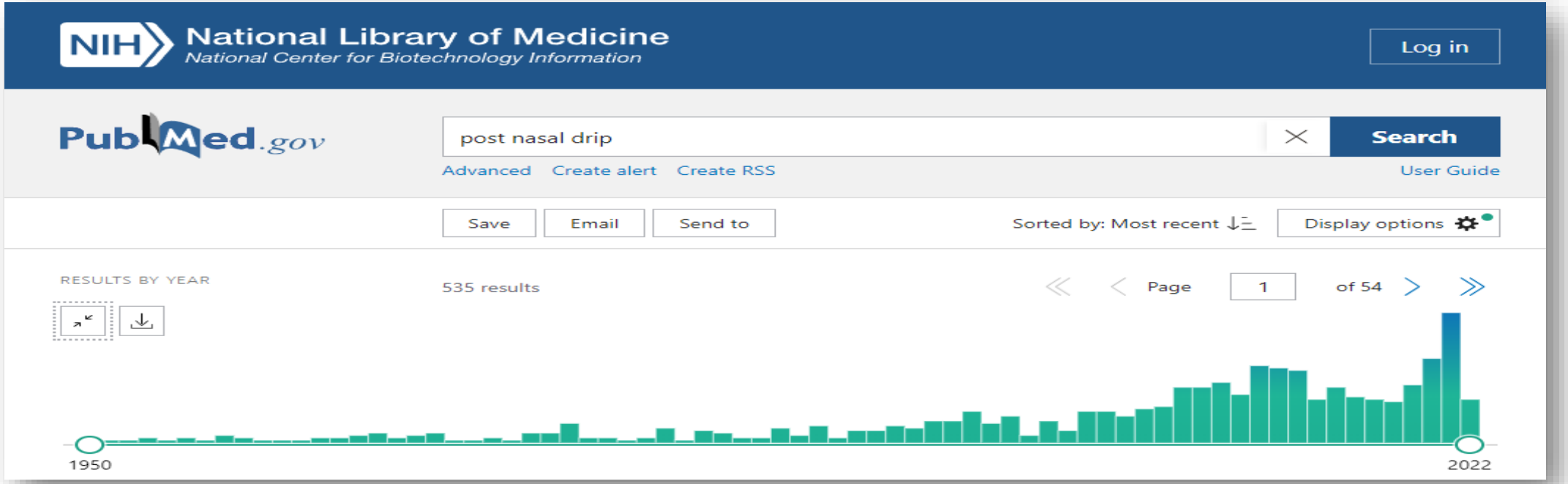
https://doi.org/10.1378/chest.129.1_suppl.63S

REVOLUTION

Synonyms for Old concept

Objective:

To review the literature on postnasal drip syndrome (PNDS)-induced cough and the various causes of PNDS. Hereafter, PNDS will be referred to as *upper airway cough syndrome* (UACS).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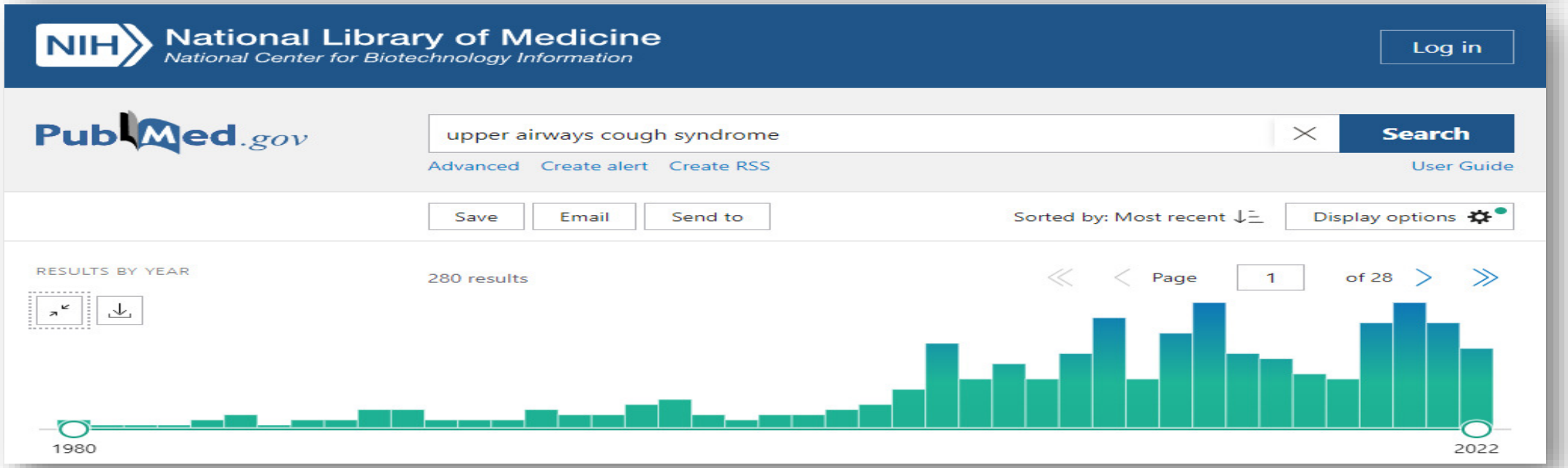
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Anamnesi

