

Ortner's Syndrome

Wen-Sou Lin, Chun-An Cheng

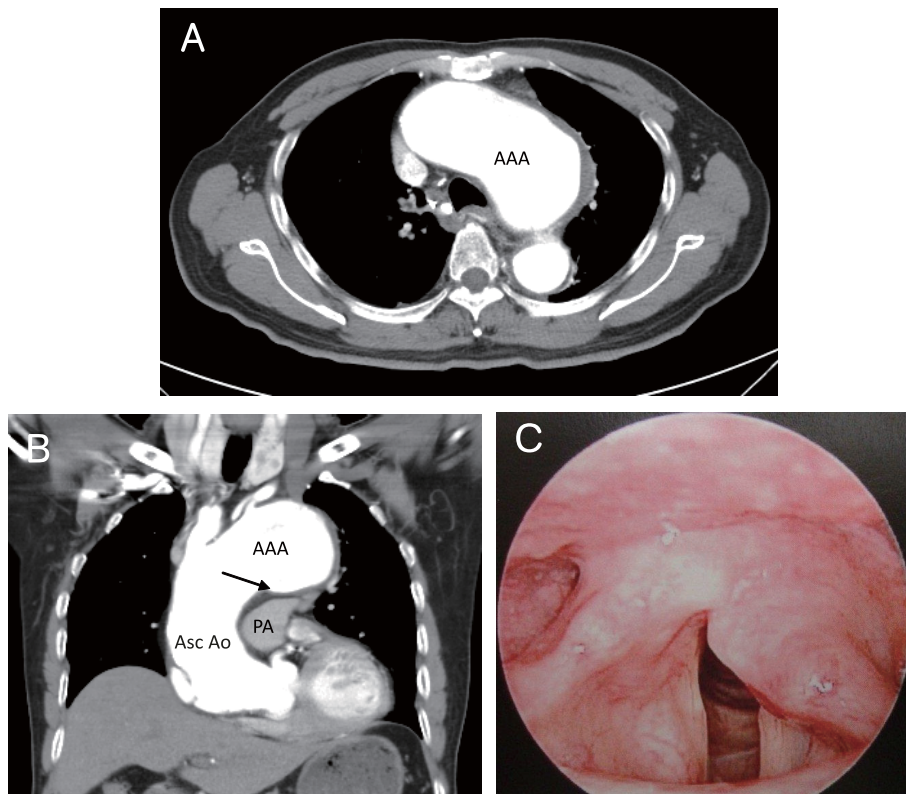


Figure. A & B: (A) Axial and (B) coronal views of contrast-enhanced computed tomography reveal a fusiform aneurysmal dilation with a maximal width of 7.7 cm over the ascending aorta and aortic arch, which caused aortic window narrowing and tracheal deviation. The aortic arch aneurysm is bulging to the aorticopulmonary window (arrow) near to where the left recurrent laryngeal nerve passes. PA = pulmonary artery; Asc Ao = ascending aorta; AAA = aortic arch aneurysm
C: Laryngoscopy showed a left paralyzed vocal fold (arrow) and false vocal cord (FVC) in the paramedial position.

An 84-year-old male was admitted for 8 days of progressive hoarseness, dizziness, and left occipital headache. He had hypertension for 20 years, which had

been well controlled. On physical examination, bradycardia was found with a heartbeat of 45 bpm with a grade 2/6 systolic murmur over the right upper sternal

From the Department of Neurology, Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan.
Received May 5, 2011. Revised June 8, 2011.
Accepted August 1, 2011.

Correspondence to: Chun-An Cheng, MD. Department of Neurology, Tri-Service General Hospital, National Defense Medical Center, No. 325, Section 2, Cheng-Kung Road, Neihu 114, Taipei, Taiwan.
E-mail: cca@ndmctsgh.edu.tw

border. Blood pressure was elevated at 169/88 mmHg. The neurologic examination was normal except for dysphonia and dysphagia. An electrocardiogram demonstrated sinus bradycardia and first-degree A-V block. A chest X-ray showed a bulging contour of the aortic arch and a chest computer tomography (CT) confirmed a fusiform aneurysmal dilation over the ascending aorta and aortic arch (Figs. A and B). A laryngoscopy disclosed a paralyzed left vocal cord in the paramedian position (Fig. C). Blood pressure was aggressively controlled, and reconstruction of the ascending aorta and aortic arch was scheduled. During surgical exploration, the recurrent laryngeal nerve was found to be compressed by the aortic aneurysm, just between the aortic arch and pulmonary artery. The occipital headache, dizziness, and hoarseness secondary to the rapid aneurysm expansion with left-sided vagus nerve stimulation and recurrent laryngeal nerve palsy were completely resolved after surgery.

The vagus nerve originates from the nucleus ambiguus in the medulla and travels along the carotid sheath. The right vagus nerve primarily innervates the sinoatrial node, whereas the left vagus nerve innervates the atrioventricular node. These nodes, when stimulated, can contribute to bradycardia. 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 groove^(1,2). Vocal cord palsy can result from a lesion anywhere along the entire path of the vagus/recurrent laryngeal nerve. When a cardiovascular disorder causes recurrent laryngeal nerve palsy, it is termed cardiovocal syndrome or Ortner's syndrome. This was first described by Ortner in 1897 as secondary

to mitral stenosis⁽³⁾. The recurrent laryngeal nerve was compressed between the enlarged pulmonary artery, the aorta, and the ligamentum arteriosum and not by dilatation of the left atrium^(2,4). Multifactorial conditions contribute to Ortner's syndrome and include aortic aneurysms^(1,2,4). Among thoracic aneurysm, approximately 5 % manifest as hoarseness secondary to recurrent laryngeal nerve palsy, and the cases in this group are all type I aneurysms⁽⁵⁾. Vocal cord dysfunction can be resolved after surgical repair of thoracic aneurysms^(1,5). Performing a laryngoscopy and confirming the recurrent laryngeal nerve palsy is crucial. To recognize this cardiovocal syndrome, chest radiography can be the first screening evaluation for a patient with unilateral vocal fold paralysis. A CT scan or MRI from the base of the skull to the mid chest (arch of the aorta), which includes the pathway of the vagus and recurrent laryngeal nerve, should be considered as part of a workup for a unilateral vocal fold paralysis of unknown etiology. From this case, we learned that aggressively controlling blood pressure and early management can improve the neurologic deficit.

REFERENCES

1. 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.
2. Mulpuru SK, Vasavada BC, Pudukollu GK, Patel AG. Cardiovascular syndrome: a systematic review. *Heart Lung Circ* 2008;17:1-4.
3. Ortner N. Recurrent laryngeal nerve paralysis due to mitral valve stenosis. *Wien Klin Wochenschr* 1897;10:753-755.
4. Plastiras SC, Pamboucas C, Zafiriou T, Lazaris N, Toumanidis S. Ortner's syndrome: a multifactorial cardiovocal syndrome. *Clin Cardiol* 2010;33:E99-E100.
5. Teixido MT, Leonetti JP. Recurrent laryngeal nerve paralysis associated with thoracic aortic aneurysm. *Otolaryngol Head Neck Surg* 1990;102:140-144.