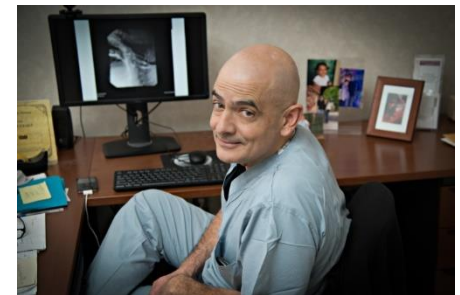


**ANTONIO (T) YSUNZA
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WILLIAM BEAUMONT
UNIVERSITY
HOSPITAL
ROYAL OAK**

**PARADOXICAL
T V C D**



DISCLOSURE

**No conflict of
interest**

**No financial
disclosures**



GOALS

P T V C D: WHAT IS IT ?

DIAGNOSIS

DIFFERENTIAL DIAGNOSIS

COMORBIDITIES

PATHOPHYSIOLOGY

TREATMENT – ACUTE

TREATMENT – LONG TERM

MUNCHAUSSEN

- RUDOLF ERICH RASPE: BARON MUNCHAUSSEN'S NARRATIVE OF HIS MARVELOUS TRAVELS AND CAMPAIGNS IN RUSSIA (1785)



THE REAL MUNCHAUSSEN

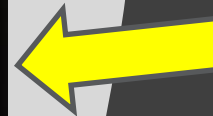
- HIERONYMUS KARL FRIEDRICH, FREIHERR VON MÜNCHHAUSEN (1720–1797) BORN IN BODENWERDER HE FOUGHT FOR THE RUSSIAN EMPIRE IN THE RUSSO – TURKISH WAR.



REAL BARON MUNCHAUSSEN
THREATENED TO SUE (BOOK IS
A SATIRE, ALL ADVENTURES
ARE CLEARLY FACTITIOUS)

MUNCHAUSSEN





LIBEL = WRITING



DEFAMATION=ORAL

**SLANDER=DEF. BY
DEFENDANT**

**RASPE FEARING A LIBEL SUIT
NEVER ACKNOWLEDGED
AUTHORSHIP. IT WAS
ESTABLISHED
POSTHUMOUSLY**

MUNCHAUSSEN

Terry Gillian
Born in Minn
but UK citizen since 2006

“Brazil”

**“The Man Who
Killed Don Quijote”**



**John Neville in
Terry Gillian's
*The Adventures
of Baron
Munchausen***

MUNCHAUSEN STRIDOR

Really factitious ??

**Munchausen Syndrome in
DSM-5 =
Factitious Disorder**

Factitious Disorder (DSM-5)

- **A person with a factitious disorder intentionally produces, feigns or exaggerates the symptoms of a disease, illness or psychological condition with the aim of assuming the patient role. The motive varies but may include a desire to seek comfort and attention, attempt to gain access to drugs, or a fascination with the medical field. The sufferer may have a personality disorder and/or unresolved issues from childhood, such as physical or emotional abuse, or early detachment. These motives differ from those of malingering in which one fakes symptoms to gain disability payments or medical leave.**

PARADOXICAL TRUE VOCAL CORD DYSFUNCTION

**NOT A FACTITIOUS
DISORDER !!**

PTVCD

TRUE OR FICTION ??

> 40 NAMES HAVE BEEN
USED :

MUNCHAUSSEN STRIDOR

EMOTIONAL LARYNGEAL
WHEEZING

PTVCD

EPIODIC LARYNGEAL
DYSKINESIA

EPIODIC PAROXYSMAL
LARYNGOSPASM

FACTITIOUS ASTHMA

PTVCD

FUNCTIONAL LARYNGEAL
OBSTRUCTION

FUNCTIONAL LARYNGEAL
STRIDOR

FUNCTIONAL UPPER
AIRWAY OBSTRUCTION

PTVCD

IRRITABLE LARYNX
SYNDROME

LARYNGEAL
DYSKINESIA

NONORGANIC UPPER
AIRWAY OBSTRUCTION

PTVCD

PERIODIC OCCURRENCE
OF LARYNGEAL
OBSTRUCTION

PSEUDOASTHMA

PSYCHOGENIC UPPER
AIRWAY OBSTRUCTION

PTVCD

SPASMODIC CROUP

EXERCISE INDUCED
LARYNGOSPASM

PARADOXICAL VOCAL
CORD MOTION

P V C D

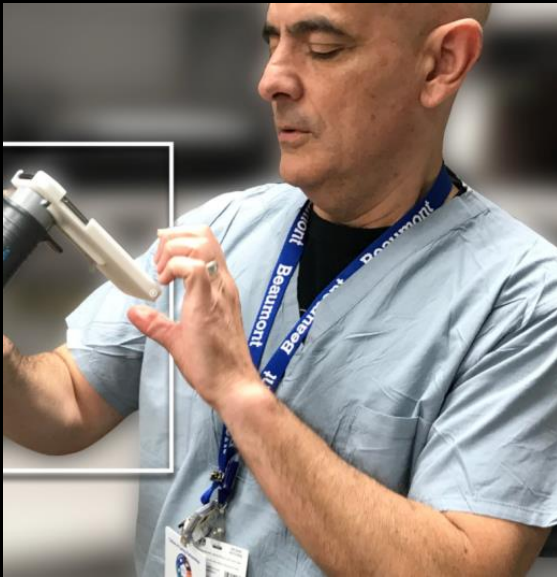
- **P T V C D OR V C D**
- **FIRST USED IN N ENG
J MED (1983) BY
CHRISTOPHER ET AL.**



