CASE REPORT

Ortner's syndrome

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SUMMARY

A 42-year-old man with a significant smoking history presented with chronic expectorative cough and exertional shortness of breath with recent-onset hoarseness. Chest examination was essentially normal and cardiovascular examination was suggestive of aortic regurgitation. Ears, nose and throat evaluation showed left vocal cord palsy and CT scan revealed an aortic arch aneurysm. Ortner's syndrome refers to hoarseness due to recurrent laryngeal nerve palsy secondary to a cardiovascular abnormality. Aortic aneurysms usually present with chest pain, back pain or epigastric pain, depending on the site of the aneurysm. An aortic arch aneurysm presenting as hoarseness is extremely rare.

BACKGROUND

Hoarseness is a common symptom in clinical practice, and a variety of local laryngeal and extralaryngeal conditions are implicated in hoarseness. The most common extralaryngeal cause of the left vocal cord palsy is bronchogenic carcinoma. The Ortner's syndrome is hoarseness due to recurrent laryngeal nerve involvement in cardiovascular disease. We present a case of aortic arch aneurysm causing left vocal cord palsy. Even though the history, smoking status and chest roentgenogram pointed to a malignant aetiology, meticulous physical examination identified a probable cardiovascular cause for the symptom. This case underlines the importance of appropriately working up a patient presenting with persistent hoarseness, keeping in mind the various differentials.

CASE PRESENTATION

A 42-year-old man presented with expectorative cough and breathlessness on exertion for the past 1 year and hoarseness for the past 2 months. There was no history of fever, chest pain or haemoptysis. He was a known diabetic on regular oral hypoglycaemic drugs and was positive for hepatitis B surface antigen. There was no history of tuberculosis which was also negative for sore throat, voice abuse, neck surgery, trauma or cerebrovascular accident. He smoked 20–25 cigarettes/day over the past 10 years. Clinical examination was unremarkable, except for a diastolic murmur audible over the aortic area.

INVESTIGATIONS

Chest radiograph ([figure 1](#)) showed mediastinal widening. Cardiac evaluation showed grade 2 aortic regurgitation without features of cardiac failure. Ears, nose and throat (ENT) evaluation by video diagnostic scopy (VDS) revealed left vocal cord palsy, with no local pathology.

Echocardiography showed grade 2 aortic regurgitation. Contrast-enhanced CT (CECT) of the thorax ([figure 2](#)) revealed a well-defined saccular aneurysm, measuring 5.3 cm×3.6 cm, arising from the inferior aspect of the arch of aorta, extending into the aortopulmonary window, causing indentation of the left main pulmonary artery. A three-dimensional image reconstruction ([figure 3](#)) was carried out to assess the exact position and orientation of the aneurysm. Flexible bronchoscopy was essentially normal and analysis of bronchial washing was insignificant. Spirometry revealed a small airway obstruction suggestive of early chronic obstructive pulmonary disease.

DIFFERENTIAL DIAGNOSIS

A variety of local laryngeal and extralaryngeal conditions can cause hoarseness. Hoarseness of short duration results from local laryngeal causes that are benign. Local laryngeal causes of hoarseness include acute laryngitis, smokers' nodule, laryngeal tuberculosis, vocal polyp and carcinoma larynx. In this case, however, there was no history of voice abuse, heart burns or local trauma and no clinically palpable thyroid swelling, and ENT evaluation by VDS ruled out the various local causes of hoarseness. The smoking status and long-standing persistent hoarseness pointed to bronchogenic carcinoma, which was ruled out by CECT of the thorax, and it helped to confirm the correct diagnosis.

TREATMENT

The patient was referred to a cardiothoracic surgeon for further management. A hybrid-covered stent procedure was planned by the cardiothoracic surgeon with the help of the cardiologist. However, the patient was not willing to undergo surgery. Hence, he was treated conservatively and discharged after explaining the need for regular follow-up and surgical management at the earliest.

OUTCOME AND FOLLOW-UP

The patient was not willing to undergo surgery. Hence, he was put on regular follow-up to monitor the progression of the aneurysm. The hoarseness persisted but the patient showed no signs of worsening at 10-month follow-up.

DISCUSSION

Hoarseness results from any change in the anatomy or function of any of the structures involved in voice production. It may be due to a pathology confined to the larynx or beyond the larynx. In the absence of an upper respiratory tract infection, any patient with hoarseness persisting for more than

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Figure 1 Chest roentgenogram showing mediastinal widening.

2 weeks requires evaluation. Common causes of vocal cord palsy are malignant neoplasms affecting the lungs, oesophagus or thyroid, surgical or blunt trauma, inflammatory lesions compressing recurrent laryngeal nerves, brain injuries and laryngeal tuberculosis or are even idiopathic.

Ortner's syndrome is hoarseness of voice due to recurrent laryngeal nerve involvement in cardiovascular disease. A number of cardiovascular causes of recurrent laryngeal nerve palsy have been described in the literature. Various case series attribute 1–3% of cases of extralaryngeal hoarseness to Ortner's syndrome.^{1–3} Most cases are due to compression of the nerve by structures abutting the aortopulmonary window. Causes of Ortner's syndrome due to pulmonary artery enlargement include primary pulmonary hypertension,⁴ recurrent pulmonary emboli⁵ and various congenital heart defects.^{6–10} Cases of Ortner's syndrome due to aortic aneurysms have been reported.^{11–12} Thoracic aortic aneurysms are usually asymptomatic. When symptomatic, they usually present with chest pain. Hoarseness as a symptom without chest pain in a case of aortic aneurysm is a rare presentation.¹¹

Thoracic aortic aneurysms, in most cases, are picked up by a routine X-ray chest radiograph as most patients remain asymptomatic until the aneurysm expands or undergoes dissection. The most common presenting symptom is chest pain, back pain or epigastric pain, depending on the site of aneurysm. Cough, wheeze or stridor may appear when the trachea or main bronchi are compressed. Hoarseness may occur due to compression of the left recurrent laryngeal nerve by the aneurysm, though rare.

The presentation of the patient is nearly attributed to lung malignancy, primarily due to the similarity in symptoms and abnormal Chest X-ray findings. CECT will help to confirm the diagnosis and rule out other differentials. The recurrent

Figure 2 A well-defined saccular aneurysm, measuring 5.3 cm×3.6 cm, arising from the inferior aspect of the arch of aorta into the aortopulmonary window causing indentation of the left main pulmonary artery (arrow).

Figure 3 Three-dimensional image reconstruct showing the aneurysm (arrow).

laryngeal nerve is not directly visualised at CT. Therefore, knowing the expected course of the nerve is essential when searching for disease in the evaluation of vocal cord palsy.¹³ Since the left recurrent laryngeal nerve hooks inferior to the arch of aorta, an aneurysm arising from the inferior aspect of the arch, extending into the aortopulmonary window and producing indentation of the left pulmonary artery may compress the left recurrent laryngeal nerve, which explains the symptoms in our case.

Surgery is offered in all high-risk and symptomatic cases.^{14–15} Prognosis after surgery is good. In the absence of symptoms and complications like rupture or dissection, and if the aneurysm is of very small size, the patient may be kept under observational follow-up. Control of risk factors such as hypertension and diabetes is important. Complications such as rupture, embolism, dissection and infection have to be anticipated.

Learning points

- ▶ All cases of hoarseness persisting beyond 4 weeks have to be evaluated extensively.
- ▶ In every case of hoarseness, especially with left vocal cord palsy, mediastinal pathologies must be considered.
- ▶ A Contrast-enhanced CT is mandatory in such cases to evaluate lesions before undertaking invasive procedures such as bronchoscopy.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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