Therapeutic-diagnostic Evaluation of Chronic Cough Amongst Adults: Causes, Symptoms and Management at the Primary Care Level, Malaysia

Yogarabindranath Swarna Nantha

Department of Outpatient, Seremban Primary Care Health Clinic, Seremban, Malaysia

ABSTRACT

Background: Patients presenting with chronic cough pose a common diagnostic dilemma during routine consultations at public primary care clinics in Malaysia. To date, there has been little attempt at designing a standardized model or algorithm to facilitate an accurate diagnosis of chronic cough. This study proposes a clinical method to detect the causes of chronic cough in a primary care setting in Malaysia. **Materials and Methods:** A total of 117 patients aged above 18 at an urban primary care clinic were tracked over a span of 5 months to diagnose the cause of chronic cough. A therapeutic-diagnostic method was employed to help identify the causes of chronic cough. Subsequently, the demographic details of patients, the prevalence of the different causes of chronic cough and the relationship between history and diagnosis were analyzed statistically. **Results:** Chronic cough had a slightly higher male preponderance (51.3% vs. 48.7%). Patients within the 'above 60' age category had the highest frequency of chronic cough. The most common cause of chronic cough was post-infectious cough ($n = 42$, 35.9%), followed closely by angiotensin-converting enzyme-inhibitor related cough ($n = 14$, 12%). Majority of patients had the symptom of phlegm production ($n = 41$, 54%). 33 patients (29.2%) had recent upper respiratory tract infection (<2 weeks ago) prior to the diagnosis of chronic cough. There were poor association between symptoms and the various entities comprising chronic cough. The exceptions were the following associations: (1) Bronchial asthma and itchiness of throat ($P = 0021$), (2) gastroesophageal reflux disease and heartburn ($P < 0.001$), (3) upper airway cough syndrome and running nose ($P = 0.016$) and (4) pulmonary tuberculosis and absence of weight loss ($P = 0.004$). **Conclusion:** This study demonstrates that the effectiveness of a therapeutic-diagnostic technique in the diagnosis of chronic cough. Consistent with previous studies, there was poor association between most symptoms and the causes of chronic cough. A study involving a larger primary care population is required to confirm the findings found in this analysis.

Keywords: Angiotensin-converting enzyme-I related cough, chronic cough, post-infectious cough, primary care, therapeutic-diagnostic evaluation

Table 1: Evidence-based evaluation of patients with chronic cough

Causes of chronic cough	Recommendations (signs/symptoms/investigation/Rx)
UACS-induced cough	Includes differentials such as allergic rhinitis and perennial non-allergic rhinitis Responding to treatment with combination of 1st generation antihistamines and decongestants[3] Chlorpheniramine 4 mg tds/qid Refer to ENT for chronic sinusitis (sinus imaging)[3] Cough could be>8 weeks (other causes of post infectious cough)[3]
GERD	H_2 blockers x 1/12 and if fail, proton pump inhibitors 2-3 months[3] Add prokinetics (Metoclopromide) if PPI alone does not work[3]
	Responds well to T.Frusemide 40 mg od
Suspected lung cancer	Haemoptysis, fatigue, cough, clubbing of fingers, weight loss and shortness of breath[12] History of smoking Chest X-ray, sputum cytology and bronchoscopy for identification[3]

