

Case Report (Open access)

Ortners Syndrome: A Rare Cause of Hoarseness of Voice

Dr. Amit kumar Suresh Rathi^{1*}, Dr. Vinod Gite², Dr. Kanchan Rahul Tadke³

¹MBBS, DLO, DNB (ENT), Senior Resident Doctor In Dept. of Ent, HBTMC & RNCH, Mumbai, Maharashtra, India

²MBBS MS (ENT), Department of ENT, HBTMC & RNCH, Mumbai, Maharashtra, India

³MBBS MS (ENT), Department of ENT, GMCH, Nagpur, Maharashtra, India

*Address for Correspondence: Dr. Amit Kumar Suresh Rathi, Senior Resident, Dept. of Ent, HBTMC & RNCH, Mumbai, Maharashtra, India

Received: 04 August 2016/Revised: 25 August 2016/Accepted: 01 September 2016

ABSTRACT- Background: Hoarseness of voice is a very common symptom seen in the ENT outpatient department. Vocal cord palsy due to cardiac diseases and conditions are very less reported. Ortners syndrome or cardiovocal syndrome is one of it, which constitutes hoarseness of voice due to left recurrent laryngeal nerve involvement in cardiovascular disease.

Case report : A 40 year old lady was referred to ENT outpatient department by the physicians for hoarseness of voice. Patient had hoarseness since 10months; there was no history of smoking, alcohol abuse, voice abuse or upper respiratory tract infection. On complete ENT examination including the indirect laryngoscopy left vocal cord was found to be immobile. Other ENT examination was normal.

Discussion: Hoarseness of voice due to paralysis of the left recurrent laryngeal nerve caused by a dilated left atrium in mitral stenosis was first discussed by Nobert Ortner, a Viennese physician, in 1897. He explained that hoarseness was caused by compression of the left recurrent laryngeal nerve by the enlarged left atrium. Later it was described with other identifiable cardiovascular diseases associated either with left atrial enlargement including mitral regurgitation and atrial myxoma or severe pulmonary hypertension including congenital heart diseases. For this reason it is also known as cardiovocal syndrome.

Conclusion: For an ENT surgeon, in a case of clinical fix, when all possible causes of the vocal cord palsy are ruled out, a complete cardiovascular examination should be sought.

Key-words: Ortners syndrome, Left recurrent laryngeal nerve palsy, Mitral stenosis, Cardiovocal syndrome

-----IJLSSR-----

INTRODUCTION

Hoarseness of voice is a very common condition and underlying causes vary from reversible benign causes to life-threatening malignancies. Unilateral recurrent laryngeal nerve injury is most commonly caused by surgical trauma or a malignant tumor¹. Cardiovocal syndrome or Ortner's syndrome is hoarseness due to left recurrent laryngeal nerve palsy caused mainly by mechanical affection of the nerve from enlarged cardiovascular structures.

Cardiovascular syndrome is a rare condition and to our knowledge only 40 patients have been presented in the literature as a thorough research in Pub Med showed. It is also described to be more common in men because possibly of a higher incidence of cardiovascular conditions than in females². Cardiovascular syndrome has a peak incidence in older age, but can occur in any age group, and it has been described even in infants³.

Hoarseness of voice is a very common symptom seen in the ENT outpatient department. While the recurrent laryngeal nerve is the most common nerve involved in the vocal cord palsy. Vocal cord palsy due to cardiac diseases and conditions are very less reported. Ortners syndrome or cardiovocal syndrome is one of it. We report a case of 40 yr female with hoarseness of voice due to severe mitral stenosis and review literature for possible cardiovascular causes of cardio vocal syndrome.

Access this article online	
Quick Response Code:	Website: www.ijlssr.com
	crossref DOI: 10.21276/ijlssr.2016.2.5.15

CASE REPORT

A 40 year old lady was referred to ENT outpatient department by the physicians for hoarseness of voice. Patient had hoarseness since 10months; there was no history of smoking, alcohol abuse, voice abuse or upper respiratory tract infection. On complete ENT examination including the indirect laryngoscopy left vocal cord was found to be immobile, while other ENT examination was normal. To confirm this findings video laryngoscopy using a 70 degree endoscope was done and findings were confirmed (Fig 2). On retrospection patient gave history of breathlessness on exertion, occasional chest pain, and mild discomfort in swallowing solid food. On auscultation the patient had mid diastolic murmur with presystolic accentuation with opening snap in the mitral area of chest. Chest X ray PA view showed straightening of left heart border with left atrial enlargement (Fig 1). Echo cardio gram showed changes indicating left atrial enlargement with pulmonary hypertension. Cardiac echo showed stenosis of mitral valve, left atrial enlargement, pulmonary hypertension (Fig 3a & 3b). As there was no other possible explanation for the left recurrent laryngeal nerve palsy, mechanical compression of the left recurrent laryngeal nerve between the aorta and left pulmonary artery was most likely the cause. The clinical symptoms in combination with imaging findings were consistent with cardio vocal syndrome.



