

Special Edition
"Revisiting Physical Diagnosis in
Respiratory Medicine"

Case Report

*Corresponding authors

Takeshi Saraya, MD, PhD

Assistant Professor

Department of Respiratory Medicine
Kyorin University School of Medicine

6-20-2 Shinkawa, Mitaka City

Tokyo 181-8611, Japan

Tel. +81 (0) 422 44 0671

Fax: +81 (0) 422 44 0671

E-mail: sara@yd5.so-net.ne.jp

Taro Minami, MD

Assistant Professor of Medicine

Divisions of Pulmonary

Critical Care and Sleep Medicine

Memorial Hospital of Rhode Island

The Warren Alpert Medical School of

Brown University

Pawtucket, RI, USA

Tel. +1-401-729-2635

E-mail: nantaro@gmail.com

Special Edition 1

Article Ref. #: 100PRRMOJSE1109

Article History

Received: July 8th, 2016

Accepted: August 30th, 2016

Published: September 1st, 2016

Citation

Mikura S, Saraya T, Minami T, Satoh T, Takizawa H. A diagnostic tool yet simple and strong: Inspection of the jugular veins [Videos]. *Pulm Res Respir Med Open J*. 2016; SE(1): S25-S26. doi: [10.17140/PRRMOJ-SE-1-109](https://doi.org/10.17140/PRRMOJ-SE-1-109)

Copyright

©2016 Saraya T and Minami T. This is an open access article distributed under the Creative Commons Attribution 4.0 International License (CC BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

A Diagnostic Tool Yet Simple and Strong: Inspection of the Jugular Veins

Sunao Mikura, MD¹; Takeshi Saraya, MD, PhD^{1*}; Taro Minami, MD^{2*}; Toru Satoh, MD, PhD³; Hajime Takizawa, MD, PhD¹

¹Department of Respiratory Medicine, Kyorin University School of Medicine, Tokyo, Japan

²Divisions of Pulmonary, Critical Care and Sleep Medicine, Memorial Hospital of Rhode Island, The Warren Alpert Medical School of Brown University, Pawtucket, RI, USA

³Department of Cardiology, Kyorin University School of Medicine, Tokyo, Japan

KEYWORDS: Internal jugular vein; External jugular vein; Inspection; Valvular disease; COPD.

Inspection of the neck, including the inspection of veins is taught at most of the medical schools as a routine step of physical examination. However, rarely we see students assess findings in a correct fashion, or even physicians may not perform well enough to be models for students. We would like to present two cases, which could remind us of an importance of this simple examination at the bedside. First of all, the right internal jugular vein is the best vein in the neck to aid the diagnosis of heart failure or valvular dysfunction. If physicians cannot observe the movement of internal jugular vein well, they could look at the external jugular vein, which is much easier to observe and may be as reliable as internal jugular vein to assess Central Venous Pressure (CVP)¹ and jugular wave form, especially when tricuspid regurgitation exists.

Case 1 is an 80-year-old man who was admitted with an exacerbation of Chronic Obstructive Pulmonary Disease (COPD) with GOLD 3 (severe) airflow limitation. After initiation of the treatments, his respiratory status had improved. However, on careful physical examination, you can observe the external jugular vein collapse at inspiratory phase, and distend at expiratory phase (Video 1). This implies the presence of a strong inspiratory effort due to COPD. In addition, short trachea,² use of the accessory muscle, which resulted in sternocleidomastoid muscle hypertrophy, and retraction of the supraclavicular fossa at inspiratory phase (Video 2) can be observed as well, which all imply the presence of severe airflow limitation due to COPD.³



Video 1: External jugular vein collapse at inspiratory phase, and distend at expiratory phase.

Note: To best view

1. Kindly open the pdf file in Adobe Reader XI version.

2. Please save the pdf file on your local computer.

3. To watch the video kindly install the latest adobe flash player. Click here to download: <http://get.adobe.com/flashplayer/otherversions/>



Video 2: Sternoleidomastoid muscle hypertrophy, and retraction of the supra-clavicular fossa at inspiratory phase.

Case 2 is an 84-year-old man who was admitted with a diagnosis of acute heart failure. He has been treated with inhalation of short acting beta-agonist for COPD with GOLD 2 (moderate) airflow limitation.

In the sitting position, physical examination demonstrated distended external jugular vein up to submandibular area with an estimated CVP above 15 cm H₂O.⁴ With careful inspection of the external jugular vein, you can see the retrograde flow in the vein, suggesting Tricuspid Regurgitation (TR). In addition, in the background of the external jugular vein, you can see prominent systolic pulsations of the internal jugular vein, known as C-V waves which were seen as pulsatile skin movement. Indeed, echocardiography revealed the evidence of heart failure with moderate TR with pressure gradient of 40 mmHg as well as the dilated inferior vena cava (24.6 mm) with decreased inspiratory collapse with collapsibility index of 31.3%.⁵

These two cases we present here remind us that careful inspection of the neck, including internal and external veins, can give us abundant clues to the diagnosis of heart failure and valvular dysfunction at the bedside. With the advancement of technologies, such as echocardiography or computed tomography, we tend to forget bedside examination could be a strong tool as well. However, simple bedside examination, including focused inspection of the neck, still can serve as an invaluable diagnostic tool to connect us to a right diagnosis, as seen in these cases, and this could still stand with an art and science of bedside diagnosis.

CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

CONSENT

The authors obtained written informed consent from the patients for submission of this manuscript for publication.

REFERENCES

1. Vinayak AG, Levitt J, Gehlbach B, Pohlman AS, Hall JB, Kress JP. Usefulness of the external jugular vein examination in detecting abnormal central venous pressure in critically ill patients. *Arch Intern Med.* 2006; 166(19): 2132-2137. doi: [10.1001/archinte.166.19.2132](https://doi.org/10.1001/archinte.166.19.2132)
2. Campbell EJ. Physical signs of diffuse airways obstruction and lung distension. *Thorax.* 1969; 24(1): 1-3. Web site. <http://thorax.bmj.com/content/24/1/1.long>. Accessed July 7, 2016
3. Tokuda Y, Miyagi S. Physical diagnosis of chronic obstructive pulmonary disease. *Intern Med.* 2007; 46(23): 1885-1891. doi: [10.2169/internalmedicine.46.0455](https://doi.org/10.2169/internalmedicine.46.0455)
4. Karnath B, Thornton W, Beach R. Inspection of neck veins. *Hospital Physician.* 2002; 2002: 43-47. Web site. http://www.turner-white.com/pdf/hp_may02_veins.pdf. Accessed July 7, 2016
5. Stone MB, Huang JV. Inferior vena cava assessment: Correlation with CVP and plethora in tamponade. *Glob Heart.* 2013; 8(4): 323-327. doi: [10.1016/j.gheart.2013.11.004](https://doi.org/10.1016/j.gheart.2013.11.004)