UACS: Upper airway cough syndrome; ENT: Ear, nose and throat department; GERD: Gastroesophageal reflux disease; PPI: Proton pump inhibitor; ACE-I: Angiotensin-converting enzyme-inhibitor; COAD: Chronic [illegible] ECG: Electrocardiogram

Table 5: Past medical history in study population

Past medical history	Frequency (*n*)	Percentage
Recent history of upper respiratory tract infection	33	29.2
ACE inhibitor intake	16	14.3
Previous history of atopy	13	11.6
History of diabetes mellitus	13	11.6
History of TB contact	5	4.7
History of previous TB infection	2	1.8
Passive smoking	2	1.8
Previous sinusitis	2	1.8
History of chronic rhinitis	0	0
History of heart failure	0	0
History of COAD	0	0

ACE: Angiotensin-converting enzyme; TB: Tuberculosis; COAD: Chronic obstructive airways disease

Work up: dd e terapia

MAYO CLINIC

REVIEW

Chronic Cough: An Update

Vivek N. Iyer, MD, MPH, and Kaiser G. Lim, MD

Abstract

Cough persisting beyond 8 weeks (ie, chronic cough) is one of the most common reasons for an outpatient visit. A protracted cough can negatively affect one's quality of life by causing anxiety, physical discomfort, social isolation, and personal embarrassment. Herein, the anatomy and physiology of the cough reflex are reviewed. Upper airway cough syndrome, asthma, eosinophilic bronchitis, and gastroesophageal reflux disease account for most chronic cough after excluding smoking, angiotensin-converting enzyme inhibitor use, and chronic bronchitis. Many patients have more than one reason for chronic cough. Treating the underlying cause(s) resolves cough in most instances. There are some coughs that seem refractory despite an extensive work-up. The possibility of a hypersensitive cough reflex response has been proposed to explain these cases. Several clinical algorithms to evaluate chronic cough are presented.