Fig. 2: Videolaryngoscopy by 70° Endoscope Showing Left vocal cord palsy

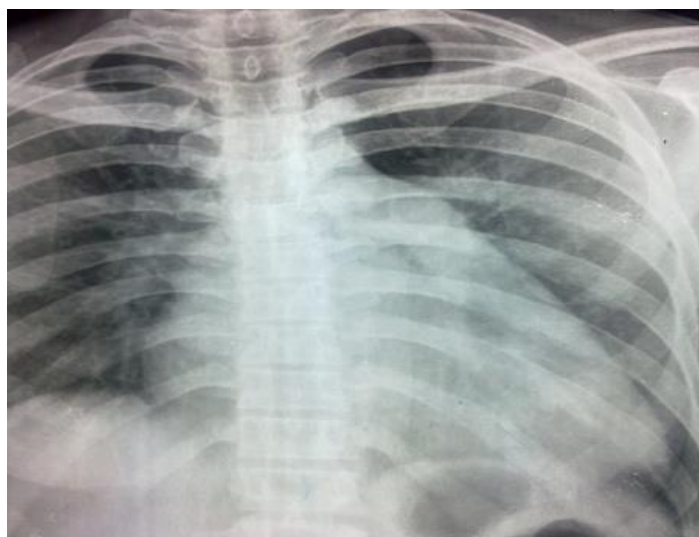


Fig. 1: X-Ray Chest Pa view showing Straightening of Left Heart Border Suggestive of Mitral stenosis



Fig. 3a: 2D Echo showing left atrial enlargement with Mitral stenosis

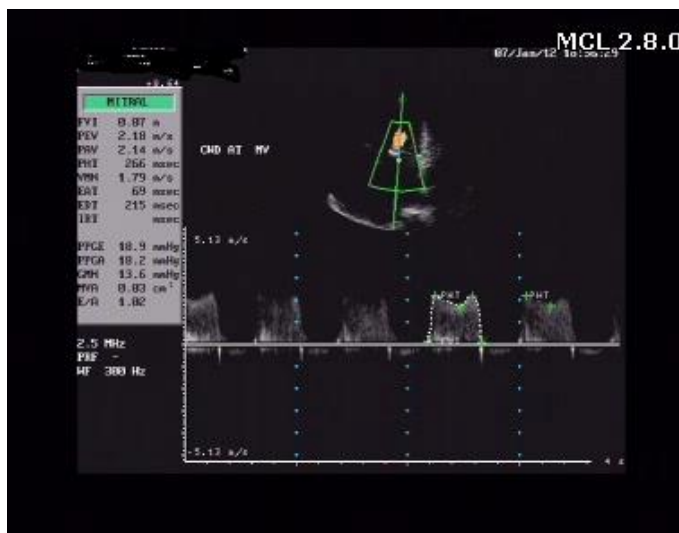


Fig. 3b: 2D Echo Showing Pulmonary Hypertension

DISCUSSION

The recurrent laryngeal nerve is the most common nerve involved in the vocal cord palsy and subsequent hoarseness of voice. But cardiac conditions or cardiac diseases causing left vocal cord palsy are less reported, Ortner's syndrome is one of them. Involvement of the left recurrent laryngeal nerve in such conditions is attributed to its complex anatomy. The vagus nerve originates from the nucleus ambiguus in the medulla and travels along the carotid sheath. The recurrent laryngeal nerve is the branch of the vagus nerve that innervates the larynx and stimulates all the muscles of the larynx except the cricothyroid. On the right side, this nerve crosses the first part of the subclavian artery and hooks around to travel between the trachea and esophagus. On the left side, the nerve arises from the left vagal trunk as the vagus nerve crosses the arch of the aorta and loops under the ligamentum arteriosum and ascends in the tracheoesophageal groove⁴⁻⁵. Vocal cord palsy can result from a lesion anywhere along the entire path of the vagus/recurrent laryngeal nerve. Hoarseness of voice due to paralysis of the left recurrent laryngeal nerve caused by a dilated left atrium in mitral stenosis was first discussed by Nobert Ortner, a Viennese physician, in 1897⁶. He explained that hoarseness was caused by compression of the left recurrent laryngeal nerve by the enlarged left atrium. Later it was described with other identifiable cardiovascular diseases associated either with left atrial enlargement including mitral regurgitation and atrial myxoma or severe pulmonary hypertension including congenital heart diseases. For this reason it is also known as cardiovocal syndrome⁷⁻¹¹. The various underlying conditions associated with cardio vocal syndrome include iatrogenic congenital, mitral valve disorders, and aortic aneurysms (Table 1). Cardiovascular syndrome caused by pulmonary artery hypertension and dilated pulmonary trunk has also been described in the literature¹²⁻¹³. Pathophysiological mechanism of this syndrome is thought to be compression of the left recurrent laryngeal nerve between the aorta and dilated pulmonary artery. The incidence of cardiovocal syndrome varies depending on the underlying cause; in mitral stenosis it ranges from 0.6% to 5%.

