

## Vanishing Lung Syndrome (VLS)

Sankalp Yadav<sup>1,\*</sup>, Gautam Rawal<sup>2</sup>, AK Vasisht<sup>3</sup>

<sup>1</sup>General Duty Medical Officer- II, <sup>3</sup>Ex-CMO (SAG) cum District TB Officer, Department of Medicine & TB, Chest Clinic Moti Nagar, New Delhi, <sup>2</sup>Attending Consultant, Respiratory Intensive Care, Max Super Specialty Hospital, New Delhi

**\*Corresponding author:**

Email: drsankalpyadav@gmail.com

---

### Abstract

Vanishing Lung Syndrome (VLS), have been known since 1937. The condition has been reported in case reports from all corners of the globe. The presence of large bullae in upper lobes is covering one third of the hemithorax is pathognomic of this disease. In the present article author highlight the various aspects of this uncommon disease.

**Keywords:** Bullae; Marijuana; Smoking; Tobacco

---

### Commentary

Giant Bullous Emphysema or Vanishing Lung Syndrome (VLS), a primary bullous disease of the lung, also known as Type I bullous disease is defined as a large bulla occupying at least one-third of the hemithorax<sup>[1-3]</sup>. It has been commonly seen in young male smokers and is a progressive condition that is also associated with several forms of emphysema. The risk factors could be related to smoking tobacco, alpha 1 antitrypsin deficiency, and marijuana abuse<sup>[4-6]</sup>. Besides, the condition has often been linked to Marfan syndrome and Ehlers-Danlos syndrome.

VLS have been linked to marijuana smoking, and in these cases the VLS could occur even in the presence of a normal chest radiograph and lung function. Also, the VLS in marijuana smokers has been reported at a younger age around twenty years earlier as compared to tobacco smokers<sup>[4,5]</sup>.

The most common complaints of the patients presenting with VLS are hypoxia, severe dyspnea and chest pain. The major complications include pneumothorax, infection of the bullae and a higher risk of lung cancer in future<sup>[7]</sup>.

Anatomically and radiologically the giant bulla is commonly present in the upper lobes of the lungs and occupying at least one third of the hemithorax and compressing adjoining normal lung parenchyma<sup>[2]</sup>. Bullae commonly arise more in the paraseptal locations of both upper lobes of the lungs which may be involved asymmetrically. The findings could well be correlated with the high resolution computerized tomography (HRCT) to and also to establish the diagnosis, for preoperative assessment, and to find the underlying comorbid

conditions such as bronchiectasis, pulmonary artery enlargement, infected cysts, and pneumothorax<sup>[8]</sup>.

The management involves the lung volume reduction surgery like bullectomy<sup>[9]</sup>. But it is considered for selected cases only after an assessment of exercise capacity, pulmonary-function testing, and smoking cessation<sup>[10]</sup>. The bullectomy has been associated with the improvements in the dyspnea, pulmonary function, exercise capacity, and gas exchange, with the best results being obtained in the more significant VLS cases. On an average, these improvements last for about three to four years, followed by a gradual decline thereafter<sup>[11,12]</sup>. Similarly, remarkable improvement in FVC, FEV<sub>1</sub>, and dyspnea grading in the early postoperative period has been reported, but all the improvements except FVC are insignificant at five to ten years<sup>[12]</sup>.

Of all the cases of VLS reported in the medical literature smoking is the only modifiable risk factor. The awareness of smoking cessation is really important and thus the role of agencies involved in dissemination of healthcare information to the masses, especially in resource-constrained settings with poor expenditure on health is crucial<sup>[13-20]</sup>.

**Acknowledgements:** None

**Conflicts of interest:** None declared

### References

1. Burke R. Vanishing lungs: a case report of bullous emphysema. *Radiology*.1937;28:367-371.
2. Roberts L, Putman CE, Chen JT, Goodman LR, Ravin CE. Vanishing lung syndrome: upper lobe bullous pneumopathy. *Rev Interam Radiol*. 1987;12(1):249.

3. Fraser RG, Paré JAP. Diagnosis of diseases of the chest (Third Edition). *Critical Care Medicine*. 1990;18(9):1052.
4. Hii SW, Tam JDC, Thompson BR, Naughton MT. Bullous lung disease due to marijuana. *Respirology*. 2008;13(1):122–127.
5. Beshay M, Kaiser H, Niedhart D, Reymond MA, Schmid RA. Emphysema and secondary pneumothorax in young adults smoking cannabis. *Eur J Cardiothorac Surg*. 2007;32(6):834–838.
6. Hutchison DCS, Cooper D. Alpha-I-antitrypsin deficiency: smoking, decline in lung function and implications for therapeutic trials. *Respiratory Medicine*. 2002;96(11):872–880.
7. Sharma N, Justaniah AM, Kanne JP, Gurney JW, Mohammed TLH. Vanishing lung syndrome (giant bullous emphysema): CT findings in 7 patients and a literature review. *J Thorac Imaging*. 2009;24(3):227–230.
8. Morgan MDL, Strickland B. Computed tomography in the assessment of bullous lung disease. *British Journal of Diseases of the Chest*. 1984;78(1):10–25.
9. Palla A, Desideri M, Rossi G, Bardi G, Mazzantini D, Mussi A, et al. Elective surgery for giant bullous emphysema: a 5-year clinical and functional follow-up. *Chest*. 2005;128(4):2043–2050.
10. Ladizinski B, Sankey C. Vanishing Lung Syndrome. *N Engl J Med*. 2014;370:e14.
11. Schipper PH, Meyers BF, Battafarano RJ, Guthrie TJ, Patterson GA, Cooper JD. Outcomes after resection of giant emphysematous bullae. *Ann Thorac Surg*. 2004;78(3):976–982.
12. Pearson MG, Ogilvie C. Surgical treatment of emphysematous bullae: late outcome. *Thorax*. 1983;38(2):134–137.
13. Yadav S, Rawal G. The HIFA and the HealthPhone: Laying the foundation for combating malnutrition in India. *Int J Health Sci Res*. 2015;5(7):368-371.
14. Yadav S, Rawal G. Self-medication practice in low income countries. *Int J Pharmaceut Chem Anal*. 2015;2(3):139-142.
15. Yadav S, Rawal G. Counterfeit drugs: problem of developing and developed countries. *Int J Pharmaceut Chem Anal*. 2015;2(1):46-50.
16. Yadav S, Rawal G, Baxi M. An overview of the latest infectious diseases around the world. *Journal of Community Health Management*. 2016;3(1):41-43.
17. Yadav S, Rawal G, Baxi M. Zika Virus- A pandemic in progress. *J Transl Intern Med*. 2016;4(1):42-45.
18. Yadav S, Rawal G. Swine flu-Have we learnt any lesson from the past?. *Pan Afr Med J*. 2015;22:118.
19. Yadav S, Rawal G, Baxi M. Plagiarism-A serious scientific misconduct. *Int J Health Sci Res*. 2016;6(2):364-366.
20. Yadav S, Rawal G. The novel concept of creating awareness about tuberculosis at the metro stations. *Pan Afr Med J*. 2016;23:228.