

Vocal cord dysfunction: dealing with aggressivity

Eberhard Seifert, Juerg Kollbrunner

Division of Phoniatics, ENT Clinic, Head and Neck Surgery, University of Berne, Inselspital, Berne, Switzerland

Summary

Questions under study: Vocal cord dysfunction (VCD) is characterised by recurrent attacks of paradoxical adduction of the vocal cords during inspiration, accompanied clinically by dyspnoea attacks with inspiratory stridor lasting between minutes and hours. The aim of the study is to evaluate the self-perception of patients suffering from VCD and how they deal with aggressivity.

Methods: The Giessen Test (GT) and the Picture Frustration Test (PFT) were used on 6 patients with VCD.

Results: Five variables show significant differences between the patients with VCD and the values of the normative groups. VCD-patients show an idealized image of themselves, ie relaxed, open, sociable, and capable of devotion. They do not re-

ject accusations against them by others and rarely make self-criticism. In conflicts they behave passively, thus blocking their expression of aggressivity.

Conclusions: In many cases organic disposition and trigger stimuli are thought to be responsible for provoking dyspnoea attacks in VCD. However, the self-perception of patients and their way of dealing with aggressivity strongly suggests that psychosocial factors play a great role in the development of VCD. This requires not only symptom-orientated therapy but also psychological counselling.

Key words: vocal cord dysfunction; self-perception; aggressivity; psychosocial counselling

Introduction

The name “vocal cord dysfunction” (VCD) was coined by Christopher et al. [1] and describes dyspnoea-attacks caused by paradoxical adduction of the vocal cords which may last between a few minutes and several days. During these attacks, the adduction of the vocal cords is typically accompanied by a diamond-shaped chink. Spirometry shows a flattening of the inspiratory flow-volume loop, but arterial blood-gas analysis remains normal [1]. Beyond the acute symptoms laryngoscopy and spirometry are normal [2]. Because of the similarity of the symptoms VCD is often misdiagnosed as therapy-resistant asthma [3].

In the development of VCD, organic predispositions and triggers like smoke, gas, vapour, dust, airborne pollutants and odours [2], or physical effort, especially during sports training, play important roles [3–5]. Upper airway sensitivity and laryngeal irritation is suspected [2, 3, 6]. Infections of the upper airways can also provoke VCD [7], possibly by a direct inflammatory effect on the vocal cords [8]. It seems that there is no uniform genesis for a VCD attack, but rather that different predispositions and triggers play a different role in

the development of VCD in different individuals. These factors alone, however, are unlikely to be sufficient to cause VCD. Psychosocial factors seem to be important. Kenn et al. [9] interpret this as indicating that the symptom of VCD, the recurrent dyspnoea attack, may be a common final pathway of different causal chains.

Reports of psychosocial influences on VCD are frequently found in the literature. A “variety of psychiatric disorders” was noticed in VCD patients [1]. Many patients have difficulty in directly expressing anger, sadness, or fear. Emotional overlay, family stress, a history of physical, emotional or sexual abuse [2], or experience of war [10] are described. In 73% of patients with VCD a DSM III-R Axis I diagnosis was made, indicating a major psychiatric disorder and in 37% a DSM III-R Axis II diagnosis, indicating a personality disorder or specific developmental disorder [11]. Obsessive and/or anxious personalities continued to be recorded after the first case descriptions of VCD. Patients find difficulty in expressing emotions and they avoid confrontations [12].

The interrelation between the self-image of

these patients and their style in confronting others could give a new insight into the dynamic of this specific somatoform disorder [13]. The aim of this

study was to evaluate the self-perception of patients suffering from VCD and their means of dealing with aggressivity.

Methods

Two psychological tests, the Giessen Test (GT, [14]) and the Picture Frustration Test (PFT, [15]) were carried out with informed consent on 6 patients suffering from VCD: 2 females and 4 males, aged between 25 and 61 years (mean = 52 ± 13 years). The diagnosis of VCD was confirmed by laryngoscopy during a dyspnoea attack. Organic laryngeal alterations could be excluded. Signs of gastro-oesophageal reflux were found in 1 patient and accompanying asthma was diagnosed in another.

The GT permits an insight into the patients' self-perception, their perception of reality and their needs-structure. The patient is given 40 bipolar statements and asked to evaluate him/herself according to 6 principle scales (social response, dominance, control, underlying mood, permeability and social potency) [14].

The PFT allows an assessment of the patient's preferred way of handling aggressive impulses. The patient is asked to react verbally to 24 drawings showing common

frustration situations by filling out an empty speech bubble for a character experiencing the frustration. The answers are assigned to 3 directions of aggression: "extrapunitive" (E), "intropunitive" (I), and "impunitive" (M). In addition, specific aggression-indices (AI) can be calculated. In this study 12 of these indices are used (eg "guilt-handling index", "aggression-expressing index", "problem-solving index", "aggression-direction-index") [15].