Table 1: Cardiovascular conditions associated with Ortner's syndrome

1	Congenital	Atrial or Ventricular septal defect, Double outlet right ventricle, Eisenmenger's complex, Patent ductus arteriosus, Ebstein's anomaly, Aortopulmonary window
2	Mitral valve disorders	Mitral stenosis, Regurgitation, Prolapsed

3	Aortic aneurysms	Saccular, Atherosclerotic, Pseudo aneurysms, Dissections, Traumatic, Mycotic
4	Adult cardiovascular disorders	Left atrial enlargement, Left ventricular aneurysm, Pulmonary hypertension, Ductus aneurysm, Pulmonary embolism, Thrombosed giant left atrium, Tortuosity of great vessels, Atrial myxoma
5	Iatrogenic	Cardiac or Thoracic surgery, Defibrillation, Atrial fibrillation Ablation procedure, Repair of Thoracic aneurysms
6	Miscellaneous	Foreign body causing oesophago-broncho-aortic fistula

CONCLUSIONS

Hoarseness of voice is a very common symptom in the ENT outpatient department, caused mainly due to some ENT pathology affecting the vocal cords or the nerve directly or idiopathic causes. A complete cardiovascular examination should be sought before labeling it as idiopathic. This case is an eye opener for an ENT surgeon as such cases are rarely encountered in ENT outpatient where a cardiovascular reason leads to vocal cord palsy.

REFERENCES

- [1] A. D. Rubin and R. T. Sataloff, "Vocal fold paresis and paralysis," *Otolaryngologic Clinics of North America*, 40:5, pp. 1109–1131, 2007.
- [2] S. Loughran, C. Alves, and F. B. MacGregor, "Current aetiology of unilateral vocal fold paralysis in a teaching hospital in the West of Scotland," *Journal of Laryngology and Otolology*, 116:11, pp. 907–910, 2002.
- [3] S. A. Zaki, S. Asif, and P. Shanbag, "Ortner syndrome in infants," *Indian Pediatrics*, vol. 47, no. 4, pp. 351–353, 2010.
- [4] Chan P, Lee CP, Ko JT, Hung JS. Cardiovascular (Ortner's) syndrome left recurrent laryngeal nerve palsy associated with cardiovascular disease. *Eur J Med* 1992; 1:492-495.
- [5] Mulpuru SK, Vasavada BC, Punukollu GK, Patel AG. Cardiovascular syndrome: a systematic review. *Heart Lung Circ* 2008;17:1-4.
- [6] Ortner N. Recurrent laryngeal nerve paralysis due to mitral valve stenosis, *Wien Klin Wochenschr* 1897;10:753–755
- [7] Fennessy BG, Sheahan P, McShane D. Cardiovascular hoarseness: an unusual presentation to otolaryngologists. *J Laryngol Otol* 2008; 122:327–328
- [8] Gulel O, Koprulu D, Kucuksu Z, et al. Images in cardiovascular medicine. Cardiovascular syndrome associated with huge left atrium *Circulation* 2007; 115:e318–e319
- [9] Ishimoto S, Ito K, Toyama M, et al. Vocal cord paralysis after surgery for thoracic aortic aneurysm. *Chest* 2002; 121:1911–1915

- [10] Kishan CV, Wongpraparut N, Adeleke K, et al. Ortner's syndrome in association with mitral valve prolapsed, *Clin Cardiol*, 2000;23:295–297.
- [11] Nakao M, Sawayama T, Samukawa M, et al. Left recurrent laryngeal nerve palsy associated with primary pulmonary hypertension and patent ductus arteriosus, *J Am Coll Cardiol* 1985;5:788–792.
- [12] V. Subramaniam, A. Herle, N. Mohammed, and M. Thahir, "Ortner's syndrome: case series and literature review," *Brazilian Journal of Otorhinolaryngology* 2011; 77:559–562.
- [13] M. Nakahira, H. Nakatani, and T. Takeda, "Left vocal cord paralysis associated with long-standing patent ductus arterio-sus," *American Journal of Neuroradiology* 2001; 22:759–761.

Source of Financial Support: Nil

Conflict of interest: Nil

International Journal of Life-Sciences Scientific Research (IJLSSR)

Open Access Policy

Authors/Contributors are responsible for originality, contents, correct references, and ethical issues.

IJLSSR publishes all articles under Creative Commons Attribution- Non-Commercial 4.0 International License (CC BY-NC).

<https://creativecommons.org/licenses/by-nc/4.0/>