ANOTHER TERM

- **E I L O (EXERCISE INDUCED LARYNGEAL OBSTRUCTION).**
- **J VOICE 2018**
- **FRONTIERS IN PEDS 2019**

P T V C D



- **“GOLD STANDARD”
DIAGNOSTIC MARKER :
VIDEOLARYNGOSCOPY**
- **B U T . . .**

P T V C D

(+)

(-)

**Dx
M
A (+)
R
K
E (-)
R**

a

b

c

d

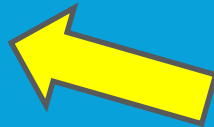
P T V C D

(+)

(-)

**Dx
M
A (+)
R
K
E (-)
R**

a	b
c	d



TRUE POSITIVES

P T V C D

(+)

(-)

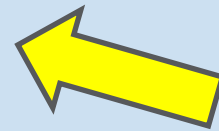
**Dx
M
A (+)
R
K
E (-)
R**

a

b

c

d



TRUE NEGATIVES

P T V C D

(+)

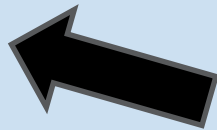
(-)

**Dx
M
A (+)
R
K
E (-)
R**

a

b

c



d


FALSE NEGATIVES

P T V C D

(+)

(-)

**Dx
M
A (+)
R
K
E (-)
R**

a	b 
c	d

FALSE POSITIVES

SENSITIVITY

$$a / a + c$$

****FALSE POS. NOT COSIDERED

Dx. MARKER WITH HIGH SENSITIVITY
IS MOST USEFUL WHEN NEGATIVE
(DETECTION OR SCREENING)

SPECIFICITY

$$d / b + d$$

****FALSE NEG. NOT COSIDERED

Dx. MARKER WITH HIGH
SPECIFICITY IS MOST USEFUL WHEN
POSITIVE (CONFIRMATION)

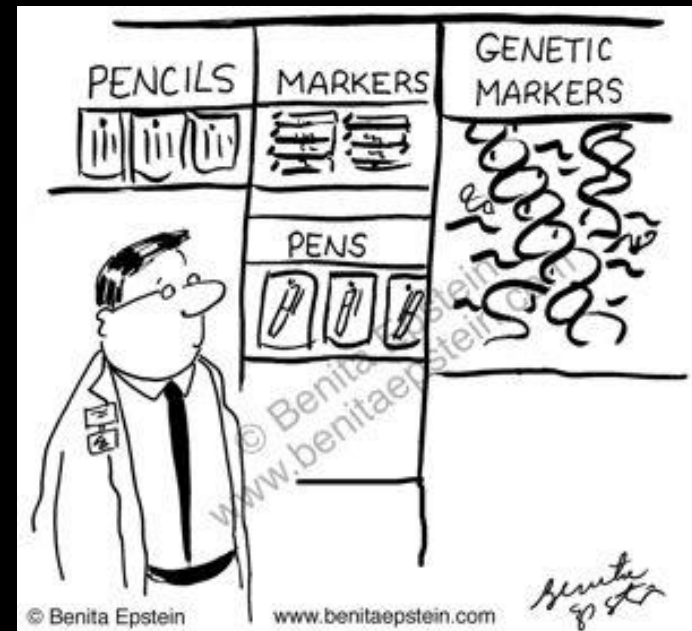
EXAMPLES

HIGH SENSITIVITY = ELISA
(DETECT HIV POS.)

HIGH SPECIFICITY =
WESTERN BLOT (HIV); E E G ;
ENDOSCOPY FOR P T V C D
(BEST DX. MARKER BUT NOT
G S)

DX. PTVCD

- **ENDOSCOPY =
HIGHLY SPECIFIC
BUT... POOR
SENSITIVITY**
- **USEFUL ONLY WHEN**
- **(+)**



PTVCD

DIAGNOSTIC MARKER FOR
INCREASING SENSITIVITY:

EXERCISE INDUCED FLEXIBLE NL

> 50 % TVC ADDUCTION DURING
INSPIRATION WITH STRIDOR

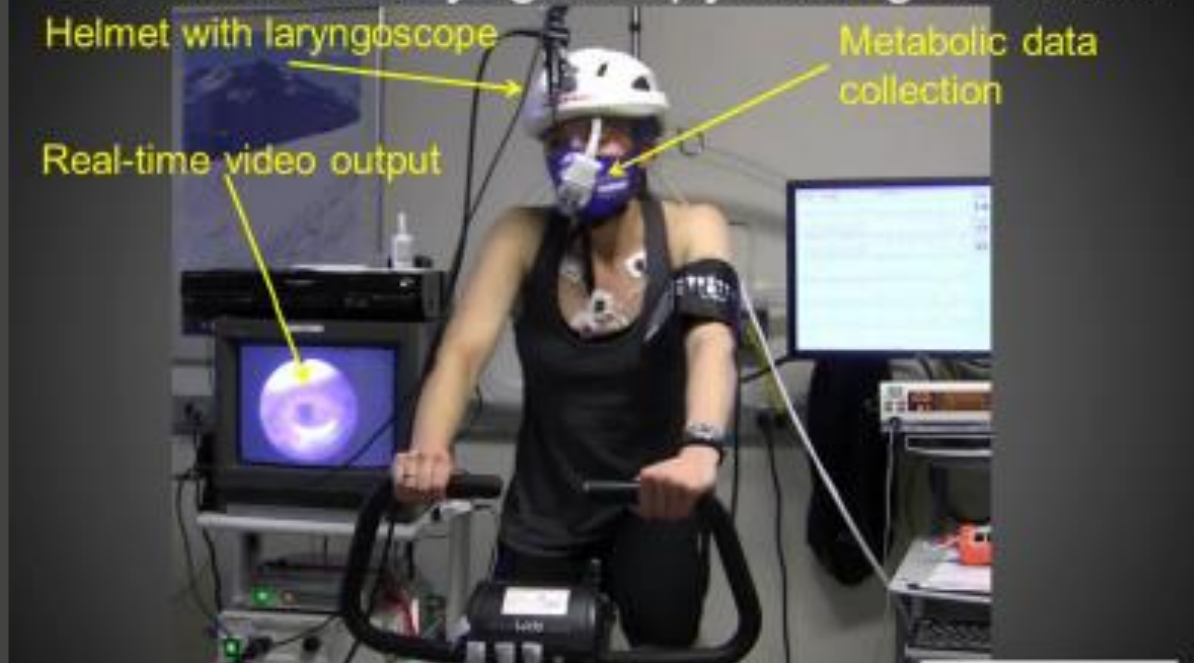
TREADMILL

Continuous laryngoscopy during exercise

Helmet with laryngoscope

Metabolic data collection

Real-time video output



Source: Frontiers in Peds 2019

PTVCD TREATMENT

EXERCISE INDUCED
FLEXIBLE
LARYNGOSCOPY

TREADMILL

VISUAL
BIOFEEDBACK WITH
SNIFF - EXHALE

V C D
AFTER
EXCERSISE

V C D
AFTER
EXCERSISE

DIFF.
DX.
PTVCD

ASTHMA

ANGIOEDEMA

AERODIGESTIVE FOREIGN
BODY

LARYNGEAL / PROXIMAL
TRACHEA MASS

DIFF.
DX.
PTVCD

BILATERAL V C PARESIS

TRACHEAL / SUBGLOTTIC
STENOSIS

CROUP

EPIGLOTTITIS /
SUPRAGLOTTITIS

DIFF.
DX.
PTVCD

EXERCISE INDUCED ASTHMA
(MAY COEXIST)

PANIC ATTACKS

CARDIAC DISORDERS

PRESYNCOPE

ASTHMA (OTHER TRIGGERS)

P T V C D

STRIDOR VS WHEEZING

P T V C D ONLY W STRIDOR – ONLY DURING INSPIRATION

SUSCEPTIBLE INDIV. → ANXIETY DYSF. BREATHING

ACT. LAR. REFLEXES. → RECURRING CYCLE

**ANXIETY
HYPERVENTILATION**



**DYSFUNCTIONAL
BREATHING**



**ACTIVATION OF LARYNGEAL
REFLEXES**

P T V C D



**PTVCD
ACUTE
MANAGEMENT**

HELIOX (OXYGEN +
HELIUM)

NON-INVASIVE
POSITIVE PRESSURE

KETAMINE

**PTVCD
ACUTE
MANAGEMENT**


**INHALERS DO NOT
WORK**

**NEBULIZATIONS
DO NOT WORK**

**DO NOT
INTUBATE!**

**PTVCD
ACUTE
MANAGEMENT**

HELIOX = DECREASE
RESISTANCE TO GAS FLOW
WITHIN AIRWAY IMPROVING
VENTILATION



HELIOX (CYLINDER) = 79 %
HELIUM; 21 % OXYGEN

**PTVCD LONG
TERM
MANAGEMENT**

PRIMARY THERAPY :
SPEECH AND
LANGUAGE PATHOLOGY
TREATMENT

OTHER OPTION: BOTOX

**PTVCD LONG
TERM
MANAGEMENT**

DETAILED HISTORY

EXPLAIN STRIDOR AND
WHEEZING

EXPLAIN T V C FUNCTION
AND DYSFUNCTION

EXPLAIN PTVCD

**PTVCD LONG
TERM
MANAGEMENT**

IDENTIFY TRIGGERS

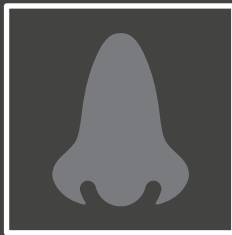
**SNIFF – EXHALE
TECHNIQUE**

**DIAPHRAGMATIC
BREATHING PATTERN**

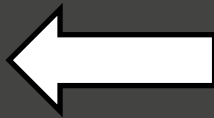
PTVCD LONG TERM MANAGEMENT



REFLEXIVELY CONTROLLED
LARYNGEAL MOTOR
PATTERNS:



SNIFF



COUGH

SNIFF – EXHALE TECHNIQUE

**PTVCD LONG
TERM
MANAGEMENT**

SNIFF:

T V C ABDUCTION

SIMULTANEOUS
CONTRACTION OF
ANTAGONISTS

**PTVCD LONG
TERM
MANAGEMENT**

EXHALE:

NOT BLOWING

PURSUED LIPS

USE A STRAW

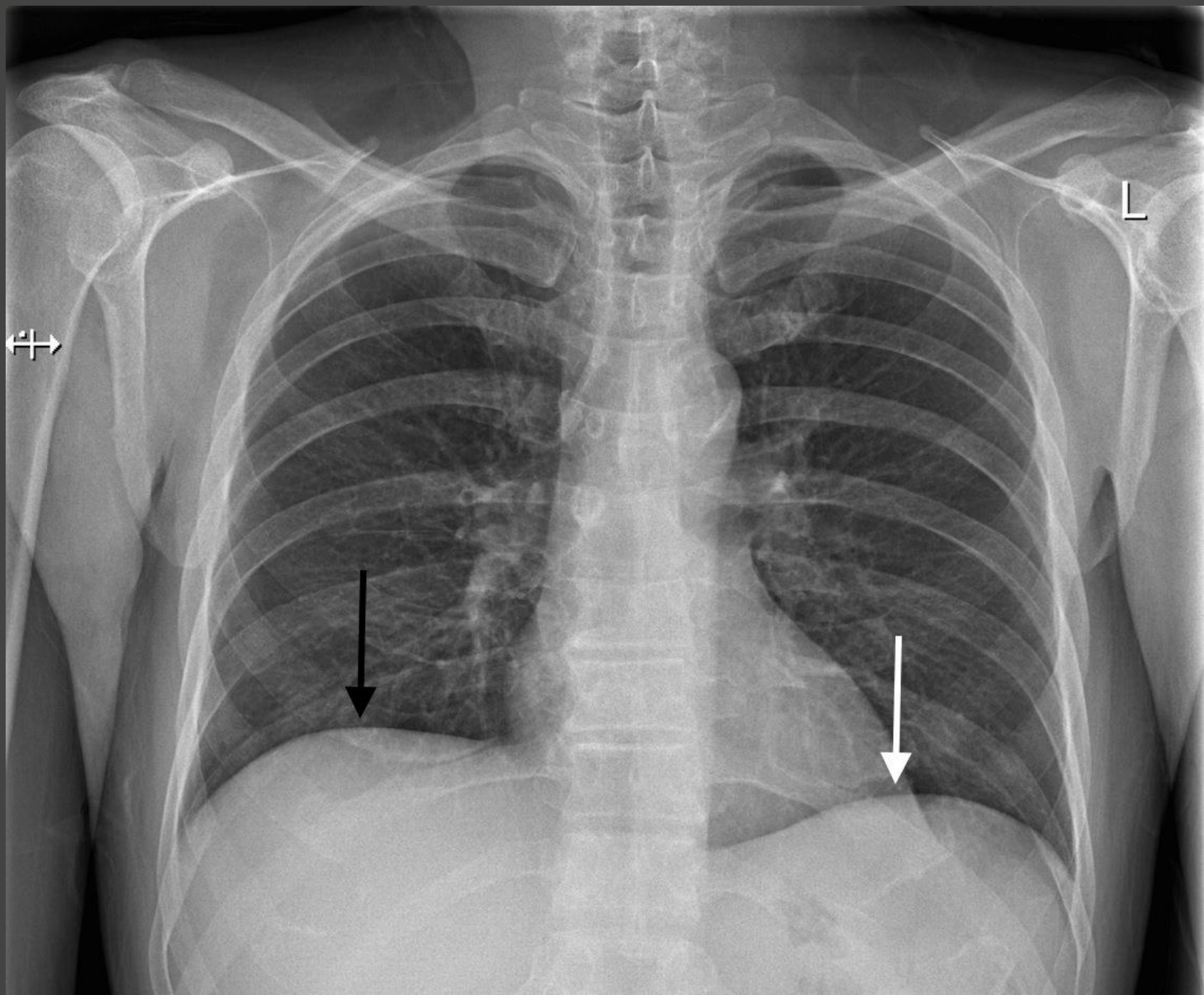
PTVCD LONG TERM MANAGEMENT

- **REDUCE
ANXIETY**
- **COUNSELING**

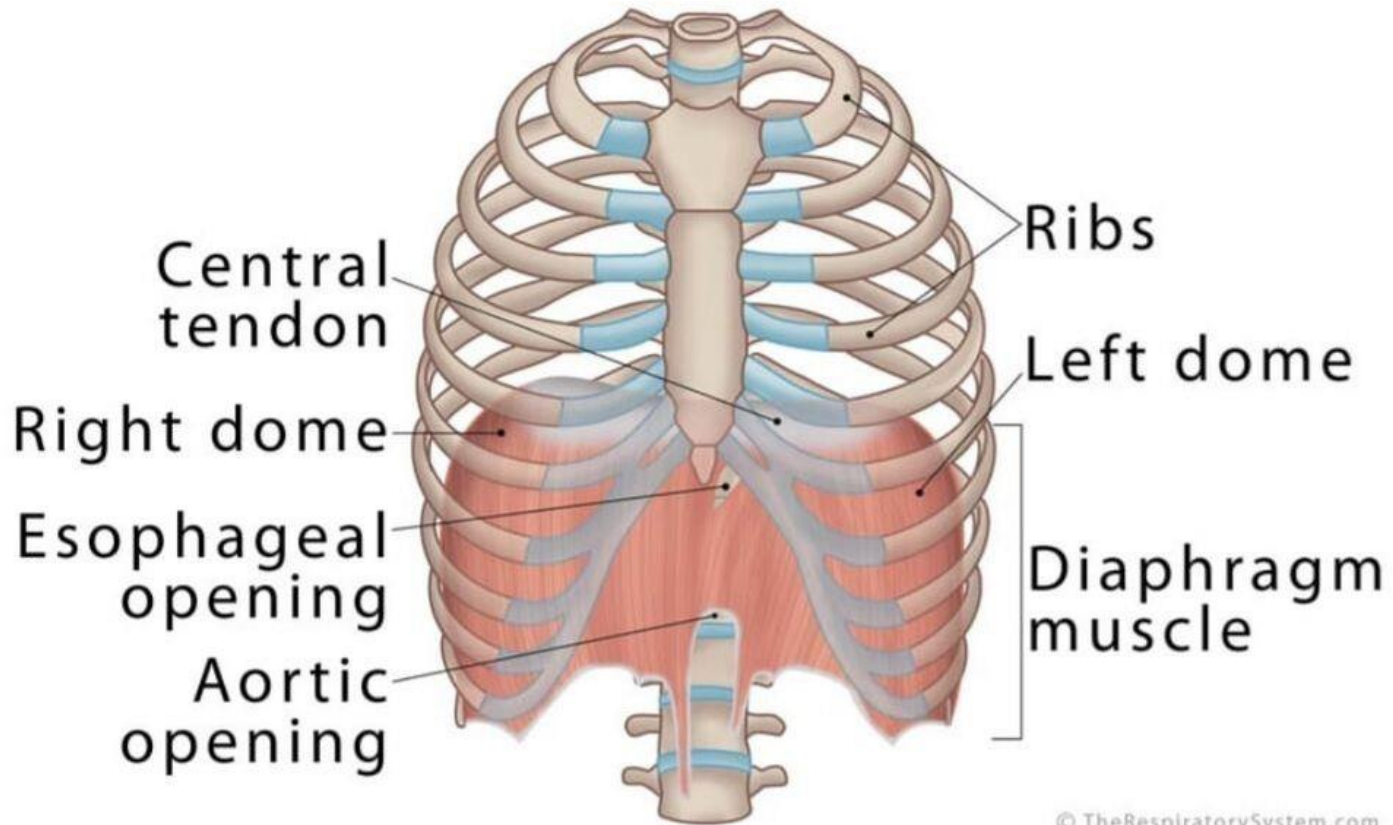