 ■ Mayo Clin Proc. 2013;88(10):1115-1126

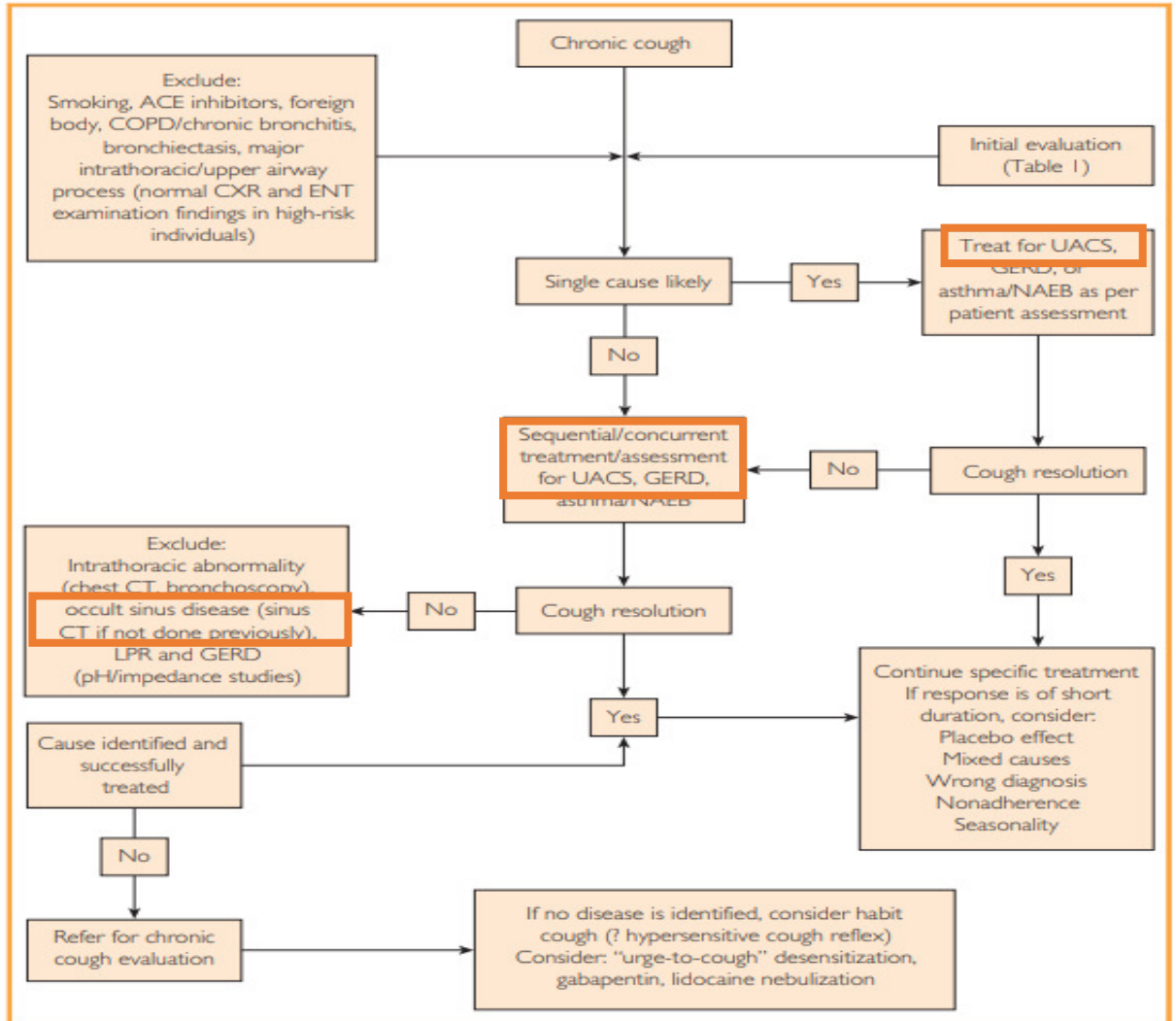
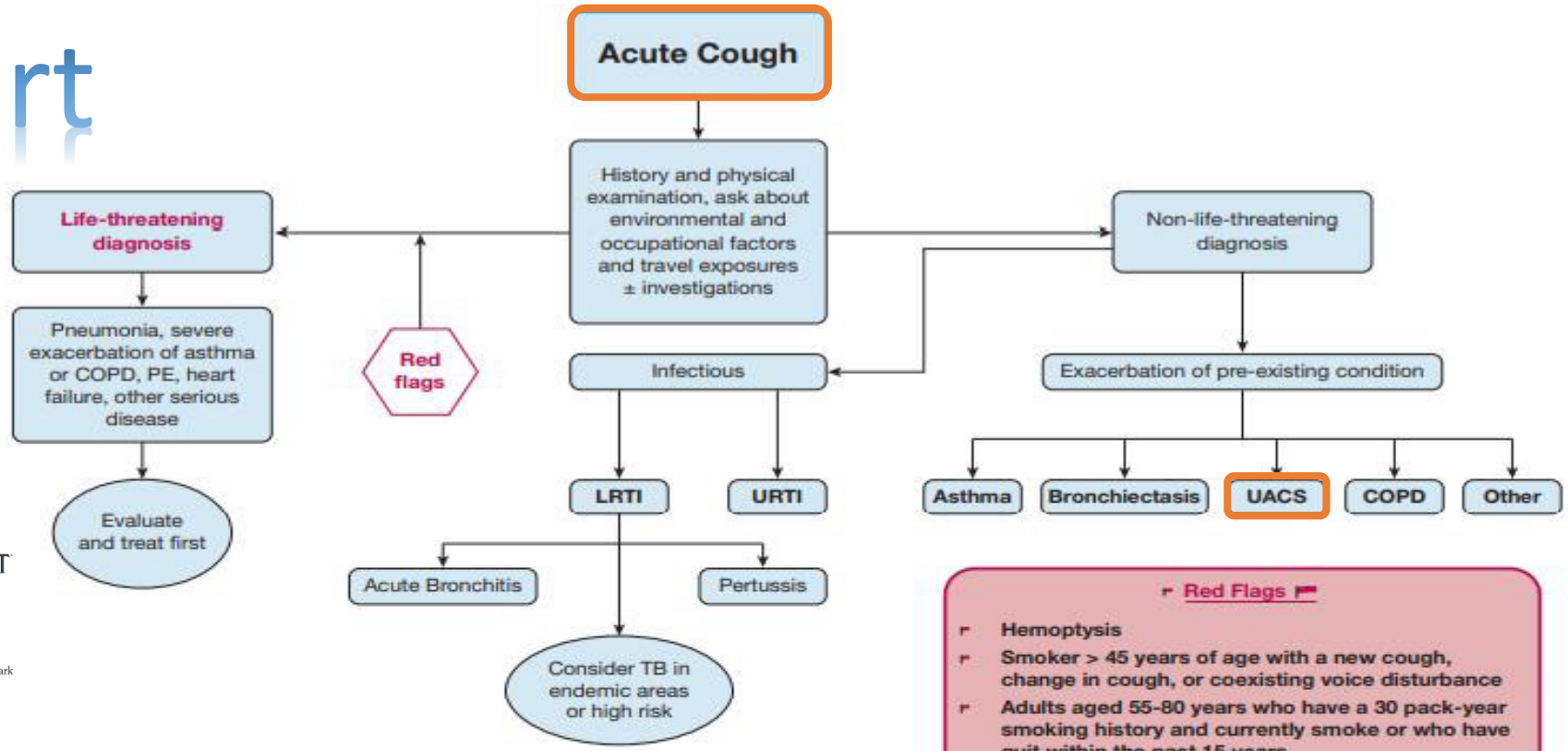


