

## Rare causes of voice hoarseness: a case report

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### ABSTRACT

We report two contrasting and rare cases of voice hoarseness in young patients of tubercular aetiology. First case report is of isolated tubercular recurrent laryngeal nerve palsy in a patient who presented with hoarseness of voice. Chest radiograph showed a left hilar prominence and bronchial washings isolated acid-fast bacilli. Hoarseness of voice as an initial symptom due to isolated vocal cord palsy with no morphological lesions in the larynx and without obvious parenchymal infiltration often poses a diagnostic dilemma. Second case report highlights the possibilities of tuberculosis of the vocal cords mimicking tumour of the larynx. This patient had an ulcerative growth involving the vocal cord which was initially mistaken for malignancy. Patient also had concomitant miliary shadowing in the lungs and laryngoscopic biopsy revealed the growth to be tuberculosis. Early diagnosis and intervention with antitubercular treatment is vital as it results in complete recovery with reversal of vocal hoarseness.

**Keywords:** Laryngeal tuberculosis, vocal cord palsy.

### INTRODUCTION

Laryngeal tuberculosis may present with a variety of myriad manifestations. One such rare manifestation is unilateral isolated vocal cord palsy due to recurrent laryngeal nerve entrapment and compression by enlarged tubercular mediastinal lymph nodes. Vocal cord palsy in the absence of concomitant pulmonary parenchymal tuberculosis and without a morphological laryngeal lesion often poses diagnostic difficulties. In other instances tuberculosis can involve the vocal cords causing morphological lesions mimicking malignancy. Also called as pseudotumour of the larynx this condition has to be differentiated from more common neoplastic causes for vocal cord lesions.

### CASE REPORT- 1

A 23-year-old man was referred to us with complaint of hoarseness of voice of a month's duration. An ENT examination with indirect laryngoscopy had revealed left vocal cord palsy and he was referred to us to rule out a medical cause for the palsy. Patient denied any past history of medical problems or surgical interventions.

General physical examination was normal and he had no obvious thyroid swelling. Respiratory and other systemic examination were normal.

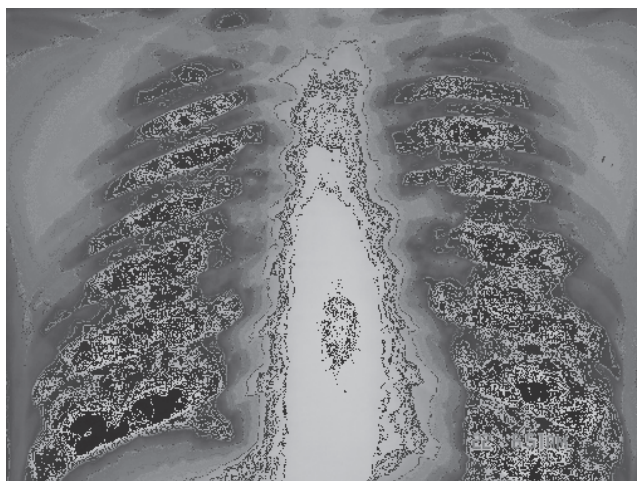
His complete blood count, ESR, was within normal limits. Ultrasonography of the thyroid revealed normal study. Frontal chest radiograph (Fig. 1) showed a left hilar prominence, which was confirmed on a lateral view. Computed tomogram of the chest did not reveal any

parenchymal infiltration but hilar lymphadenopathy could not be ruled out, as contrast study with mediastinal windows was not done. Three sputum specimen samples by Ziehl Neelsen staining for acid-fast bacilli were negative. Flexible fiberoptic bronchoscopy was done which confirmed the presence of left vocal cord palsy with external compression of the lingular bronchus with bronchial mucosa showing inflammatory changes. Bronchial washings obtained, stained positive for acid-fast bacilli by Ziehl Neelsen staining.

The patient was started on four-drug antituberculosis regimen Isoniazid Rifampicin, Pyrazinamide and Ethambutol (EHRZ) for two months followed by Isoniazid and Rifampicin for next four months. He also underwent speech therapy. During the course of treatment with antitubercular drugs and speech therapy the voice hoarseness disappeared at the end of two months. Flexible fiberoptic bronchoscopy repeated at the end of six months showed a normal vocal cord mobility and repeat bronchial washings came negative for acid-fast bacilli by Ziehl Neelsen staining. Antitubercular therapy was stopped, patient was declared cured and further follow up was uneventful.

### CASE REPORT- 2

A 20 year male with one month history of voice hoarseness was referred by ENT physician as a case of laryngeal growth for histopathological confirmation. Patient also complained of night sweats. He was a non-smoker without any past history of relevant medical illness. Respiratory examination revealed bilateral



**Fig. 1.** Chest X-ray PA view showing a left hilar prominence

diffuse fine inspiratory crackles. Complete blood counts were normal, however the ESR was elevated.