Statistics

The GT-scales and the variables of the PFT were checked by use of the non-parametric Wilcoxon rank sum test for significant mean differences between the VCD patients and the normative group of the respective test (normative group GT: 724 males, 822 females; PFT: 465 males, 475 females). All significant mean differences at the level $p < 0.05$ are presented.

Results

GT: VCD-patients show significantly lower values than the reference group ($p < 0.03$) on the scale "control" (anancastic, hyperorderly, over-eager) and higher values on the scales "permeability" (trusting) and "social potency" (sociable, capable of devotion) ($p < 0.05$).

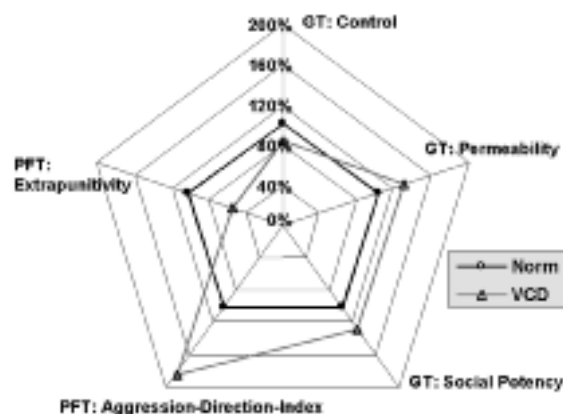
PFT: In patients with VCD the "aggression-direction-index" was significantly higher (E/I;

$p < 0.03$), indicating that they were more prone to externally directed aggressivity than to self-criticism. Furthermore, the test revealed a significantly lower "tendency to reject blame" (E; $p < 0.05$).

Figure 1 shows the mean values of the VCD-patients on the significant discriminating scales of the two tests presented as percentage deviations from the mean of the normative group.

Figure 1

Distinctive features in GT and PFT of the VCD-patients presented as percentage deviation from the mean of the normative group.



Discussion

In patients suffering from VCD a particular combination of self-perception and ways of dealing with conflict and aggressivity was detected. The patients show an idealized self-image, for they describe themselves as relaxed, capable of being

jolly, open-minded, trusting, sociable and capable of devotion.

Because they do not reject blame from other people, and do not admit self-criticism, they remain passive in conflicts and block any expression

of aggressivity. This suggests that patients with VCD hide their “weaknesses” and their limits too well, and then cannot always cope with the demands placed on them by other people; they fret about this tension, but do not have the confidence to do anything about it.

The larynx, the organ affected by VCD, is on the one hand a life-protecting organ which allows the flow of vital oxygen and protects the lungs against the penetration of foreign bodies. On the other hand, in humans the larynx serves as a sound generator for oral communication. Additionally, because of the extremely close relationship between voice and emotions it is a means of expressing these emotions [16]. Satisfaction and happiness, but also sadness, anger, aggression are shown in the human voice. In order to work through a conflict, part of the anger and aggression needs to be directed outwards. If the ability to do this is inhibited by anxiety, these emotions may search for an outlet and may appear at that organ in which both aspects, defence and emotion, can become manifest. This results in a paradoxical inspiratory adduction of the vocal folds and the dyspnoea attack. So VCD can be interpreted as a dysfunction or hyperfunction of the laryngeal adverse effects reflex, as is postulated by Ahrens et al. [17].

One limitation of the study may be the question whether VCD is influenced by personality or vice versa. Voice disorders, however, always have a

psychological impact [16]. In correlation studies the direction of causality of effects unfortunately remains unexplained. Only an extensive epidemiological cohort study could clarify the causality. For the therapeutical consequences, however, this seems to be of less importance.

It is essential to combine a detailed medical assessment with careful attention to the patient's personal perceptions and experiences of the symptoms [18]. In the long-term therapy of VCD it therefore does not seem to be sufficient to treat only the triggers and to initiate symptom-oriented voice and breathing therapy. The patient should also be offered psychological counselling. The psychosocial contribution to the illness needs to be understood in the context of family development as well as the medical setting and the wider society and culture. This offers the patients a chance to understand their particular form of reaction to conflict and to bring about changes.

Correspondence:

PD Dr. med. Eberhard Seifert

Division of Phoniatics – ENT-Clinic

University of Berne

Inselspital

CH-3010 Berne/Switzerland

E-Mail: eberhard.seifert@insel.ch

References

- 1 Christopher KL, Wood RP, Eckert CR, Blager FB, Raney RA, Souhrada JF. Vocal-Cord Dysfunction presenting as Asthma. *N Engl J Med.* 1983;308:1566–70.
- 2 Mathers-Schmidt BA. Paradoxical Vocal Fold Motion: A Tutorial on a Complex Disorder and the Speech-Language Pathologist's Role. *Am J Speech Lang Pathol.* 2001;10:111–25.
- 3 Parker JM, Guerrero ML. Airway function in women: bronchial hyperresponsiveness, cough, and vocal cord dysfunction. *Clin Chest Med.* 2004;25:321–30.
- 4 Storms WW. Review of Exercise-Induced Asthma. *Med Sci Sports Exerc.* 2003;35:1464–70.
- 5 Morris MJ, Deal LE, Bean DR, Grbach VX, Morgan JA. Vocal Cord Dysfunction in Patients with Exertional Dyspnea. *Chest.* 1999;116:1676–82.
- 6 Ayres JG, Gabbott PLA. Vocal cord dysfunction and laryngeal hyperresponsiveness: a function of altered automatic balance? *Thorax.* 2002;57:284–5.
- 7 Taramarcz P, Grissell TV, Borgas T. Transient postviral vocal cord dysfunction. *J Allergy Clin Immunol.* 2004;114:1471–2.
- 8 Perkner JJ, Fenelly KP, Balkissoon R, Barelson BB, Ruttenber AJ, Wood RP, et al. Irritant-Associated Vocal Cord Dysfunction. *JOEM.* 1998;40:136–43.
- 9 Kenn K, Hess MM. Vocal Cord Dysfunction – eine «nur pneumologische» Erkrankung? *HNO.* 2004;52:103–9.
- 10 Craig T, Sitz K, Squire E. Vocal Cord Dysfunction during Wartime. *Military Medicine.* 1992;157:614–6.
- 11 Newman KB, Mason UG, Schmalig KB. Clinical Features of Vocal Cord Dysfunction. *Am J Respir Crit Care Med.* 1995;152:1382–6.
- 12 Carding P, Raz Y. Paradoxical vocal cord movement: a rare condition that is likely to be misdiagnosed and mistreated. *Clin Otolaryngol.* 2000;25:241–3.
- 13 Fritz GK, Fritsch S, Hagino O. Somatoform Disorders in Children and Adolescents: A Review of the Past 10 Years. *J Am Acad Child Adolesc Psychiatry.* 1997;36:1329–38.
- 14 Beckmann D, Brähler E, Richter HE. Der Giessen-Test (GT). Bern, Göttingen, Toronto, Seattle; 1990.
- 15 Rauchfleisch U. Handbuch zum Rosenzweig Picture-Frustration Test (PFT). Bern: Huber; 1979.
- 16 Aronson AE. *Clinical Voice Disorders.* Stuttgart, New York: Thieme; 1990.
- 17 Ahrens P, Seibt Y, Kitz R. Vocal Cord Dysfunction bei Kindern und Jugendlichen. *Pneumologie.* 2001;55:378–84.
- 18 Powell C, Brazier A. Psychological approaches to the management of respiratory symptoms in children and adolescents. *Paediatr Respir Rev.* 2004;5:214–24.

Official journal of the Swiss Society of Infectious diseases, the Swiss Society of Internal Medicine and the Swiss Respiratory Society

The many reasons why you should choose SMW to publish your research

What Swiss Medical Weekly has to offer:

- SMW's impact factor has been steadily rising. The 2005 impact factor is 1.226.
- Open access to the publication via the Internet, therefore wide audience and impact
- Rapid listing in Medline
- LinkOut-button from PubMed with link to the full text website <http://www.smw.ch> (direct link from each SMW record in PubMed)
- No-nonsense submission – you submit a single copy of your manuscript by e-mail attachment
- Peer review based on a broad spectrum of international academic referees
- Assistance of our professional statistician for every article with statistical analyses
- Fast peer review, by e-mail exchange with the referees
- Prompt decisions based on weekly conferences of the Editorial Board
- Prompt notification on the status of your manuscript by e-mail
- Professional English copy editing
- No page charges and attractive colour offprints at no extra cost

Editorial Board

Prof. Jean-Michel Dayer, Geneva
Prof. Peter Gehr, Berne
Prof. André P. Perruchoud, Basel
Prof. Andreas Schaffner, Zurich
(Editor in chief)
Prof. Werner Straub, Berne
Prof. Ludwig von Segesser, Lausanne

International Advisory Committee

Prof. K. E. Juhani Airaksinen, Turku, Finland
Prof. Anthony Bayes de Luna, Barcelona, Spain
Prof. Hubert E. Blum, Freiburg, Germany
Prof. Walter E. Haefeli, Heidelberg, Germany
Prof. Nino Kuenzli, Los Angeles, USA
Prof. René Lutter, Amsterdam, The Netherlands
Prof. Claude Martin, Marseille, France
Prof. Josef Patsch, Innsbruck, Austria
Prof. Luigi Tavazzi, Pavia, Italy

We evaluate manuscripts of broad clinical interest from all specialities, including experimental medicine and clinical investigation.

We look forward to receiving your paper!

Guidelines for authors:

http://www.smw.ch/set_authors.html



All manuscripts should be sent in electronic form, to:

EMH Swiss Medical Publishers Ltd.
SMW Editorial Secretariat
Farnsburgerstrasse 8
CH-4132 Muttenz

Manuscripts: submission@smw.ch
Letters to the editor: letters@smw.ch
Editorial Board: red@smw.ch
Internet: <http://www.smw.ch>