FIGURE. Evaluation and management of chronic cough. ACE = angiotensin-converting enzyme; COPD = chronic obstructive pulmonary disease; CT = computed tomography; CXR = chest x-ray; ENT = ear, nose, and throat or otorhinolaryngology; GERD = gastroesophageal reflux disease; LPR = laryngopharyngeal reflux; NAEB = nonasthmatic eosinophilic bronchitis; UACS = upper airway cough syndrome.

TA. Flow chart



[Evidence-Based Medicine]

CHEST

Classification of Cough as a Symptom in Adults and Management Algorithms

CHEST Guideline and Expert Panel Report

*Richard S. Irwin, MD, Master FCCP; Cynthia L. French, PhD, RN, ANP-BC, FCCP; Anne B. Chang, MBBS, PhD, MPH; Kenneth W. Altman, MD, PhD; on behalf of the CHEST Expert Cough Panel**

[153#1 **CHEST** JANUARY 2018]

Reminders

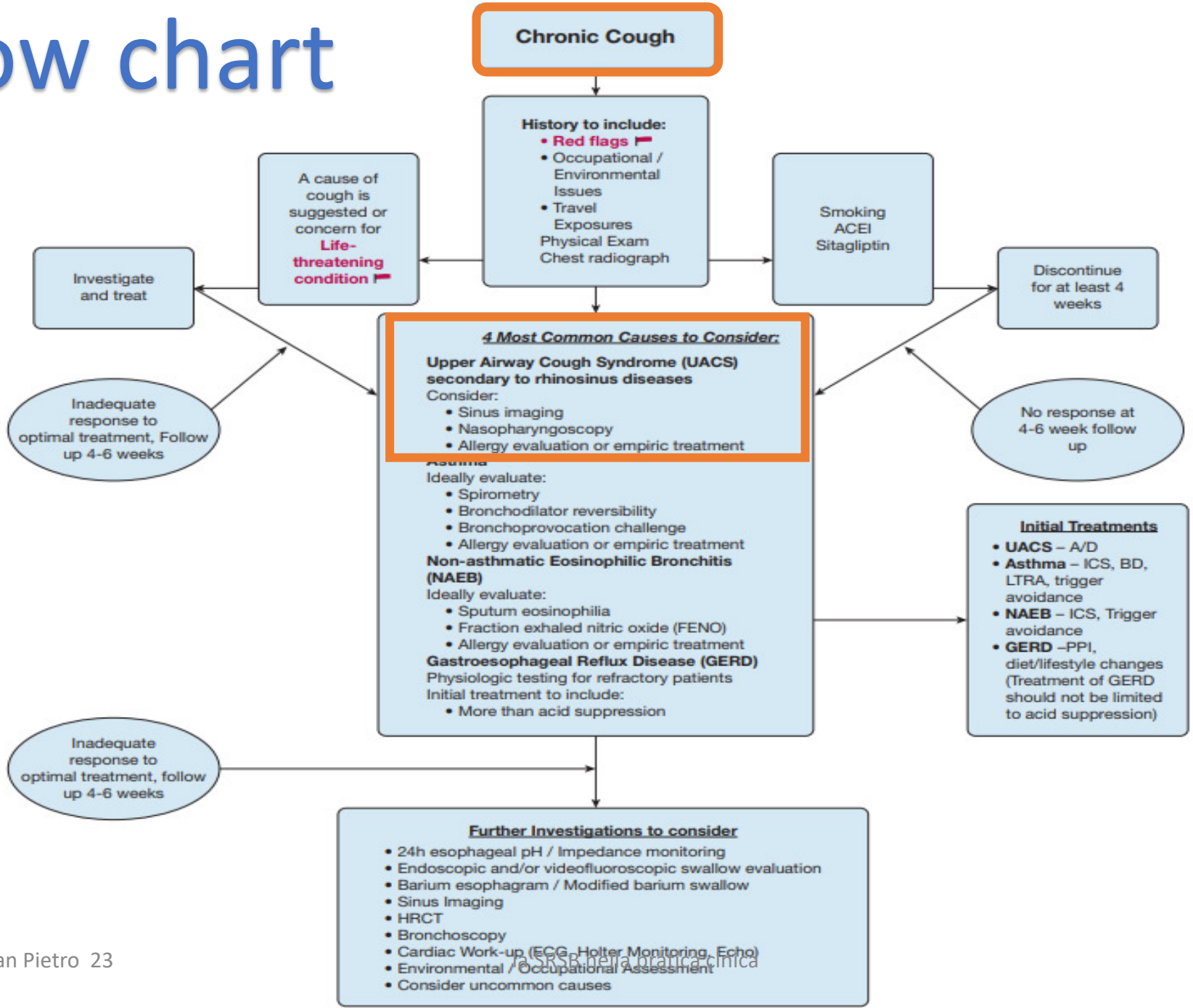
1. Check for 🚩 - see adjacent box
2. Routinely assess cough quality of life or cough severity with validated tool
3. Routinely follow up with patient in 4-6 weeks