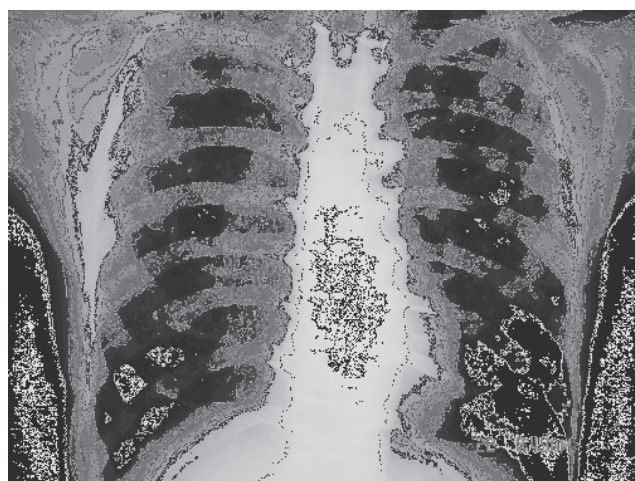
Frontal chest radiograph showed the presence of miliary shadows evenly distributed in both the lung fields (Fig. 2). Three sputum samples for acid fast bacilli by Ziehl-Neelsen stain were negative. ENT examination by direct laryngoscopy showed an ulcerated growth with everted edges involving left arytenoids, false vocal cord and part of cricoarytenoid area with sluggish movement of left vocal cord. The biopsy of the growth was suggestive of tuberculosis. Patient was put on appropriate antitubercular regimen of 6 months along with 30 mg of prednisolone per day for the first month. Patient showed improvement in the voice hoarseness by one month with complete recovery of voice at the end of 6 months. Repeat laryngoscopy could not be performed as patient was not willing for the procedure. However there was complete radiological resolution at the end of treatment.

## DISCUSSION

Vocal cord palsy due to a chronic benign inflammatory pathology like tuberculosis is a rare condition.<sup>1</sup> Laryngeal tuberculosis is now on the decline with the incidence being around 0.9%.<sup>2</sup> Amongst these only around 5.0% are sputum positive while 85.0% of them reveal bilateral tubercular infiltrates on the x-ray.<sup>2</sup>

Most cases of recurrent laryngeal nerve palsies are iatrogenic (41.0%) with thyroid surgeries being the most commonly implicated cause. The cause is idiopathic in 33% of the cases while around 25.0% of cases have a well-defined cause.<sup>3</sup> Among the defined causes of vocal cord palsy the most frequent are lung malignancies while cardiac, neurological causes and tuberculosis account for the miscellaneous but rare causes.<sup>3</sup>

Hoarseness of voice (92.3%) is the most common symptom seen with tubercular laryngeal involvement.<sup>4</sup>



**Fig. 2.** Chest X-ray PA view showing miliary mottling in the lung

The causes are

- 1) Tubercular infiltration of the vocal cord or the ventricular fold in around 70.0% of cases.
- 2) Recurrent laryngeal nerve involvement causing vocal cord palsy in about 30.0% of cases.

In patients with laryngeal infiltration due to tuberculosis the sites of involvement are true vocal cord, arytenoids and false vocal cords. The main laryngeal lesions observed are hypertrophic lesions (69.2%), ulcerative lesions (36.5%) and rarely laryngeal oedema, vocal cord thickening and immobility.<sup>4</sup>

Laryngeal involvement due to tuberculosis and vocal cord palsy of tubercular aetiology without morphological laryngeal lesion are rare. In patients with recurrent laryngeal nerve involvement and vocal cord palsy due to tuberculosis, the left side is more frequently involved as it traverses a longer mediastinal course and winds around the arch of aorta. In these patients, mediastinal lesions are seen in around 75.0% of the cases while apical pleural lesions account for recurrent laryngeal nerve entrapment in 25.0% of cases.<sup>5</sup> In our case the probable cause for bronchial lavage AFB smear positivity is due to enlarged hilar node compressing the bronchus with subsequent rupture and spill over of tubercular caseous material.

The diagnosis of laryngeal tuberculosis in patients with voice hoarseness and concomitant pulmonary tuberculosis is relatively simple.

However diagnosis may be particularly difficult in patients with isolated laryngeal affliction and in those with mediastinal tubercular disease as in our case. Laryngeal lesions and concurrent pulmonary lesions should alert the otolaryngologist to consider systemic disease processes and the more frequent granulomatous

lesion of the larynx that is tuberculosis.<sup>6</sup> Vocal cord palsy with hilar lymph node enlargement is often difficult to distinguish from a malignant cause. Sputum examination and laryngeal swab for Ziehl Neelsen staining for acid-fast bacilli, vocal cord visualization with laryngeal brushings and biopsies by laryngoscope or a bronchoscope may help in establishing a diagnosis.

Early initiation of antitubercular treatment is the key in the management of laryngeal tuberculosis.<sup>3</sup> Irrespective of the kind of laryngeal involvement that is, vocal cord palsy or a laryngeal infiltration, hoarseness associated with active inflammatory disease clears with anti tubercular chemotherapy, whereas that associated with fibrosis persists despite optimal treatment.<sup>5</sup> In some cases short course chemotherapy has to be supported with speech therapy. A few may require surgical interventions in the form of vocal fold augmentation surgeries,

thyroplasty and laryngeal nerve reinnervation techniques.<sup>3</sup>

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