Copyright 2002 by Randy Glasbergen.
www.glasbergen.com



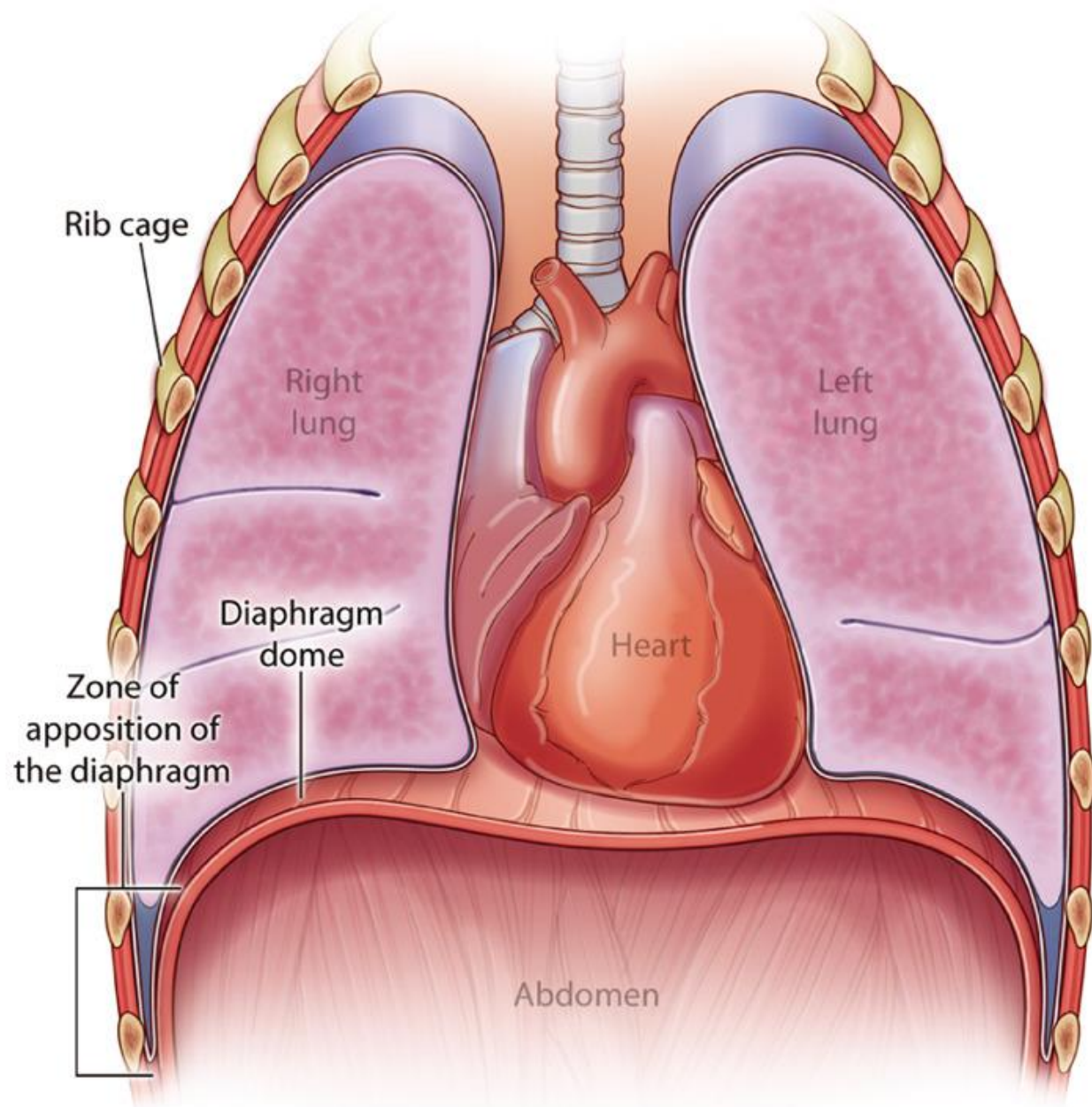
**“Experts say that petting a cat is a good way
to reduce stress...but nobody told the cat!”**