Red Flags

- Hemoptysis
- Smoker > 45 years of age with a new cough, change in cough, or coexisting voice disturbance
- Adults aged 55-80 years who have a 30 pack-year smoking history and currently smoke or who have quit within the past 15 years
- Prominent dyspnea, especially at rest or at night
- Hoarseness
- Systemic symtoms
  - Fever
  - Weight loss
  - Peripheral Edema with weight gain
- Trouble swallowing when eating or drinking
- Vomiting
- Recurrent pneumonia
- Abnormal respiratory exam and/or abnormal chest radiograph coinciding with duration of cough

Figure 3 – *Acute cough algorithm for the management of patients ≥ 15 years of age with cough lasting < 3 weeks. Always screen for the presence of red flags as a clue to a potentially life-threatening condition. Always consider the presence of TB in endemic areas or high-risk populations even if chest radiographs are normal. Remember to routinely assess cough severity or quality of life before and after treatment and routinely follow patients 4-6 weeks after initial visit. LRTI = lower respiratory tract infection; PE = pulmonary embolism; UACS = upper airway cough syndrome; URI = upper respiratory tract infection.*

TC: flow chart



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REVIEW ARTICLE

Advances in upper airway cough syndrome

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Table 1 Guidelines for treatment of upper airway cough syndrome in different countries and areas.

	USA	UK	Europe	Australia	Japan	China
Allergic rhinitis	New-generation A + D	Nasal steroids	New-generation A + D	Nasal steroids + (A)	A	Nasal steroids + A; D (if necessity)
Nonallergic rhinitis	First-generation A + D					First-generation A + D
Chronic rhinosinusitis	First-generation A + D; Nasal steroids Antibiotic			Nasal steroids; Antibiotic (purulent)	Low dose of 14/15-member ring macrolide	Nasal steroids; First-generation A + D; Low dose of macrolide; Antibiotic

A = antihistamine; D = decongestant.

da portare a casa

- Naso e polmone sono parte dello stesso sistema anatomo-funzionale ed interagiscono fisiologicamente
- Lo stesso legame è presente in egual misura nella patologia
- Per questo occorre indagare sempre sulla coesistenza di sintomi e segni che rimandano a disturbi delle alte vie e delle basse vie associati
- Se necessario attivare tempestivamente tutti gli Specialisti di riferimento (Pneumologi, Allergologi, Infettivologi, Farmacologi ed Otorinolaringoiatri) e predisporre gli esami necessari
- Prendere in considerazione una terapia nasale topica ex adiuvantibus evitando in ogni caso il ricorso non giustificato a terapie sistemiche non necessarie ed individualmente e socialmente dannose (antibiotici, etc.)

GRAZIE PER
L'ATTENZIONE