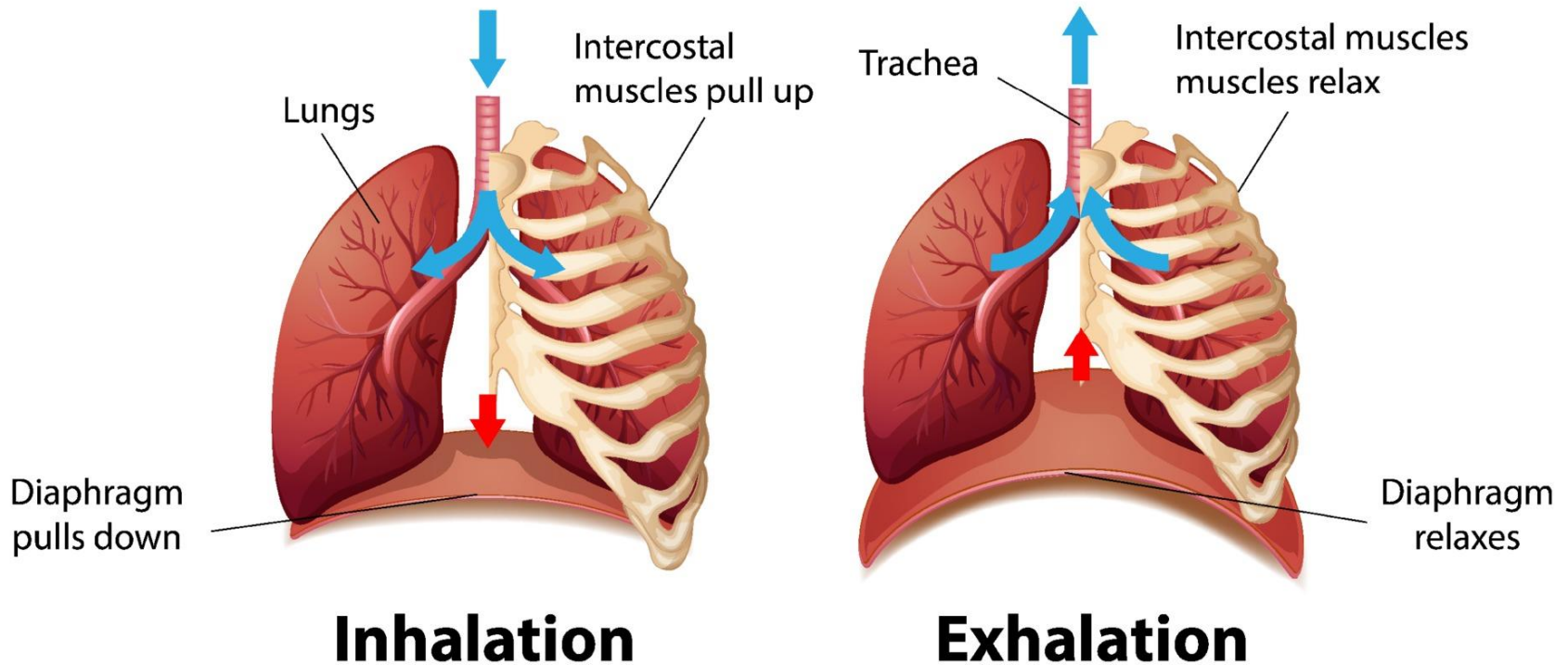
DIAPHRAGMATIC BREATHING



Diaphragm Muscle Location Picture



THE DIAPHRAGM FUNCTIONS IN BREATHING



DEMONSTRATION DIAPHRAGMATIC BREATHING PATTERN

DIAPHRAGMATIC BREATHING PRACTICE

EVERY DAY

THINKING ABOUT NOTHING BUT THE BREATHING – FOCUSING ON THE BREATHING

UPPER HAND DOES NOT MOVE

AT LEAST 5 SEC INHALATION

EVEN LONGER EXHALATION

International Journal of **Pediatric** Otorhinolaryngology

- **IJPORL (2022): 1 – 4 TREATMENT VISITS.**
- **MEAN = 1.4 VISITS**
- **86% = ONLY ONE VISIT**
- **ASSOC. W ASTHMA = 68%**

**PTVCD LONG TERM
MANAGEMENT**

PTVCD LONG TERM MANAGEMENT

OUR NUMBERS:

12 years = 440 PATIENTS W DX OF TVCD

29 PATIENTS = NO TVCD

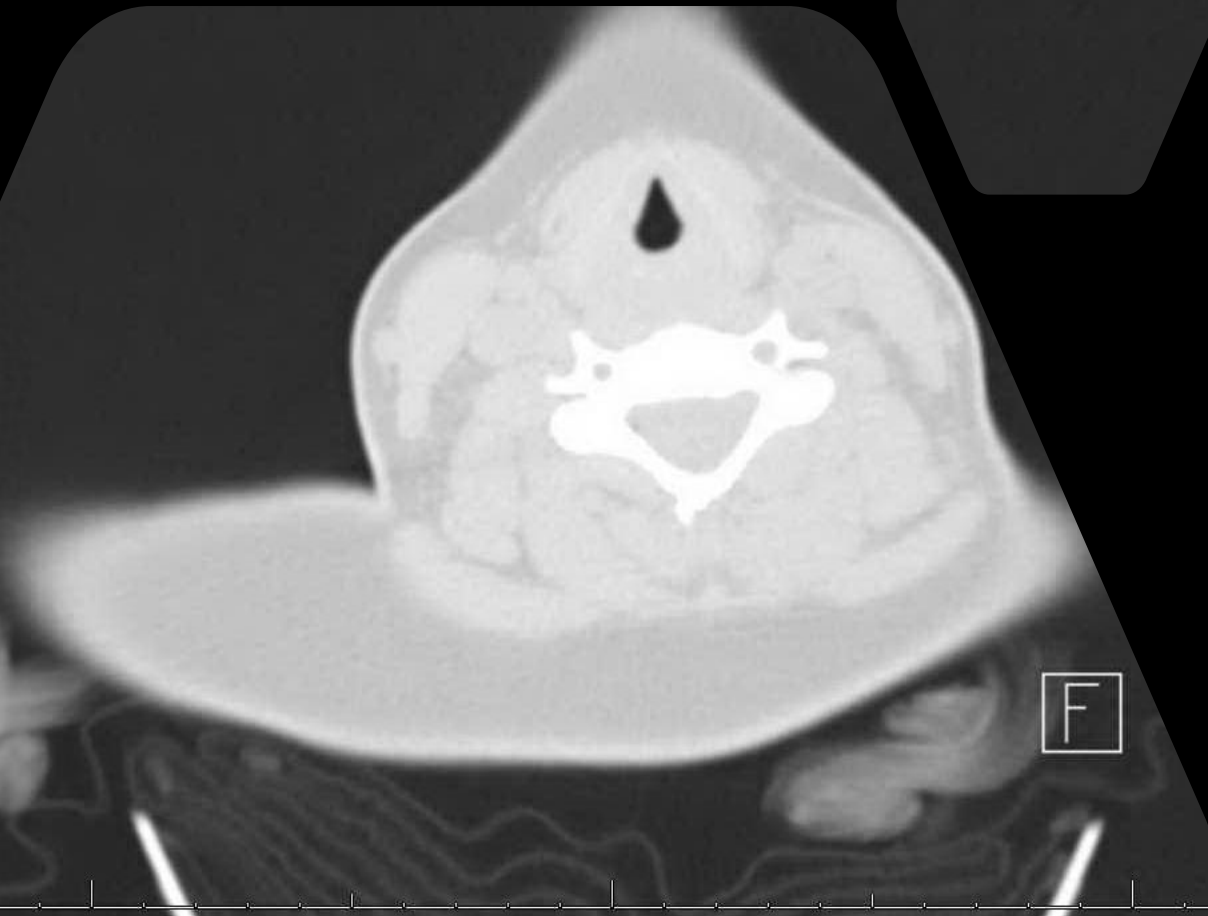
TREATMENT VISITS: 1 – 4 VISITS

92 % ONLY ONE VISIT

ASSOC W ASTHMA = 82 %

**41 YO. MALE ACROMEGALY (7'10" (231 cm)
DX AS "HYPERREACTIVE AIRWAY"**

A



15 YO FEM PROB.
ASTHMA (?) AND VCD
TRIGGER: EXERCISE
AND “JUST TALKING”

- VCD PERSISTED
AFTER 2 SESSIONS
- ENDOSCOPY
“INCONCLUSIVE” ENT
ORDERED CT SCAN

15 YO FEM PROB. ASTHMA (?) AND VCD TRIGGER: EXERCISE AND "JUST TALKING"

CARRA, AUDREY

8/15/2017 16:34:39.480

Acc# A20369068

CARRA, AUDREY
8104819
ACC# A20369068
8/15/2017 16:34:39.480
DOB 1/31/2001; Age ; F
LO/
NECK

Troy Hosp
CT NECK W/O IV CONTRAST
Series SAGITTAL ST
16:32:21.287
SOMATOM Definition Flash
TRIPCT1
Image #1/80

**VCD PERSISTED AFTER
2 SESSIONS
ENDOSCOPY
"INCONCLUSIVE" ENT
ORDERED CT SCAN**

R

Series #4
Slice Thick: 2.00 mm
FOV: 254.0 mm
KVP: 100
mA: 70
35.000
www.hvl 516/67
0

1/31/2001 F
HFS

DERIVED/PRIMARY/LOCALIZER/CT_SOMS MPR



10:25 AM
9/29/2017

15 YO FEM PROB. ASTHMA (?) AND VCD TRIGGER: EXERCISE AND “JUST TALKING”

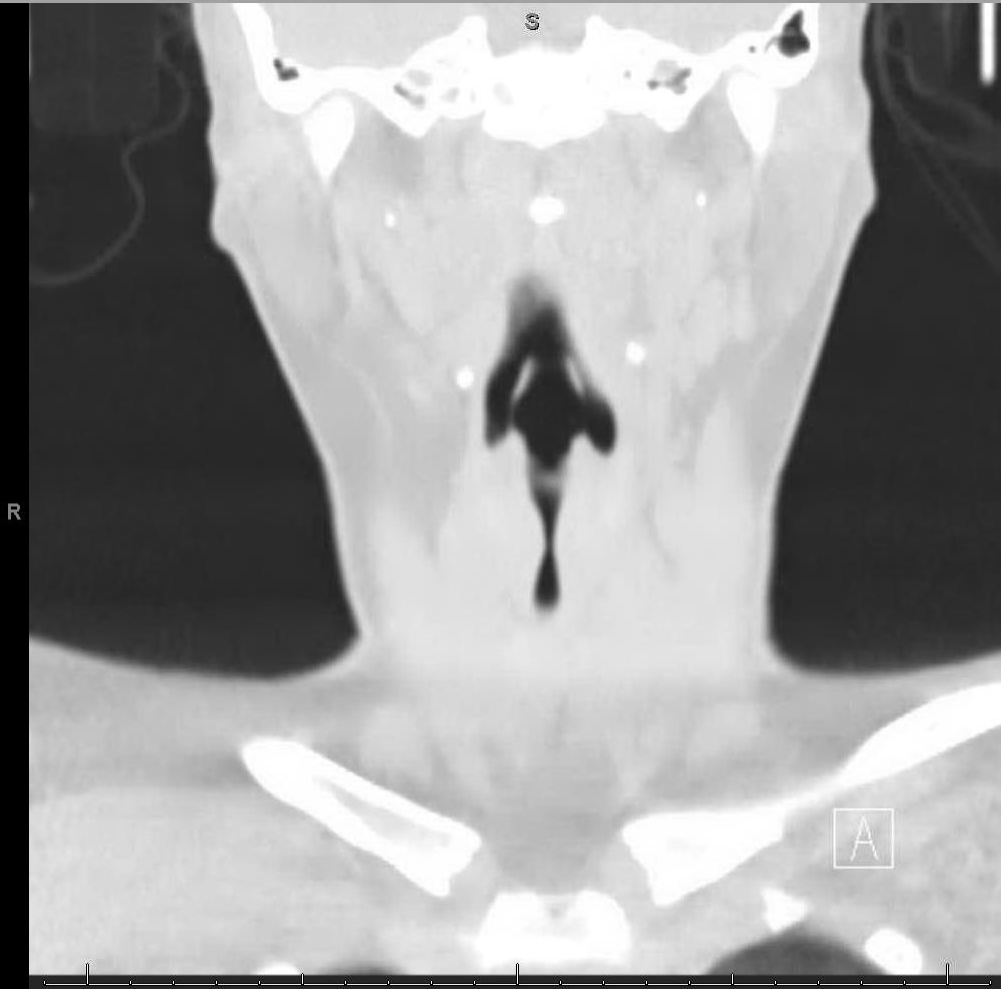
CARRA, AUDREY

8104519
ACCH# A20369068
8/15/2017 16:33:55.569
DOB 1/31/2001; Age ; F
LO/
NECK

8/15/2017 16:33:55.569

Acc# A20369068

Troy Hosp
CT NECK W/O CONTRAST
Series CORONAL ST
16:32:19.564
SOMATOM Definition Flash
TRIPCT1
Image #15/57



SEVERE TRACHEAL STENOSIS

Window Width/Level	▶
Measurements	▶
Annotations	▶
Image Processing	▶
Scout Line Mode	▶
Localizer Mode	▶
Multi Image Mode	▶
Clone Window With Preset	▶
Key Image	▶
Play Cine Loop	▶
New Link	▶
Link All Obliques	▶
Save	▶
To Paper Printer	▶
Flip/Rotate/Sort/Split	▶
Zoom Presets	▶
Magnifying Glass	▶

1/31/2001 F
HFS

DERIVED/PRIMARY/AXIAL/CT_SOMS MPR

Series #3
Slice Thick: 2.00 mm

FOV: 230.0 mm
KVP: 100
mA: 84
42.000
www/1500/-500
0



10:44 AM
9/29/2017

**15 YO FEM PROB. ASTHMA (?) AND VCD
TRIGGER: EXERCISE AND “JUST TALKING”**

**ENDOSCOPY
AFTER
TREATED W
SEVERAL
STEROID BOLUS
ALL SYMPTOMS
RESOLVED**

10 YO FEM DX
W VCFS

VPI

EPISODIC
DYSPPNEA W
STRIDOR
INDUCED BY
EXERCISE

GRACIAS POR SU ATENCION !!

- antonio.ysunza@beaumont.edu
- ADDITIONAL INFORMATION
- REFERENCES
- COMMENTS
- DONATIONS
- GIFTS

